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Optimizing Distance Learning Educational Programs

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ODLEP

Optimizing Distance Learning Educational Programs

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Executive Summary

Online education has rapidly emerged as a viable alternative to traditional teaching methods, offering flexibility, accessibility, and tailored learning experiences. This executive summary encapsulates the findings of a comprehensive study aimed at identifying the parameters and characteristics crucial for optimizing success in online education. Through a multi-faceted approach encompassing literature review, expert interviews, and questionnaire surveys, this study delves into key success factors, educator characteristics, student expectations, and hindering parameters, offering valuable insights for educators, administrators, policymakers, and digital platform developers.

Key Success Factors: The success of online education programs hinges upon various factors identified through an extensive analysis of existing programs. These include:

- Active involvement of stakeholders and local bodies in program development and implementation.
- Inter-institutional collaboration and interdisciplinary approaches to curriculum design.
- Efficient administrative organization and well-structured instructional materials.
- Flexibility in program scheduling to accommodate diverse learner needs.
- Real-time course presentations supplemented with on-demand resources such as lecture videos and PowerPoint presentations.
- Limited participant numbers to ensure effective engagement and personalized learning experiences.
- Integration of project-based learning to enhance student involvement and application of knowledge.
- Facilitated communication channels between instructors and students to foster engagement and support.
- Training of educators in distance learning methodologies to ensure effective delivery.
- Geographic and professional flexibility to attract participants from diverse backgrounds.
- Dedicated platforms tailored to course requirements and learner needs.

Hindering Parameters: Despite the potential benefits, certain challenges and limitations hinder the effectiveness of online education programs. These include:

- Inherent issues with asynchronous courses leading to decreased participant engagement.
- Management difficulties resulting in incomplete course participation.
- Challenges associated with heterogeneous participant groups impacting learning outcomes.
- Technical issues such as platform malfunctions and data management concerns.
- Difficulty reconciling training commitments with work schedules and creating a cohesive learning community.

- Language proficiency requirements and specific technical competencies hindering accessibility.
- Financial barriers such as tuition fees and specialized subject matter expenses.
- Varied levels of computer literacy among participants impacting learning experiences.
- Management challenges with larger participant numbers affecting program efficacy.
- Disparities in quality among program modules affecting overall learning outcomes.

Insights from Literature Review and Expert Interviews: The study conducted an extensive literature review spanning scientific databases from 1990 to 2023, shedding light on the evolution of online education concepts. Expert interviews provided further insights, emphasizing the importance of:

- Educator certification and training to enhance digital proficiency.
- Interactive digital tools promoting engagement and diverse communication channels.
- Hybrid teaching approaches blending online and physical classes for enhanced learning experiences.
- Leveraging student group heterogeneity to foster diverse perspectives and problem-solving skills.

Questionnaire Surveys: Questionnaire surveys administered to professors/teachers and students unveiled noteworthy correlations between demographic factors and learning preferences. These correlations include:

- Gender differences influencing preferred teaching methods and engagement levels.
- Marital status impacting perceived efficiency and participation behaviors during online classes.
- Educational and occupational status influencing learning preferences and engagement levels.

Conclusion: This comprehensive study underscores the multifaceted nature of online education, highlighting both its potential and challenges. By understanding and addressing key success factors, educators, administrators, and policymakers can enhance the effectiveness and accessibility of online learning experiences. Collaboration between stakeholders, ongoing training initiatives, and technological advancements are crucial in shaping the future of online education, ensuring equitable access and quality learning outcomes for all.

Introduction

There is a strong awareness that online education needs to become more robust in order to face the immensely complex and interconnected situations that make traditional educational processes harder and harder. The reader could think for example the current pandemic, where the entire tertiary education level of countries was forced to move online, sometimes without the appropriate infrastructure. In other words, for online education to become similar to traditional education and for universities to continue to serve their purpose, there is the need of not only the appropriate systems that will allow the transfer of the processes to the digital realms, but there is the need to design systems that will exploit the advantages offered by online systems and diminish the limitations of traditional face-to-face teaching.

The purpose of this document is to identify all those parameters and characteristics that will increase the probabilities of success for online education. More specifically the document includes the folowing:

(1) Identify the key success factors that make online education a viable alternative to traditional teaching.

(2) Record the characteristics of educators that will make them attractive to students.

(3) Record and identify the expectations and preferences of students.

(4) An initial literature review on the personality characteristics and the association with students' performance within groups.

Table 1 below summarizes the sub-objectives of the document and where they can be found in the document.

Table 1 Objectives of the document

Objective	**Sections where the task is addressed**
The first objective will focus on critical educational success parameters. The task will include a literature review and interviews with experts on distance education	Pages 35-68 and 169-180
The second objective will focus on identifying and recording those characteristics of the educators ("Big Five Personality Traits and Facets") that will group them in different categories. For the task, a structured questionnaire will be developed and disseminated to University Education Personnel, and the results will be statistically analyzed to separate the educators in various groups.	Pages 69-130, 168

The third objective will focus on the expectations and preferences of students in regard to online education. To achieve the objective of the task, a structured questionnaire will be developed and disseminated to the students of the partner universities	Pages 131-167, 168

Critical educational success parameters.

Distance education as a notion appeared during the 1970s and over the years has taken many forms. However, it really emerged as viable alternative to traditional education during the Web 2.0 era (Nikiforos, Tzanavaris, & Kermanidis, 2020). This has allowed an increasing number of people to enroll in distance learning programs due to the advantages that they offer such as:

- Self-paced study
- Freedom to study at a place and time of convenience
- Gain degrees from universities even if the students do not live near
- Distance learning courses can be cheaper than traditional universities (Kagklis, Marketos, Panagiotakopoulos, Stavropoulos, & Verykios, 2017)

Educational programs

The partners of the ODLEP project gathered distance educational programs in Higher Education of their respective countries with the purpose of identifying factors that made those products successful and also those that limited their potential.
The online academic products that were identified are summarized in the table below.

Table 2 Distance educational Programs in the partner countries

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
1.	Italy	Starting Out and On Our Way, featured on Federica Web Learning, Centro per l'innovazione, la sperimentazione e la diffusione della didattica multimediale dell'Università di Napoli Federico II	May-September 2022	The experience was designed by experimenting with the enhancement of an asynchronous path with a series of live sessions, thus joining a Mooc (Massive open online course) for the teaching of the English language with two live sessions using the Engageli platform, in order to counteract the weaknesses of the asynchronous and thus: 1. provide a risk-of-alienation response to students (by activating and reducing dropouts), 2. enabling the active management of classrooms up to 1000 students (scalability), 3. enhancing the possibilities of monitoring (data centered), for a teacher-centered and student-centered classroom design. The teacher shared with the students a quick guide on how to use the virtual class and, to make up for the low interaction, the teacher used a "Welcome" activity to introduce each tool and make the students participate, obtaining much better results in terms of usability. The teacher used a tutor in order to support familiarization with the technical tools and avoid a possible rejection of the technology. To address any critical issues related to the use of new technologies and new teaching methods, not least that of possible resistance by students that may hinder or prevent participation in the proposed activities, enhancement of the individual and personal responses to students via chat and email, as well as in presence, was attempted. There was great participation on the side of students in response to the "involvement" activities carried out by the teacher, with working groups, surveys, chats; in particular: 1. the survey produced very high response rates, given the ease of use and the explicit purpose of activation, socialization and feedback expressed by the teacher; 2. the discussion forum of the Mocc allowed continuous contact between native teachers and students. Work in small groups, consisting of students only, fostered the creation of an informal atmosphere. The participants of the live sessions indicated among the reasons that led them to participate: 1. getting to know other students of the course 2. practicing language among equals 3. deepening the topics covered in the Mooc course. The satisfaction obtained through the improvement of competences surpassed that gained through the socialization in the live sessions, also due to the overall brevity of the course.	The flexible and asynchronous nature of the Mooc courses also causes the participation of a less loyal audience; students who enroll in the courses without a specific interest and also students who give up that, although motivated, may not complete the course due to management difficulties. The heterogeneity of the participants turned out to be an element of ambivalent value: positive in encouraging the availability of participants and in diversifying expectations, but negative when it did not allow those who made mistakes, during the sessions at the tables, to be corrected. Platform malfunctions or connection inefficiencies, reported especially in the first cycle.	It was a course with a high risk of abandonment, divided between two non-mandatory 40-hour courses for six weeks each. n. 223 students booked to the first cycle of live and No. 212 to the second, respectively 10% and 20% of enrolled in the Mooc course at the time of the realization of the respective sessions. https://www.youtube.com/watch?v=4vYsGERdPXs

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
2.	Italy	Master organized by IUL - University of Telematic Studies - and ANP - National association of public managers and high professionalism of the school.	February 2019 - September 2019	The Course was aimed at School Managers, teachers working in the school of every order and degree, and other persons interested in acquiring skills and a qualification to carry out in schools' activities of advice and support to social reporting processes. It was also aimed at museum operators interested in the world of education and eager to increase their professionalism by exploring new ways to realize participatory and integrated projects with schools. The course aimed to train experts who had the skills to develop a path of social reporting within school institutions. The training aimed to ensure that the actors of this process were able to: know how to contextualize the issue of the social budget in the theoretical context of reference and in the international panorama that in many countries provides similar initiatives. to know how to apply operational tools and models of procedures to start collecting and reading data and drafting documents. know and apply the appropriate procedures to involve stakeholders and local bodies.	Characteristics and factors that have created a problem for the program are related to the difficulties of reconciling the training path with work needs and the creation of a learning community through communication technology tools.	The course has been a great success that has led the organizers to propose it for subsequent academic years. https://www.iuline.it/master/governance-della-scuola-dellautonomia-strategie-tecniche-e-strumenti-normativi-e-operativi/
3.	Italy	Online training environment New recruits 2021/22	November 2021-September 2022	The online training for new entrants to the role of Italian public school has been organized by the Ministry of Education and INDIRE since the early 2000s. The Italian model, described in the DM 850/2015 and reiterated in the current DM 226/2022, explains the many activities that are part of the training course and have as their objective the reflection of the teacher in training on their professionalism. The main tools used are related to teaching and professional action: documentation. reflection. narration. The period of teacher training is followed by an expert teacher who assumes the role of tutor to support and accompany the integration in the new community both in terms of teaching and participation in the school community	Given the high number of subscribers the main problems were related to the management of the personal data in the platform.	For the 2021/22 school year, 60,395 teachers were enrolled and 51,553 tutors were assigned. https://neoassunti.indire.it/2022/

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
5.	Italy	Training course for the acquisition of 24 university credits (CFU) in the anthropo-psycho-pedagogical area and in teaching methodologies.	Academic Year 2021/22	After the promulgation of Legislative Decree 59/2017, many Italian universities have started training courses for the acquisition of 24 ECTS to participate in School competitions for middle and high school held by the Ministry of Education. The University of Foggia has activated, for the A.A. 2021/2022, the Training Path for the acquisition of 24 university credits (CFU) in anthropo-psycho-pedagogical disciplines and in teaching methodologies and technologies pursuant to D.M. n.616, 10/08/2017. The course was established to meet the training requirements defined by Legislative Decree no. 59/2017, through the activation of teaching in the disciplines indicated. The blended course was structured in such a way that the acquisition of 6 credits was guaranteed in at least three of the four disciplinary areas indicated. The training offered included: Area Pedagogical Foundations of general pedagogy General pedagogy and school inclusion.Psychological area Affective and relational aspects in class group management Area of anthropology Foundations of cultural anthropology Deepening of the concepts of culture, ethnicity, genders and generations in relation to the old and new forms of racism, identity and recognition policies, the political uses of ethnicity and religious affiliation.Methodological and didactic area o Teaching methodologies and technologies.	There were no particular difficulties in the course of training.	https://www.unifg.it/it/studiare/post-lauream/formazione-insegnanti/pef24-aa-2022-2023/pef24-aa-2021-2022
6.	Greece	Applied Developmental Psychology / Hellenic Open University		1. Relevance to the subject of school psychology. 2. realization of the internship	Basic knowledge of psychology and scientific writing are needed	Tuition fees required; part of the teaching material is offered in English. It is a Master's degree programme
7.	Greece	Management of ageing and chronic diseases/ Hellenic Open University	There were several years that the program was active/accessible to students	Inter-institutional, Interdisciplinary, Postgraduate thesis, Range of specialities concerned, Applied/clinical applications	Basic knowledge of psychology and scientific writing are needed	Tuition fees required. It is a Master's degree programme

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
8.	Greece	Bioinformatics and Neuroinformatics / Hellenic Open University		1. Aims to develop primary scientific research 2. Inter-institutional, interdisciplinary 3. Laboratory education	Very good knowledge of English; Specific specialities of entrants	Tuition fees required. It is a Master's degree programme
9.	Greece	Creative Writing / Hellenic Open University		Postgraduate Diploma Thesis or Internship, Wide range of disciplines involved, Preparation of the Diploma Thesis, Acquisition of digital skills	Familiarity with the use of computers is a prerequisite	Two-year duration, Postgraduate course of study, Tuition fees required.
10.	Greece	Medical Issues in Memory Disorders and Anxiety / National Kapodistrian University of Athens, Greece		Applied seminar direction	Limited range of stakeholders (health professionals and lawyers), Very specialised subject matter	Specialisation programme, 3-month duration, Tuition fees required.
11.	Greece	Undergraduate Programme: Business Administration (DEO) /Hellenic Open University	The program was established in 1992 and is still ongoing.	The distance education system of studies that facilitates participation for people in distant areas or people with a very pressing / demanding job schedule. The theme of the program is very interesting and associated with current professional needs. The instructors are experienced and trained for distant learning programs. A very efficient administrative organization of the program studies exist and at the same time the instructional material is very well structured.	Some of the difficulties include: the amount of fees paid, the obligation to successfully complete courses from the first and second year of studies before moving on, to the next courses.	The program was funded by fees provided by the participating students. The goal of the program is to facilitate knowledge and skills in the management of business and organizational systems (private and public). A further aim is to make more efficient the program participants' contribution to the operation of the above mentioned entities. Moreover, the program promotes the ability to take leadership initiatives in possible technological or organizational changes, necessary for the response of the Business or Organisation to the rapidly evolving international environment.
12.	Greece	Master of Arts in «Strategic Studies /Aristotle University of Thessaloniki	The program initiated in 2022 and it is ongoing	Distance education facilitates participation. Courses are provided during afternoon hours and therefore, students, who work during the program period find it easy to participate in the courses. At the same time, the program manages to offer real time course presentation and also lecture videos and PowerPoint presentations on demand.	A number of courses are provided face to face and this is considered as a disadvantage of the program.	The total number of students are almost 273. Students are divided into different focused fields of studies. The program in its initial form is dedicated to Greek military personnel.

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
13.	Greece	Engineering Project Management (DCHT) / HELLENIC OPEN UNIVERSITY	The program was established in 2009 and it is still offering its courses to postgraduate students	Project Management by itself is valuable knowledge in the current period. The courses and their content are carefully selected. The fact that the whole program is completely taught through internet is very helpful for the students. Personnel teaching in the program is carefully selected, it is going through training in order to be able to adapt to the needs of online teaching. Program personnel is being yearly evaluated. The personnel selection process is very strict and has a lot of requirements. The material that is being taught is carefully designed. Instructional material is being regularly updated. Each class consists by 24 students at maximum. The educational process is also supported by projects that students are called to deliver in specific dates throughout the year. The administrative support of the program is very efficient. The courses objectives are very well focused and communication among instructors and students is also facilitated and promoted.	The program allocates five four-hour lectures per year and per course. At the same time, the course content is quite extensive. As a result, more hours could be allocated for each lecture and more lectures in order for the course to be optimally presented. Four courses should be completed along with a thesis in order for a student to obtain the master degree. The program requires tuition. Students need to pay for each course and finally for the thesis.	The number of students participating in the program varies from year to year. It significantly depends on the yearly demand. As mentioned before the program has fees for the students. Usually, the total number of students is divided into smaller groups. Each group is assigned a specific professor. Each group usually includes 24 students. Their performance is assessed by written projects and a final examination.
14.	Greece	Master in Business Administration (MBA) / HELLENIC OPEN UNIVERSITY	The program was established on 2009 and it is still offering its courses to postgraduate students.	Business Administration by itself is valuable knowledge in the current period. The courses and their content are carefully selected. This specific Master's Degree Course has as an aim to enable individuals in the effort to develop the necessary skills and knowledge in order to become effective managers in businesses and organizations. The program facilitates students' ability to evaluate and analyze data and strategic decision-making in any business environment. Also, in this case, the program instructors are all trained for distance learning programs and also the administrative support of the program is very well organized.	The Post-graduate program accepts graduates or higher institution diplomas of related disciplines holding a B2 certification in the English language. The language of the program is English.	The number of students participating in the program varies from year to year. It significantly depends on the yearly demand. As mentioned before the program has fees for the students. Usually, the total number of students is divided into smaller groups. Each group is assigned a specific professor / instructor. The creation of groups of students and the assignment of instructors is taking place in an ad-hoc manner.
15.	Greece	Quality Management and Technology (DIP) / HELLENIC OPEN UNIVERSITY	The program was established in 2003 and it is still offering its courses to postgraduate students.	The current program aims at providing knowledge and skills related to quality management, quality assurance, and technological aspects of quality control in various industries and sectors. It is ideal to meet the requirements of professionals and individuals interested in enhancing their understanding and expertise in quality management. Program instructors are all trained and certified for distance learning.	The program is offered in Greek. According to the admission requirements the knowledge of a foreign language and good computer-Internet skills would be useful for the successful participation in the program.	There are some prerequisites regarding this program. The significant aspect is that University graduates who have not attended four (4) semester-long mathematics courses and technological institute graduates are required to enroll in the first subject of DIP40 (Mathematics for Quality Assurance) during their first year of study.

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
16.	Greece	Graduate Study Program - GSP in "International and European Legal Studies	Ongoing	The online master program made it possible for law students outside Thessaloniki to participate in it. It was initiated during the COVID-19 pandemic due to the limitations and restrictions posed to academic programs, and later it was decided to keep it as an online master program.	Although it is considered a successful program, a few professors have raised concerns regarding the personal relations created in a face-to-face academic program, between tutors and students and students themselves.	30-35 students are admitted every year. It has a small fee only for covering the needs of the Library of the School of Law (no tuition fees)
17.	Greece	Interdisciplinary Graduate Program - IDGSP in "Information and Communication Technology: Law and Policy (ICTLAW)" https://ictlaw.web.auth.gr/	Ongoing	This program is offered to graduate students of different disciplines and academic backgrounds. It is a very vibrant program designed to respond to the growing demand of high skilled professionals in the field of telecommunications/space policy and law.	The program is supported by an online secretary, which proved to be difficult to manage the day-to-day business and schedules of the program.	60-70 students are admitted every year, which is considered a rather big number for successful management and administration.
18.	Greece	Management of Migratory and Refugee Flows in Europe https://www.soc.aegean.gr/index.php/en-m-postgraduate/en-m-mmrfe	Ongoing	The Program offers a rich and comprehensive curriculum and a unique approach, based on interdisciplinary synergies and an amplitude of academic fields. It comprises on-line courses as well as fieldwork and workshops available for students to gain hands-on experience in the existing refugee facilities of Lesvos and Athens. The online offer of the program made it easier for professionals in this field working in several refugee camps and NGOs to attend it.	The above mentioned master program is an English-speaking Master's Program.	The program consists of three semesters. The first two semesters include the courses which are taught and the third and final semester is provided for the program thesis. The syllabus focuses on the multiple challenges that human rights, international humanitarian law, institutions and advocacy organizations are nowadays deal with. Currently, many states, movements and political figures are tending towards attitudes associated with racism, xenophobia, intolerance and discrimination. Therefore, the program tries to promote humanitarian law in these difficult periods.

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
19.	Greece	GDPR Certification/EKPA elearning programs	2018-2021	Asynchronous program that offered courses on the GDPR legal framework. Not specifically designed for lawyers Each module was accompanied by exercises At the end of the course the participants had to deliver a small thesis on a topic of GDPR (analysis, specific case study etc.) Offers ECTS Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers	Paid by the students 570 euros. A lot of payment options were offered Usually attended between 15-20 participants in each cycle
20.	Greece	Sustainable design of buildings/EKPA e-learning programs	-2020	Asynchronous program that offered courses on the sustainable energy design for building specifically designed for engineers Each module was accompanied by exercises Offers ECTS Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers Differences in quality among the different modules	Paid by the students. A lot of payment options were offered Usually attended between 15-20 participants in each cycle
21.	Greece	Search methods in optimization (http://opencourses.uom.gr/courses/mep/799-eyretikes-methodoi/plhrofories)	2013	Highly technical area of study Addressed to people with pre-requisite knowledge	Addressed to people with pre-requisite knowledge Does not offer a certificate of attendance Does not offer ECTS	The course has not been offered since many years. Maybe there was not enough interest in such a niche area of study
22.	Greece	Data Analyst / EKPA e-learning modules	Ongoing	Asynchronous program that offered courses on the data analysis through MS Excel and R The course is not specifically designed for any category of students Offers ECTS Each module was accompanied by exercises Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers Relatively expensive No interaction among the students	Relatively expensive but with a lot of paying options that offer a discount

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
23.	Greece	Artificial Intelligence and Machine Learning Specialist in Financial Services / EKPA e-learning modules	Ongoing	Asynchronous program that offered courses on machine learning techniques The course is not specifically designed for any category of students Offers ECTS Each module was accompanied by exercises Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers No interaction among the students	538 euros for tuition fees. Many options to pay that also offer discounts. Usually attended between 15-20 participants in each cycle
24.	European	SYSTEMA / E+ KA2 project	Ongoing	Asynchronous program that offered courses on Systems Thinking and its application in sustainable development and digital transformation Very important methodology and areas of application that could play a very important role in the next decade The course is not designed with a specific background in mind The student can choose among three different educational/learning paths according to their interests Free of charge Certificate of attendance is offered upon request The topics that are covered are high level usually found at Msc Levels	The course was completely asynchronous which allowed the participants to take the course at their own pace, however, no option was offered to ask questions to teachers No interaction offered among students and teachers No interaction among the students No ECTS offered No indication if the course will continue to be offered	Around 500 students from all over Europe and the world have been registered in the course About 10% of them completed at least one educational/learning path. More information can be found on: https://www.systemaerasmus.eu/wp/
25.	Serbia	Distance Learning Professional Study Programme in Finance and Banking, Novi Sad School of Business	November 2019 -	Teaching takes place via the online platform Moodle. Students who are enrolled in the program get their personal account through which they access the platform and the courses they take. Professors upload materials on the platform in the form of pdf, Word, Power Point documents, electronic books, videos, tests, etc. Through the Moodle platform, students access materials, solve assigned tasks and online tests, send term papers, comments, etc. In addition, professors organize real-time discussions through forums or Chat options, or schedule video broadcasts or meetings through platforms such as Skype and Zoom.	The final exam is done at the school headquarters, it is not done online. Limited interaction among students.	All students who are enrolled in distance learning are eligible to continue their studies in the corresponding program that is conducted in the classical way, and vice versa.

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
26.	Serbia	Basic vocational studies, sport - distance learning, Faculty of Sport and Physical Education, University of Niš	July 2021 -	The purpose of the study program Basic vocational studies, sport - distance studies, is to educate and train students for independent professional work on the organization and implementation of training processes and competitions in the field of sports, so that students through quality and efficient mastering knowledge and practical experiences can be included in professional and expert work in sports. Teaching ensures the acquisition of general knowledge from various anthropological sciences and disciplines; from special and specific knowledge of theory, methodology, technique, tactics, physical preparation, and professional work in the chosen sport; from knowledge about sports training in general; from special knowledge characteristic of sports in general, and especially of the chosen sport using specific platform.	Limited interaction among students.	
27.	Serbia	Business economics and finance - distance learning, Faculty of Economics and Engineering Management, Novi Sad	December 2020 -	The study program "Business economics and finance - distance learning" presents students with various aspects and models of modern business, enabling them to understand the basic aspects of business economics and finance and their importance for the development of the economy and society as a whole. By mastering the study program, students become competent to perform work in the field of business economics, primarily in the field of finance. The teaching staff is competent to carry out the teaching process by distance learning, because they have successfully passed the software training and created a package of learning materials for the purpose of realizing the DLS (distance learning system) study program and performed consultations and testing of students with the help of Moodle-software for electronic learning.	There is no interaction - teaching is realized by recording lectures and uploading them for each subject on Moodle, in addition to that, presentations are also uploaded, as well as all the necessary instructions for mastering the material. Communication between students and teachers and associates is done via chat room, forum and e-mail. Exams are held in the premises of the faculty headquarters.	
28.	Serbia	Business economics - distance learning, Educons University	December 2020 -	Combination of various topics covered during the lectures through Moodle platform.	Limited number of students per year (80), Relatively high tuition fee, Limited interaction among students	
29.	Serbia	Engineering and Operations Management – distance learning, Undergraduate Academic Studies, Metropolitan University	March 2023 -	The program emphasizes the acquisition of practical and applicable knowledge and skills through courses on a dedicated platform for online education. Practical projects and a large number of tasks are done in each subject. Upon completion of studies, the student is fully qualified for successful work in commercial enterprises	Limited number of students per year (14), Relatively high tuition fee, Limited interaction among students	

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
30.	European	Sustainable Finance and Insurance: EU Principles, Practices and Challenges (Erasmus+ Programme Jean Monnet Activities - Jean Monnet Academic Modules Project Reference: 611831-EPP-1-2019-1-RS-EPPJMO-MODULE) / University of Niš	School years 2020/2021 and 2021/2022	Combination of various topics covered during the lectures such as European Union (EU) history and institutions, Sustainable reporting in the EU, European strategy and principles of sustainable finance, sustainable insurance etc. teachers from different universities (University of Niš and Belgrade); free of charge; valuable certificate; recognized skills.	Different time frame for lectures, only online meetings, lack of interactions; limitation to 20 participants.	Funded by the EU as a project result, participants had no expenses for this king of training; lectures devoted to sustainability topics in finance that is the topic beyond state of the art in education.
31.	Romania	Economical Engineering in Mechanical Field at "Lucian Blaga" University of Sibiu	Active	The Economical Engineering in the Mechanical Field Program (IEDM-ID) aims to train engineers / specialists for organizational strategy, marketing, personnel and administration activities for companies in the field of production and services. The Economical Engineering in the Mechanical Field study program aims to train licensed engineers with economic and technical training, in the mechanical field, with the acquisition of a level 6 qualification according to the national and European qualifications framework, for the following potential occupations: economical engineer; mechanical engineer; logistics specialist; process responsible; product manager; supply manager; supplier relations manager; chief engineer of business firms and other commercial services.		For the form of organization of the didactic process at distance learning, the programming of subjects from the education plan will be done according to the duration of schooling from the form of regular education. In order to ensure the equivalence of the forms of education, the following types of activities will be carried out within each discipline: - tutoring activities (TA) consisting of face-to-face meetings on the university campus and/or online synchronously via computer platforms and on-the-course evaluation of control assignments (TC) via computer platforms in an asynchronous online system, the equivalent of seminar hours from form of full-time education (IF). These activities are organized by groups/subgroups; - Assisted application activities (AA), the equivalent of laboratory hours, project or practice from the regular education form. These activities are organized face to face in the university campus / online synchronously in groups/subgroups; - the full-time course hours are compensated by self-instructional (AI) activities, based on ID-specific learning resources.
32.	Romania	Transportation, storage and distribution of hydrocarbons at"Lucian Blaga" University of Sibiu	Active	The Transportation, Storage and Distribution of Hydrocarbons reduced frequency program (TDDH) aims to train production, research and design engineers, managers of activities specific to the oil and gas industry, specialists in assisted design and in ensuring the quality of life and the environment, in line with global developments of research and design of installations, equipment and processes in the hydrocarbon industry.		For the form of organization of the didactic process at the reduced frequency study program, the programming of the subjects in the education plan will be done according to the duration of schooling in full-time education. In order to ensure the

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
				Targeted jobs: research engineer in installations and machinery for the transportation and storage of hydrocarbons; oil and natural gas research engineer (extraction-prospection); specialist engineer in the design of installations and machinery for the extraction, transport, storage and exploitation of hydrocarbons.		equivalence of the forms of education, the following types of activities will be carried out within each discipline: - seminar activities (S) that consist of face-to-face meetings on the university campus and /or online synchronously through computer platforms, with the same number of seminar hours as in the full frequency form. These activities are organized by groups/subgroups; - applied activities (L, LP, P) – laboratory, practical work, project, practice are organized face to face in the university campus / online synchronously in groups/subgroups; - the full-time course hours are compensated by self-instructional (AI) activities, based on distance learning specific learning resources.
33.	Romania	Commerce, tourism and service economy at"Lucian Blaga" University of Sibiu	Active	Completing the Bachelor of Commerce, Tourism and Services Economics degree program offers students the opportunity to acquire the knowledge, skills and abilities necessary to cover the full range of activities related to the trade and service sectors, and tourism services in particular. Upon completion of the program with the passing of the bachelor's exam, the student will obtain the bachelor's degree in Economic Sciences, the skills obtained being identical to those offered by the completion of the full-time education form.		
34.	Romania	Management at"Lucian Blaga" University of Sibiu	Active	The Bachelor of Management - Distance Education (ID) study program is accredited and invested with a high degree of confidence. Completing it offers students the opportunity to acquire the knowledge, skills and abilities necessary to cover the full range of activities related to economic sectors, and in particular the management of economic activities. Upon completion of the program with the passing of the bachelor's exam, the student will obtain the bachelor's degree in Economic Sciences, the skills obtained being identical to those offered by the completion of the full-time education form.		

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
35.	Romania	Accounting and Management Information Systems at"Lucian Blaga" University of Sibiu	Active	The study program Bachelor of Accounting and Management Informatics - Distance Education (ID) falls under the Bachelor's Field of Accounting and has been authorized since 2003 and subsequently accredited since 2011. Completing it offers students the opportunity to acquire the knowledge, skills and the necessary skills to cover activities such as: efficient management of the company's financial resources, use of accounting information, performing economic-financial analyses, evaluation of patrimonial structures, management of IT management programs and others. Upon completion of the program with the passing of the bachelor's exam, the student will obtain the bachelor's degree in Economic Sciences, the skills obtained being identical to those offered by the completion of the full-time education form.		tutoring activities (AT) or assisted application activities (AA) will take place in the form of synchronous online meetings between teachers and students, on Fridays (5-9pm), Saturdays and Sundays (8-8pm); the evaluation activities along the way (TC) involve the documentation made by the students based on the indicated bibliography and solving some requirements formulated in the control tasks, then uploading them online, in the classes dedicated to each discipline; the final examination (exam, interview or verification) will take place in physical presence (face to face).
36.	Romania	Finance and Banks at"Lucian Blaga" University of Sibiu	Active	The Bachelor of Finance and Banks – Distance Learning (ID) study program is accredited and invested with a high degree of confidence. Completing it offers students the opportunity to acquire the knowledge, skills and abilities necessary to cover the full range of activities related to economic sectors, and in particular economic activities in the financial sector. Upon completion of the program with the passing of the bachelor's exam, the student will obtain the bachelor's degree in Economic Sciences, the skills obtained being identical to those offered by the completion of the full-time education form.		
37.	Romania	Marketing at"Lucian Blaga" University of Sibiu	Active	The Bachelor of Marketing – Distance Education (ID) study program is authorized. Completing it offers students the opportunity to acquire the knowledge, skills and abilities necessary to cover the full range of activities related to economic sectors, and especially marketing economic activities. Upon completion of the program with the passing of the bachelor's exam, the student will obtain the bachelor's degree in Economic Sciences, the skills obtained being identical to those offered by the completion of the full-time education form.		

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
38.	Romania	Public Administration at"Lucian Blaga" University of Sibiu	Active	The Public Administration Distance Learning License study program is designed to provide graduates with knowledge, practical skills and specialized skills, in various professional fields with an administrative dimension, especially in the public sector. The program also aims to combine theoretical knowledge with practical knowledge by designing an internship within public institutions. Graduates of the Public Administration study program obtain a bachelor's degree in administrative sciences with which they can hold various positions: public administrator; advisor in public administration; public administration consultant; expert in public administration; specialized inspector in public administration; project manager.		
39.	Romania	Law at"Lucian Blaga" University of Sibiu	Active	The Distance Education Law Degree Program (ID) has been accredited since 1999 and is invested with a high degree of trust. It is designed in order for students to acquire knowledge, skills and abilities corresponding to the current state of development of legal sciences at the national, European and international level. The program offers the acquisition of a bachelor's degree in Law but also similar skills to the form of full-time education. Upon completion of the bachelor's cycle, graduates of the Law – distance learning specialization can choose from a wide range of possible professions: judge, prosecutor, lawyer, jurist, notary, bailiff, clerk, adviser and legal consultant, diplomatic attaché, legal expert, etc. In addition, the bachelor's degree in Law is a formidable business card for the occupation of many other even non-law professions.		
40.	Romania	Montanology at"Lucian Blaga" University of Sibiu	Active	The Montanology Distance Learning study program was accredited in 2011 and re-accredited in 2017 receiving 50 places for schooling. The mission of the study program is to train engineers in the field of agronomic sciences, preparing specialists for occupations in the basic Consultants in agriculture, forestry and fisheries. Graduates can generally hold the following positions: research engineer in agromontanology; agricultural farm engineer (agro-zootechnics); agronomist engineer. They are prepared to practice professions oriented towards production processes, management, marketing, services at the level of agricultural enterprise (zootechnics), respectively agritourism in the context of the current requirements of environmental protection and adaptation to climate change.		

Program Number	Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
41.	Romania	Food engineering at"Lucian Blaga" University of Sibiu	Active	Through the assumed mission, the proposed objectives and the skills (professional and transversal) to be acquired by the graduates, the distance learning Food Products Engineering study program is able to ensure compliance with the national framework of qualifications defined by the Classification of Occupations in Romania (COR), training specialists for occupations from the basic group 214514 – Food industry engineer, 214519 – Specialty inspector, food industry engineer, 214516 – Food product engineer designer		
42.	Romania	Pedagogy of Primary and Preschool Education	Active	The study program aims to coordinate the initial training process for the double qualification: teacher for preschool education and teacher for primary education, by acquiring the didactic skills necessary for professional integration, but also for continuing studies at master's and doctorate level. Graduates of the Pedagogy of Primary and Preschool Education study program can occupy teaching positions according to COR: teacher for preschool education; teacher for primary education.		

The characteristics that made those programs successful are summarized below:

1. Involvement of stakeholders and local bodies in the education program
2. Inter-institutional, Interdisciplinary
3. A very efficient administrative organization of the program studies exist and at the same time the instructional material is very well structured.
4. Flexibility in the hours of the program
5. Real time course presentation and also lecture videos and PowerPoint presentations on demand.
6. A limited number of participants
7. The educational process is also supported by projects that students are called to deliver in specific dates throughout the year.
8. Communication among instructors and students is also facilitated and promoted.
9. Instructors are all trained for distance learning programs
10. Flexibility for people to participate from different areas
11. Online program suitable option for professionals
12. Specific platform dedicated to the course

These factors were common in one way or the other through most of the programs that were studied. However, when it came to the identification of limiting factors, despite the commonalities, there were a lot of hindering parameters specific to programs.

1. The flexible and asynchronous nature of the Mooc courses also causes the participation of a less loyal audience
2. May not complete the course due to management difficulties.
3. The heterogeneity of the participants turned out to be an element of ambivalent value: positive in encouraging the availability of participants and in diversifying expectations, but negative when it did not allow those who made mistakes, during the sessions at the tables, to be corrected.
4. Platform malfunctions
5. Difficulties of reconciling the training path with work needs and the creation of a learning community through communication technology tools.
6. Management of the personal data in the platform.
7. Very good knowledge of English; Specific specialities of entrants
8. Tuition fees
9. Familiarity with the use of computers
10. Very specialised subject matter
11. Difficult to manage the day-to-day business and schedules of the program.
12. Programs with larger number of participants were harder to manage
13. Differences in quality among the different modules

14. Does not offer a certificate of attendance
15. Does not offer ECTS
16. No interaction among the students
17. No indication if the course will continue to be offered

More specifically for distance educational programs in the partner countries, the following aspects were also deemed important:
Each University in Italy must meet a series of requirements to be established and recognized by the MUR (Ministry of Universities and Research). Residential universities and telematic universities, both, must comply with the aforementioned Regulation in order for academic qualifications to be recognised by the Ministry and to have validity.
The initial Accreditation of the University consists in the authorization by the Ministry of University and Research to activate Locations, Schools, Courses of Study (three-year, Master's, Master's Degree, Doctorates) following the verification by ANVUR of the possession by the University of educational requirements, qualification of research, structural, organizational and economic-financial sustainability defined by the relevant legislation (D. Lgs. 19/2012, DM 439/2013, DM 6/2019, DM 989/2019, DM 446/2020, DM 289/2021, DM 1154/2021).
ANVUR is the National Evaluation Agency of the university and research system and is a public body of the Italian Republic, supervised by the MUR. The institution, established in 2006, and based in Rome, deals with the evaluation of the activities of universities in Italy.

In Italy there are 11 Telematic Universities accredited by the MUR:
Università Telematica IUL, http://www.iuline.it
Università Telematica Pegaso, https://www.unipegaso.it/
Università Telematica Mercatorum, https://www.unimercatorum.it/
Università Telematica San Raffaele, https://www.uniroma5.it/
Università Telematica Uninettuno, https://www.uninettunouniversity.net/it/default.aspx
Università Telematica Giustino Fortunato, https://www.unifortunato.eu/
Università Telematica Unitelma Sapienza, https://www.unitelmasapienza.it/
Università Telematica Guglielmo Marconi, https://www.unimarconi.it/
Università Telematica Niccolò Cusano, https://www.unicusano.it/
Università Telematica eCampus, https://www.uniecampus.it/
Università Telematica Leonardo da Vinci, https://www.unidav.it/

Greece has host a lot of distance learning programs and at the same time there are programs that operate in a hybrid form. There exists a university, the Hellenic Open University, which offers a lot of postgraduate and undergraduate programs. A milestone event was the pandemic of COVID19. This has changed all the environment regarding education in general and more

specifically university education. During pandemic all programs were offered online and turned into distance education. After the completion of the pandemic most programs returned to their usual status, while other remained online and distance educational programs.

More specifically, this milestone event the pandemic forced the Greek government to take measures regarding the whole operation of the everyday life. Taking a closer look, the Greek government moved quickly after the outbreak of the Covid-19 pandemic aiming to control its spread and implemented for all universities a radical decision of shutdown of all academic institutions. The need to continue the provision of education throughout all the age groups remained. In this context, the policy of the Greek government with emphasis on the health and safety of all people promoted the educational activities through asynchronous and synchronous online teaching. The courses were offered based on e-learning platforms and online educational material.

According to the OECD report (2020), in the case of Greece and during the COVID pandemic pre-existing resources in the education system provided help to areas of Greece's response. A number of the digital resources previously developed through the Digital School Strategy, with an aim to develop digital solutions for synchronous and asynchronous learning were used to support the effort. This infrastructure was previously used by a small number of teachers and students. These facilities formed the educational background on which many further digital efforts were built. Moreover, these approaches were implemented thanks to cooperation with the private sector. These events permitted Greece to increase digital access and interactive resources despite significant budget constraints. In this context Greece tried to balance short-term responsiveness with longer-term strategic aims and resilience. One extremely useful and notable feature was the potential to monitor participation in distance education, which was an indicator of the level of engagement and reach.

The effort of Kyriakou, N., Kompos, N., Loukis, E., Leoutsakos, T. (2023) in their paper entitled "Evaluating Greek Government Digital Distance Learning Policies in Higher Education for the Covid-19 Period" provided a plethora of useful results. The feedback from a survey presents that the participants were neutral to satisfied with the digital educational resources (technological and human) provided to them during the Covid-19 period. In another area of interest that focuses on the educational outcomes the responses reveal that the online lectures, in comparison with the traditional face-to-face ones, present a similar level of concentration. Last but not least, it is evident that the extent of online participation of students in the exams of the theory and the laboratories has been large to very large.

At the moment, Hellenic Open University is one of the institutions in Greece which is dedicated to distance learning programs. More specifically Hellenic Open University is the 19th Greek State University and was founded in 1992 in the city of Patras, Greece. It is fair to mention that it is the only distance learning university in Greece. The goal is to offer high-quality university education via distance learning at both undergraduate and postgraduate level. In this context, it managed to develop and implement the appropriate learning material and methods of

teaching.

Hellenic Open University provides only long distance education and lifelong learning flexible teaching through a variety of online Programs for more than 20 years, in both Greek and foreign languages. It is worth mentioning that in 2020, Hellenic Open University was ranked 4th, among the Open Universities globally, according to Webometrics.

However, a study by Kagklis et al. (2017) revealed that during the first decade of the 21st century, the institution faced a decreasing trend of application, which has been associated to a chronic problem faced by all Greek universities: the dis-connection between university curricula and the market.

Despite the many problems, the Greek state seems determined to reverse the situation and modernize the tertiary level of education and potential measures that might be adapted are the following:

- E-Diplomas: The online platform for obtaining a university degree
- E-University: Digital infrastructure is being upgraded and expanded
- Academic ID: A new, "smart" student ID, which will facilitate access to important services[1]

Nikiforos, Tzanavaris and Kermanidis (2020) investigated the experience of teachers during the COVID-19 pandemic and revealed that the (sudden) transition to an online/distance mode of education posed great challenges and difficulties as 40.6% of the teachers reported that had no previous experience in distance education.

In addition, the transition to digital during the pandemic highlighted the risk of exclusion for disadvantaged students[2]. Reimers and Schleicher (Reimers & Schleicher, 2020) reported that almost 20% of Greek students did not have access to a computer, a tool necessary for school work. The problem of insufficient resources is not only individual but affects the overall education system; Despite the efforts to update the digital infrastructure, the country lags behind the other European countries[4].

Consequently, the forced closure of education institutions during the pandemic revealed that teachers applied distance learning unevenly, creating imbalances among schools in different regions of the country, despite the detailed instructions offered by the Ministry of Education and Religious Affairs and the autonomy that schools were offered in terms of the distance curriculum.

Regarding Higher Education, the situation is different. Greece has by far the EU's highest portion of students in undergraduate programs (86% v EU-27 average of 60%9)[4], but at master's level the share is only 10%. Thus, universities have attempted even before the pandemic to cater to the needs of the students, by introducing options of distance education to several courses. The figure below, summarizes the online courses that are offered in the various

[1] https://studyingreece.edu.gr/greek-education-goes-digital/ (Accessed 08 May 2023)

[2] https://op.europa.eu/webpub/eac/education-and-training-monitor-2020/countries/greece.html#seven (Accessed 08 May 2023)

universities across Greece.

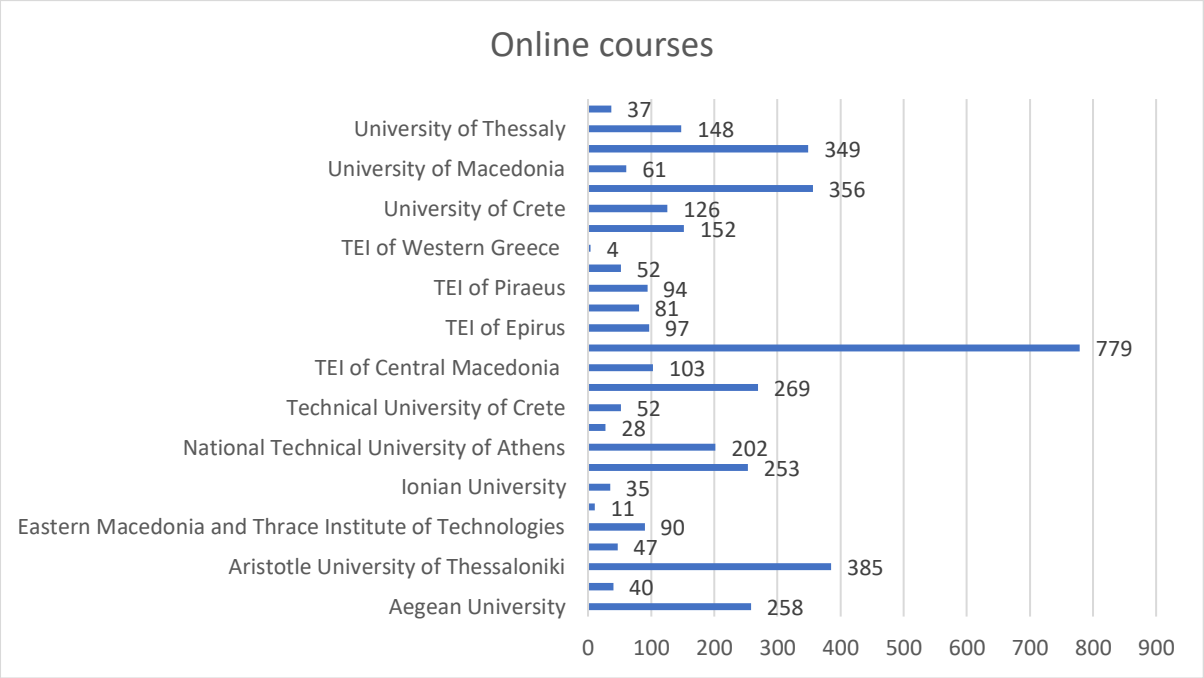

Figure 1 Number of online courses that are offered by the Greek Universities either at Msc or Bs Level (https://opencourses.gr/universities.xhtml?ln=el)

The page opencourses.gr offers an overview of online courses that are offered by Greek universities (Figure above). However, many of those courses are no longer active. Moreover, there is no guide as to which courses can be still accessed by the students. Finally, there is no information on whether the courses offer a certificate of attendance or ECTS upon completion of the course.

Article 43 of the Law on Higher Education of the Republic of Serbia foresees distance education in Serbia. In the Republic of Serbia, distance learning programs can receive accreditation in any educational-scientific or educational-artistic field where the higher education institution (HEI) already possesses an accredited program of the same name, which is implemented in a traditional manner and has satisfied all requirements for accreditation at the first and second level of higher education. Therefore, the National Accreditation Body's (NAT) review committee evaluates compliance with all accreditation standards for the study program, particularly those outlined in Standard 15. It is essential for distance learning programs to ensure the quality acquisition of educational content, equivalent learning outcomes, study efficiency, and the same level of qualification as traditional study programs. This guarantees that students can transition between distance and traditional programs without issue. In order to fulfill the requirements stated by the National Accreditation Body the HEI should provide equipment and ICT technologies for the establishment and maintenance of two-way communication on the teacher-student line for the realization of educational activities at a distance (parts of classes, consultations, self-tests, knowledge tests as part of pre-exam

obligations, projects, seminar papers, etc.). Within the system for managing the distance learning process, the HEI must provide: (a) one own or leased integrated computer platform that has adequate technical characteristics for distance learning (DLS – Distance Learning System), with specialized software for hosting and distributing multimedia teaching content intended for independent learning (text, sound and video information) and for complete management of the learning process; (b) different forms of teaching: public broadcasting of a time-planned teaching event (broadcasting of lectures or discussions of teachers/experts recorded with the help of live video cameras or a previously made and prepared video), delivery of lectures and multimedia teaching materials from the server and consultations for guided and informal discussions through discussion forums; (c) a single user interface that supports multiple categories of users, including students, teachers and administrative staff; (d) the obligation to record the time that the student spends on studying the teaching material and checking and evaluating the students using tests, with the support and under the control of a specialized software package; (e) high reliability of the system through an appropriate system of access control and content protection; (f) defining the authority for posting materials by teachers and associates, administrative staff and students; (g) communication of teachers and associates with students, which includes the use of e-mail, discussion forums and real-time discussions; (h) checking and evaluating students remotely (self-checks, pre-exam checks, submission of reports, exams); (i) recording access to the system by all users. Furthermore, the number of first-year students for whom the distance learning program is accredited cannot be greater than 40% of the number of students in the same program that is realized in the classic way. Therefore, HEI can organize a distance learning program for each area and each educational-scientific and educational-artistic field, if the teaching content, supported by available resources, can be adopted through distance studies and if the same level of knowledge of graduated students, the same efficiency of studying is ensured and the same rank (quality) of the diploma as in the case of the usual way of realization of the study program. A list of accredited distance learning programs can be found on the website of the National Accreditation Body. Since 2010, 78 distance learning programs have been accredited at different study levels. Most of the distance learning programs are accredited by the private universities. Regarding state universities, University of Belgrade has established 10 years ago the Center for Electronic Learning and Distance Education whose role is to help faculties in establishing their own study programs that would be attended via the Internet. The main goals of the Center are the development of higher education in the domain of electronic learning and distance education, as well as the development of electronic learning and distance education of the University of Belgrade; contribution to the development of the quality assurance system of higher education in the field of distance study programs, professional training programs and distance training; contribution to the development of standards of competencies required for the teaching profession and their professional development in the field of educational technology; participation in the creation of national and international distance education

development programs and projects, development of distance programs and work methods for persons with special needs; as well as the development of electronic textbooks.

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Reimers, F. M., & Schleicher, A. (2020). *A framework to guide an education response to the COVID-19 Pandemic of 2020.* Paris: OECD.

Literature Review

For the literature review, the partners investigated the scientific databases Scopus and Google Scholar, using the following keywords:
"distance education", "online courses higher education", "advantages distance/online education", "disadvantages distance/online education", "factors affecting distance/online education"
The inquiry was focused on "Article Title" for the years beyond 2000. However, to be more comprehensive, several papers before 2000 were also analyzed in order to see the evolution of the discussion around online education through the years.
The final set included 1007 papers. They were imported in the reference manager Mendeley and in addition, the software VosViewer was used to create three types of maps:

- Network visualization
- Overlay visualization
- Density visualization

In the following sub-sections, the various visualizations will be presented followed by a summary of some of the papers that were analyzed.
The complete methodological approach is presented in the following flowchart:

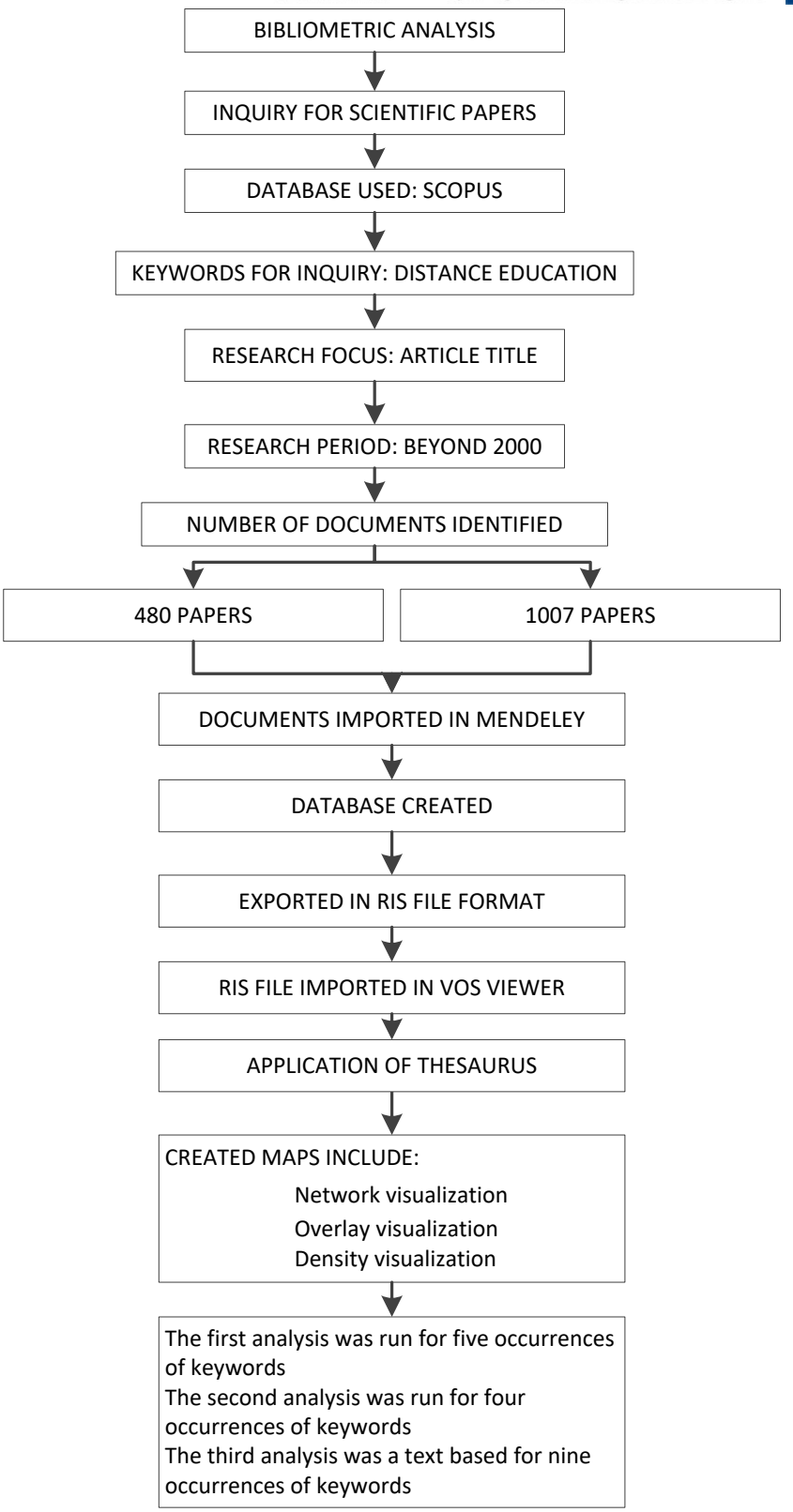

Figure 2 Flowchart of the process for the literature review

Visualization of the results

The bibliometric analysis took place with the aid of Vos Viewer. The options for Vos Viewer and the analysis was focused in three basic pillars:

- The first analysis was run for five occurrences of keywords
- The second analysis was run for four occurrences of keywords
- The third analysis was a text based for nine occurrences of keywords

The bibliometric analysis was based on a thesaurus developed for the two samples. The thesaurus is presented in the following Table 3:

Table 3 Thesaurus for Bibliometric Analysis

LABEL	REPLACE BY
adult learners	adult learner
construction industry	construction
dropout	drop-out
early dropout	drop-out
educational	education
information and communication technologies in educ	information communications technology
learning management system (lms)	learning management system
learning management systems	learning management system
open and distance learning	open and distance education
open and distance learning (odl)	open and distance education
open universities	open university
structural equation modeling	structured equation modeling
student support services	student support
user satisfactions	user satisfaction

Network map designed for five occurrences of keywords

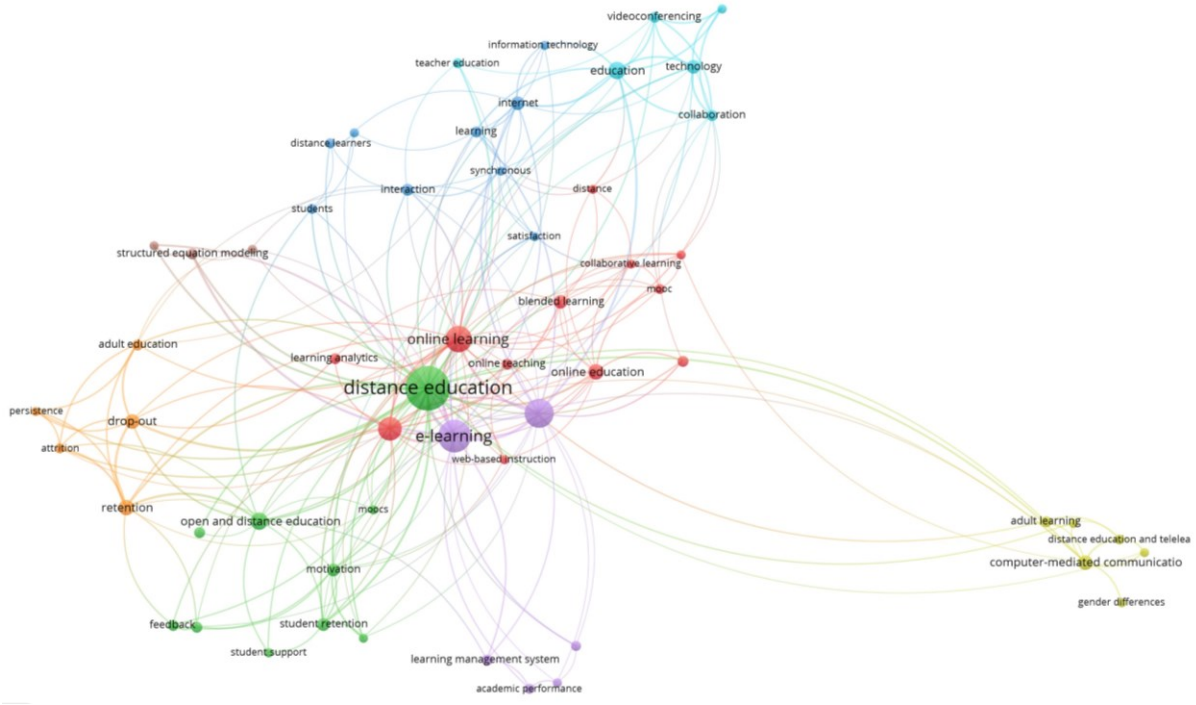

Figure 3 Network Map Designed for Five Occurrences of Keywords

Visualization map designed for five occurrences of keywords

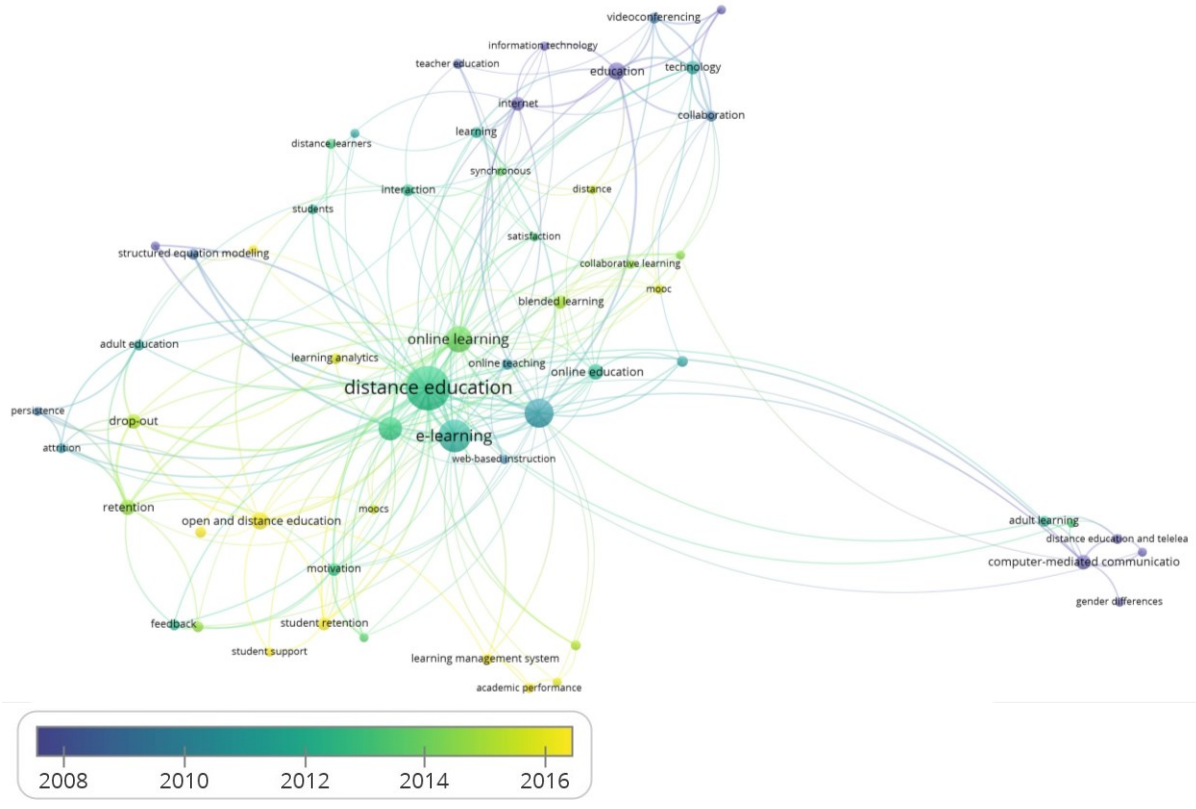

Figure 4 Visualization Map Designed for Five Occurrences of Keywords

Density map designed for five occurrences of keywords

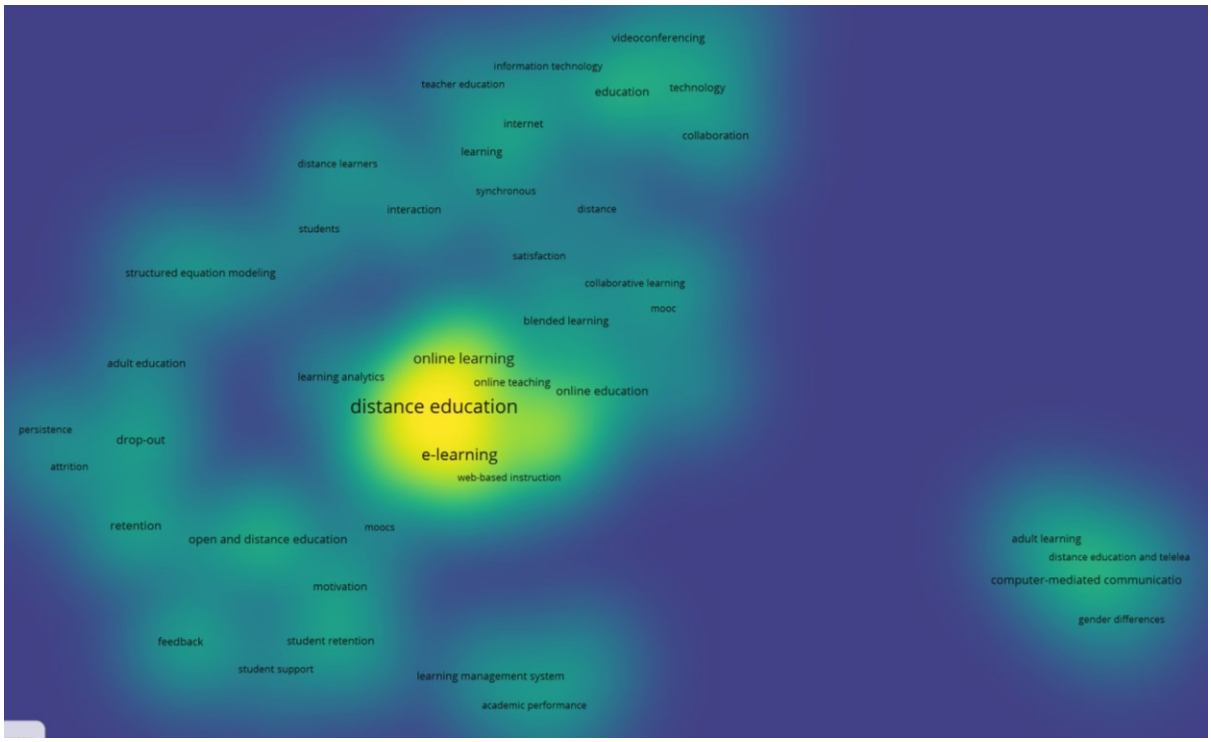

Figure 5 Density Map Designed for Five Occurrences of Keywords

Network map designed for four occurrences of keywords

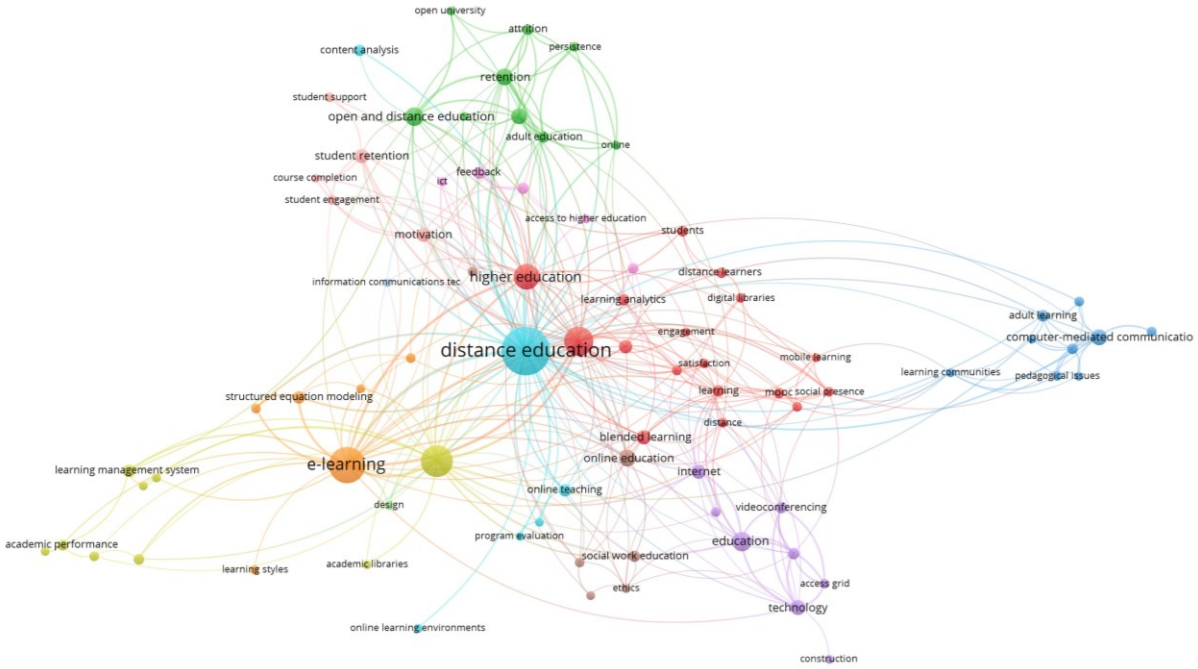

Figure 6 Network Map Designed for Four Occurrences of Keywords

Overlay map designed for four occurrences of keywords

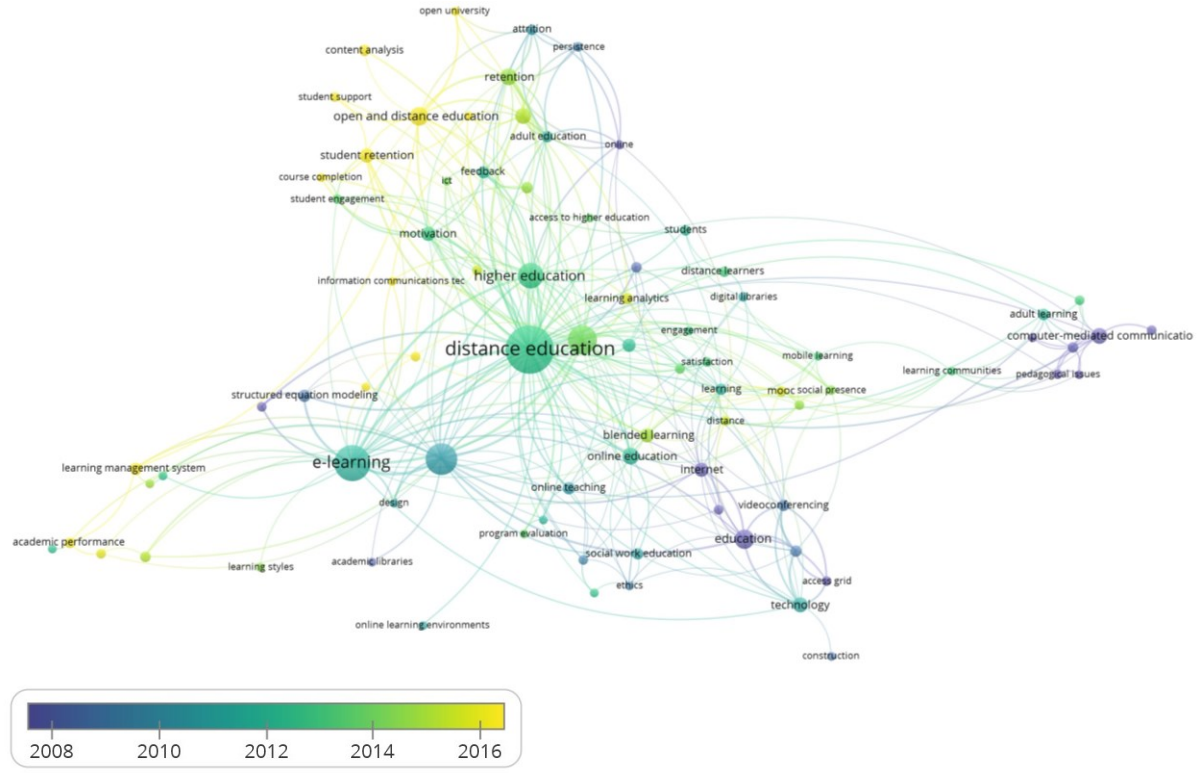

Figure 7 Overlay Map Designed for Four Occurrences of Keywords

Density map designed for four occurrences of keywords

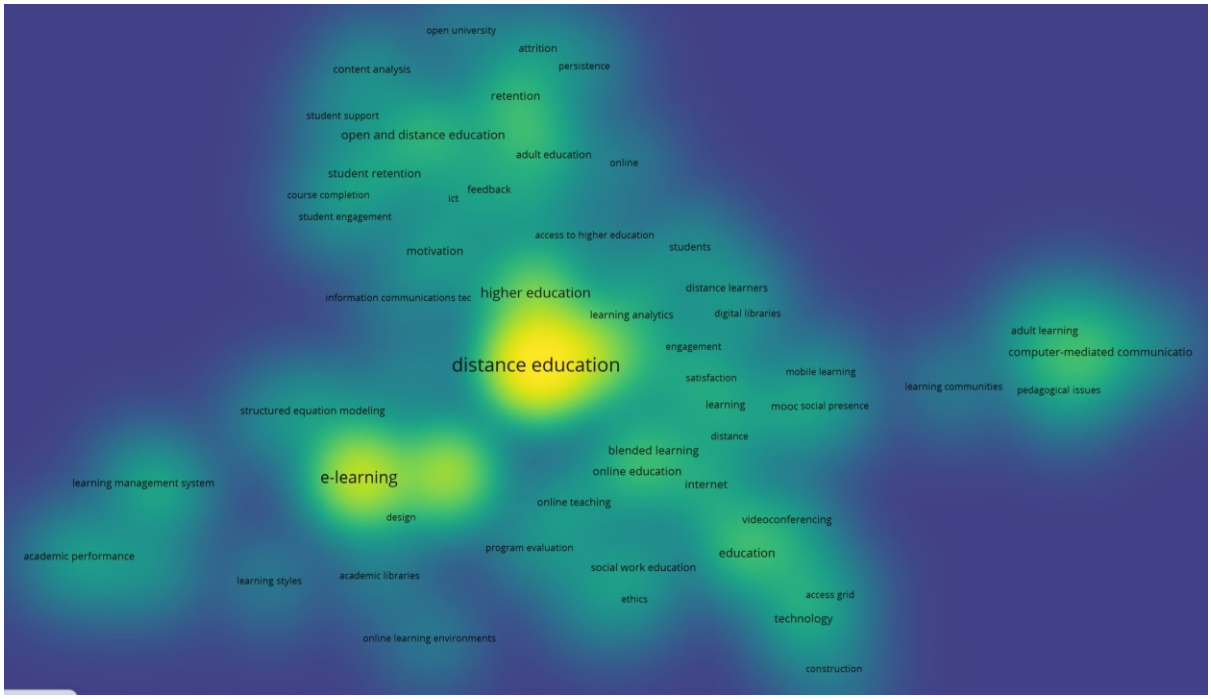

Figure 8 Density Map Designed for Four Occurrences of Keywords

Network map text based

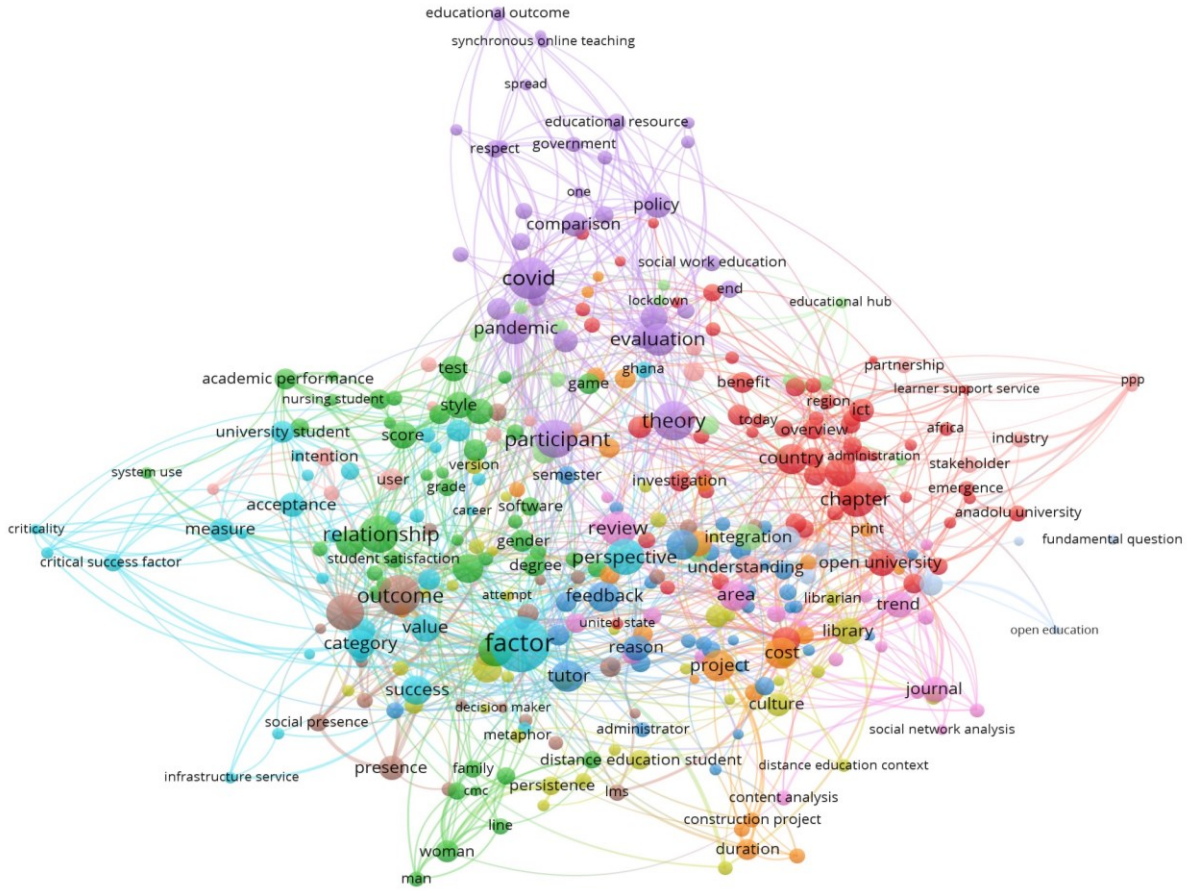

Figure 9 Network Map Text Based

Overlay map text based

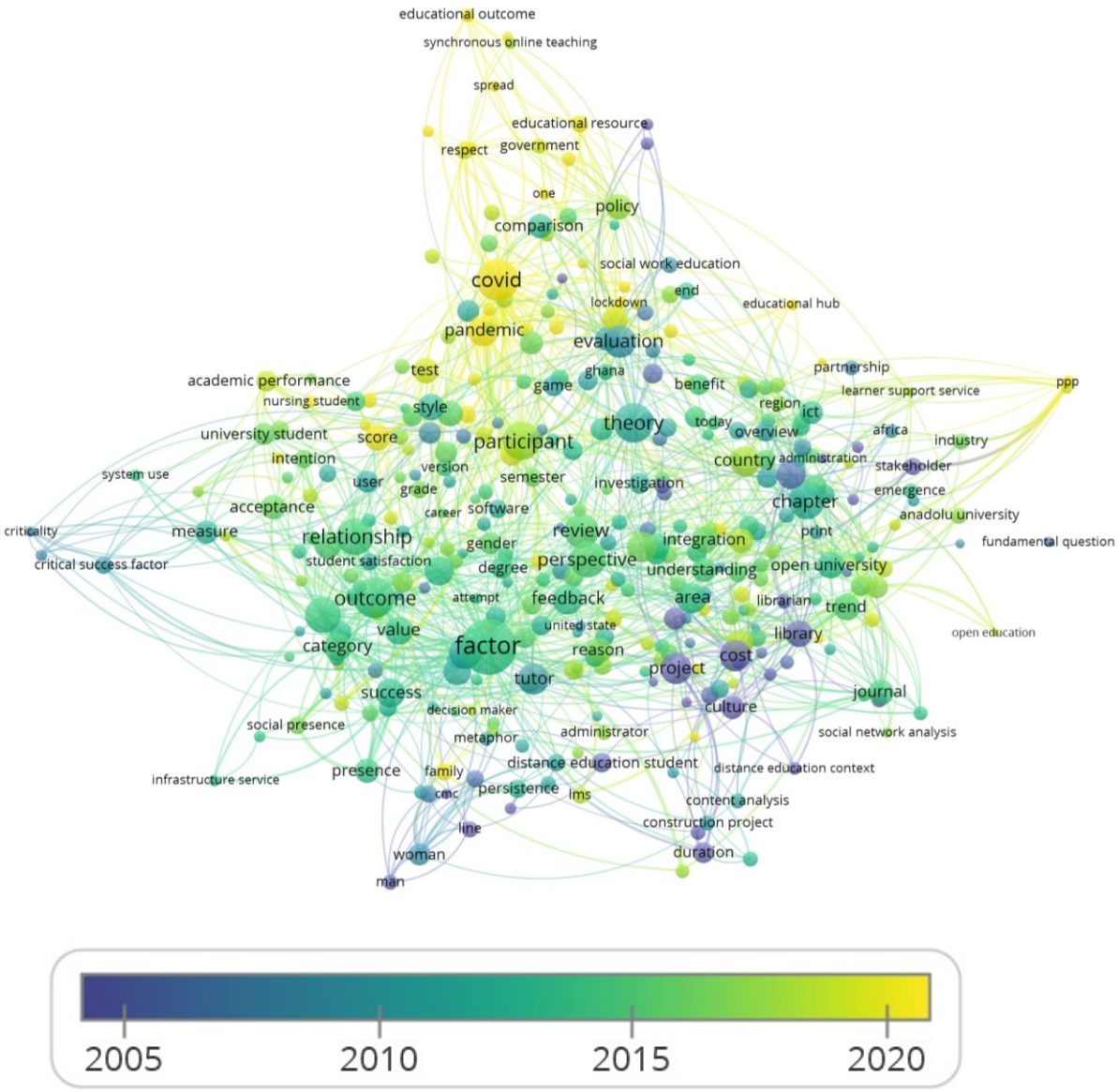

Figure 10 Overlay Map Text Based

Density map text based

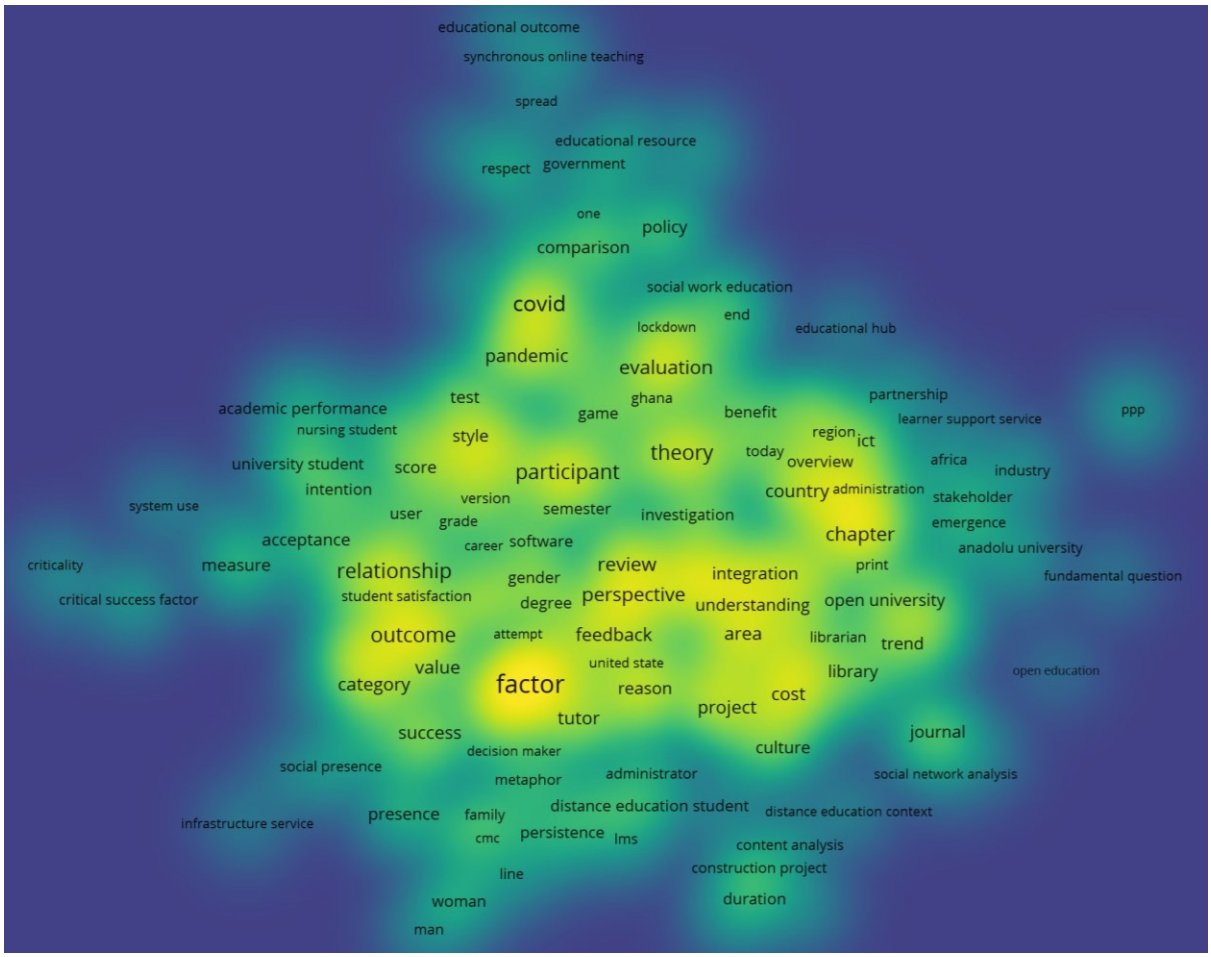

Figure 11 Density Map Text Based

The analysis of both the papers identified along with the consideration of the bibliometric analysis led to a number of conclusions, which are presented in the following:

- Distance Education especially during COVID 19 is a significant tool that would transform the educational process
- People who are involved in the implementation of distance education programs originate from a wide variety of scientific fields
- The number of research papers has increased significantly in recent years
- The technology associated with the distance education is highlighted in research
- Research also has focused on the association of COVID 19 and distance education
- Research projects are focusing on the instructors and students
- Personality and cognitive abilities are being considered and evaluated
- Furthermore, teaching and learning styles are receiving a lot of attention

- Technological innovations and availability combined with affordable procurement cost have also increased the demand for distance education
- This demand is also strengthened due to the time and location constraints of the educators and students

The analysis for **four** occurrences of keywords based on the Network map identified the following clusters:

- ✓ Distance Education
- ✓ E-Learning
- ✓ Higher Education
- ✓ Open and Distance Education
- ✓ Retention
- ✓ Computer Mediated Communication

Based on the Map of Density, the concepts that seem to be dominant for **four** occurrences of keywords, include:

- Distance Education
- E-learning
- Open and Distance Education
- Retention
- Computer Mediated Communication
-

The analysis for **five** occurrences of keywords based on the **Network map** identified the following:

- Distance Education
- E- learning
- Online Learning
- Computer Mediated Communication
- Education
- Dropout
- Retention

The analysis for **five** occurrences of keywords based on the **Density map** identified the following:

- Distance Education
- E- learning
- Online Learning
- Computer Mediated Communication

Network Text based analysis identified certain core concepts:

- Factor
- COVID
- Participant
- Theory
- Evaluation
- Relationship
- Country
- Outcome

Density map Text based analysis identified certain core concepts:

- COVID
- Participant
- Theory
- Evaluation
- Relationship
- Country
- Outcome
- Review Perspective

1. Shale, D. (1988). Concepts: Toward a reconceptualization of distance education. *American journal of distance education*, *2*(3), 25-35.

For Shale (1988), it is significant that the consideration of distance education described in the current research folds it into the mainstream of education. From the distance educator's point of view, the strengths in distance education can be integrated with the advantages that conventional education can offer to apply a rise in the quality of education in general.

2. Rumble, G. (1989). Concept: On defining distance education. *American Journal of Distance Education*,*3*(2), 8-21.

The paper identified distance education as a different form of education. It suggests a danger of alienation in the workplace that it is not a characteristic of other forms of education and which administrators of distance systems would do well to keep in mind.

3. Clark, R. E. (2000). Evaluating distance education: Strategies and cautions. International Journal of Educational Policy, Research, and Practice: Reconceptualizing Childhood Studies, 1(1), 3-16.

The paper states that distance education methods imply major differences to intramural or classroom-based provision on three main dimensions: the learning experiences of the students, the nature of the teaching materials, and the organizational structure of the institution.

4. Moore, M. (1990). Recent contributions to the theory of distance education. Open Learning: The Journal of Open, Distance and e-Learning, 5(3), 10-15.

The paper is a Review of North-American literature on the theory of distance education. The author concludes that there is no longer need for more repetition of descriptions of the variables that distinguish the field, but empirical testing of specific aspects of distance education and the relationships the most important elements among them are necessary for further research.

5. Brigham, D. E. (1992). Factors affecting the development of distance education courses. Distance Education, 13(2), 169-192.

The aim of this exploratory study is to investigate the course development process within a specific distance education context. The study seeks to identify factors and relationships among

factors facilitating and impeding the development of distance education courses at Syracuse University, a large, private university in Central New York State.
Through interviews with course developers and faculty authors, six factors associated with the success of the course development process were identified: course definition, faculty perception of student abilities, textbook selection, the extent of faculty/developer conflict, faculty flexibility, and faculty/developer working relationships.
The course development success was indicated by timeliness, smoothness and satisfaction with the course product. Factors related to course success seem highly interrelated and difficult to separate

6. George, R., & Love, A. (1995). The culture of the library in open and distance education contexts. *Australian Academic & Research Libraries*, *26*(2), 129-136.

This research investigates a number of issues regarding libraries in open and distance education contexts. It is based on the parameter of culture to analyze the complex role that libraries have in the educational experience of students. At the same time the paper highlights the ambiguity of the role played by librarians and identifies the need for flexibility in delivering services.
Aiming at autonomy, the services of distance education libraries are imperative to focus on inducting students into the information system. Core processes are the ones involved in searching. These activities of identifying and locating resources are included in specific fields of study and need to be taught in conjunction with substantive content.

7. Kovacich, J., Arndt, J., & Clark, N. (1998). New technologies in distance education to increase access to rural health care. Journal of Health Education, 29(sup1), S41-S46.

This paper provides a brief overview of the types of new distance learning technologies and their uses in rural areas by several federally funded projects.
Special reference is made to the Maine “Electronic Classroom”, a distance education modality introduced to provide health care professions students with relevant rural practice skills, practical knowledge, and to accommodate specific academic schedules and needs.
The purpose of the paper is to explore the advantages of new technologies in distance education beyond the obvious extension of the traditional classroom.
The paper identifies that new technologies in distance education programs have been developed to mitigate problems posed by geographic distance and the related maldistribution of human resources and capital in rural settings.
The added advantage of distance education is not only in its ability to deliver quality health education to rural areas, but in educating instructors in academic medical and health centers about the problems physicians, nurses, and allied health professionals face in rural practice,

leading to new academic-community partnerships and new learning organizations, helping to eliminate barriers to rural health care.
No single technological solution will work for all communities. Each location is unique, and systems designed to address access problems must be tailored to meet the particular needs of each community, whether rural or urban.

8. Starr, D. R. (1998). Virtual education: Current practices and future directions. *The internet and higher education*, *1*(2), 157-165.

This article initially offers a definition for Online learning environments (OLEs) in higher education institutions. The main objective of the paper is the presentation of a framework to support a "directed" approach to OLEs that provides a basis for planning, designing, implementing and evaluating OLEs, as well as for online courses contained within OLEs.
As courses and programs of study provided through the Internet have brought a new dimension to virtual education, this article reviews some basic tenets for educational practice, considering current trends in distance education and possible future directions for higher education.
Among the main results is that future directions of virtual education will find those involved redefining the roles of partners in distance education teams, whose responsibilities cover technology selection and adoption, design issues, methods to increase interactivity and active learning.

9. McPhee, W., & Nøhr, C. (2000). Globalisation and the cultural impact on distance education. International journal of medical informatics, 58, 291-295.

The authors state that successful means of distance learning within a national environment, with positive outcomes for distance education may lead to a negative effect when implemented to international students. It is significant to note that cultural exchange is difficult for both the teacher and the student. Developers of distance education are required to be as informed as possible when presenting their education to different cultures. Supervisors, content developers and students need to be aware of ramifications, misunderstandings and higher levels of dedication that are required.

10. Anderson, K. (1999). Internet-based model of distance education. Human Resource Development International, 2(3), 259-272.

In this paper, Shale and Garrison's model of distance education developed in the late 1980s is updated and critiqued for the late 1990s, through the addition of Internet-based distance education tools, such as electronic mail, newsgroups, chat lines and the World Wide Web. The main conclusions by the authors are that: If properly understood and implemented, the Internet-

based tools in distance education can lead to instruction that is highly interactive and learner-centered. These tools are very flexible and overcome many of the logistical and financial limitations to learning that exist in classroom-based and interactive video-based instruction. However, instructors need first to identify learners' needs and styles and accordingly select and use the Internet-based tools most effectively to obtain positive results.

11. Trentin, G., & Scimeca, S. (1999). The roles of tutors and experts in designing online education courses. *Distance Education*, *20*(1), 144-161.

The objective of this paper is to focus on the roles and the process that characterize the design of online education courses, and also to draw some simple guidelines for designers of such courses. In particular it examines the cases where the online tutors are not real experts in the course content domain, while the experts in that content are unable or unwilling to be involved online. The elements considered in the study as most important for designing an online education course were the following: (1) Finding a suitable form of internal organization within the design staff (tutors and experts), (2). Strict definition of the structure of interaction among the design staff (work schedule) (3) A close relationship between designing and managing the course and (4) An appropriate composition of the tutoring staff, requiring three complementary areas of competence: competence in the content area, methodological competence in conducting online courses, and technological competence in order to provide technical assistance for attendees.

12. McKinnon, D. H., & Nolan, C. P. (1999). Distance education for the gifted and talented: An interactive design model. Roeper Review, 21(4), 320-325.

The objective of the current research focuses on evaluating a distance learning interaction design model offered to gifted and talented students. Cosmology Course was the first offered, based an interactive design Model along with a communication system incorporating conventional mail to a specifically designed website. In this context the specific paper examines the Model's use in order to organize, sequence and deliver the Course to gifted and talented students. All participants are separated from each other and the lecturer, in places even outside the State's boundaries.
The correlation between the three key Design Elements (course modules, residential schools, significant others) and the Communication System was examined.
Research made it clear that each element of the Model contributes to the maintenance of student interest. What also became evident was that sustained student use of the communication system appears to play the key role. A number of critical parameters were identified that included: personal contact and communication with individuals around the world; the possibility to interact with peers who they otherwise might not ever get to know; and the

validation of best ideas from people understanding students' needs, wishes and thoughts.
Research succeeded in identifying that problems with the communication system are related to technology issues causing frustration. The existing asynchronous communication system offers students and course coordinator time for reflection before answers are composed and delivered.
The conclusion is that schools must consider communication and information technologies implementation to facilitate and replace existing delivery methods in the interests of motivating and improving gifted and talented students.

13. Fornaciari, C. J., Forte, M., & Mathews, C. S. (1999). Distance education as strategy: How can your school compete?. *Journal of Management Education*, *23*(6), 703-718.

This article examines distance education as a competitive tool and offers propositions concerning its most effective use as part of a university's overall competitive strategy. The innovation theory that distance education is a "killer application" is examined. A typology of universities is developed treating them as education suppliers to explore distance strategy choices in the educational marketplace. 6 propositions are made.
The basic question is how education would look like if we entirely eliminated traditional university and left only distance education? The investigation makes a discrimination among low cost and high cost institutions.
One of the significant conclusions of the current research is that all distance strategies are not suitable for all colleges and universities. If an institution pursues distance education in a poor manner, then it can cause harm.
A number of depends on the type of university. In this context large, low-tuition-cost universities, will implement cost leadership distance education strategies.

14. Simonson, M., Schlosser, C., & Hanson, D. (1999). Theory and distance education: A new discussion. American Journal of Distance Education, 13(1), 60-75.

The paper investigates the need for theory and several traditional theoretical approaches that have influenced the distance education field. Among the conclusions of the authors are: Theories guide the practice and research of distance education (DE). IT technology has significantly altered the distance education practice in the US.
Distance Education should be built on equivalency of learning experiences. In this aspect the more equivalent the learning experiences of distant learners are to those of local learners, the more equivalent will be the educational experiences outcomes.
Taking into consideration the variety of theories that have been proposed to describe traditional distance education, that also take into account characteristics including learner's independence and autonomy, teaching industrialization, and interaction and communication and at the same time looking into theories based on IT capabilities it is safe to conclude that distance education

should not be treated as a distinct education field.
The current educational theory utilization and the equivalent experiences creation for distant and local learners are significant factors. Distance education should be located an environment in which technology, society, economics, politics, and approaches to learning co-exist.

15. Moore, M. G. (1999). Institutional restructuring: is distance education like retailing?!.

The author evaluates different institutions strategies in the distance education field and compares them to a retailer shop. The author concludes that Institutions are reengineering their education strategy in order to create the best learning programs, taking into account their resources.
Distance education strategies might be assigned to the retailing model as follows: 1) the superstore; 2) the specialty store; 3) the boutique; 4) the cooperative producer and distributor; 5) the corporate alliances; and 6) the consultancy.
There exist institutions offering courses for large number of customers over a wide area, locally, nationally and globally.
Other institutions are investing in high quality courses, targeting large student populations but offering a limited range of educational courses.
Regarding the business strategy to be adopted, distance education institutions should consider subjects such as: a) comparative advantage, b) policy development, c) current and potential competitors, d) necessary organizational resources faculty and support staff, e) infrastructure, f) partners, g) consultants, h) markets to compete, i) monitoring, j) developing institutional distance education culture.

16. Matthews, D. (1999). The origins of distance education and its use in the United States. The Journal, 27(2).

The paper is focused on explaining the origins and growth of distance education, the media used, type of students it attracts, and identifies advantages and disadvantages of utilizing distance education.

17. Volery, T., & Lord, D. (2000). Critical success factors in online education. *International journal of educational management*, *14*(5), 216-223.

The aim of the paper is to identify and understand the critical success factors affecting the online delivery of education. Three critical success factors identified: 1. technology (ease of access and navigation, interface design and level of interaction) 2.the instructor (attitudes towards students, instructor technical competence and classroom interaction); and 3. the previous use of the technology from a student's perspective.

18. Boticario, J. G., & Gaudioso, E. (2000). Towards a personalized Web-based educational system. In MICAI 2000: Advances in Artificial Intelligence: Mexican International Conference on Artificial Intelligence, Acapulco, Mexico, April 11-14, 2000. Proceedings 1 (pp. 729-740). Springer Berlin Heidelberg.

The article concentrates on the description of the objectives, the structure and the functionality of an interactive system capable of adapting to the information and communication needs of the different types of user. The application is the outcome of an effective combination of techniques used in intelligent tutoring systems, adaptive hypermedia programs and learning apprentice systems for software personalization. In the project initiation, the implementation focuses on the personalization of the tutoring of the exercises.

19. Clark, R. E. (2000). Evaluating distance education: Strategies and cautions. International Journal of Educational Policy, Research, and Practice: Reconceptualizing Childhood Studies, 1(1), 3-16.

The paper offers brief descriptions of evaluation plans, questions, and examples associated with each type of technology and discusses issues related to the cost effectiveness evaluation of distance education

20. Rockenbach, B., & Almagno, S. (2000). Distance education: some of the unasked and unanswered questions. *The International Information & Library Review*, *32*(3-4), 453-461.

The paper focuses on two scenarios, where the first question examines whether distance education is a new and wonderful tool for improving and increasing access to the education experience. The second subject of the paper provides an inquiry regarding whether distance education is a new and problematic tool and if not well managed, it will negatively impact the education experience. The paper is trying to find the balance among traditional and distance education. The paper identifies both the advantages and disadvantages of the implementation of distance education to various aspects with emphasis on the access to education.

21. Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance education*, *22*(2), 306-331.

The objective of the paper is to examine factors affecting student satisfaction with and perceived learning from asynchronous online learning. Three general factors - clarity of design, interaction with instructors, and active discussion among course participants - significantly influenced students' satisfaction and perceived learning.

22. Muilenburg, L., & Berge, Z. L. (2001). Barriers to distance education: A factor-analytic study. *American Journal of Distance Education*, *15*(2), 7-22.

The objective of the current research is to create a holistic picture of the barriers to distance education. More specifically, the study aim is to represent the people's perceptions arising from six demographic variables: (1) workplace, (2) job function, (3) type of delivery system used, (4) expertise regarding distance education, (5) the stage of the respondent's organization with regard to capabilities in delivering distance education and (6) the area in which the respondent primarily works. The ten factors found were (1) administrative structure, (2) organizational change, (3) technical expertise, (4) social interaction and quality, (5) faculty compensation and time, (6) threat of technology, (7) legal issues, (8) evaluation/effectiveness, (9) access, and (10) student support services.

23. Swan, K. (2002). Building learning communities in online courses: The importance of interaction. *Education, Communication & Information*, *2*(1), 23-49.

The purpose of the paper is to investigate course design factors affecting the success of asynchronous online learning, with a specific focus on the social development of learning communities through online discussion.

24. Picciano, A. G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous learning networks*, *6*(1), 21-40.

The purpose of the paper is to examine performance in an online course in relationship to student interaction and sense of presence in the course. The conclusions of the research establish a strong relationship between students' perceptions of the quality and quantity of their interaction and their perceived performance in an online course.

25. Howell, S. L., Williams, P. B., & Lindsay, N. K. (2003). Thirty-two trends affecting distance education: An informed foundation for strategic planning. *Online journal of distance learning administration*, *6*(3), 1-18.

The authors attempt to summarize trends in higher education that will influence the future of distance learning. The paper identifies 32 trends, organized into 6 categories focused on students and enrollment, faculty members, academics, technology, the economy, and distance learning affect distance learning

26. Allen, M., Mabry, E., Mattrey, M., Bourhis, J., Titsworth, S., & Burrell, N. (2004).

Evaluating the effectiveness of distance learning: A comparison using meta-analysis. *Journal of communication*, *54*(3), 402-420.

The authors attempt to summarize the quantitative literature comparing the performance of students in distance education versus traditional classes. The main result generated from the research is that distance education course students slightly outperformed traditional students on exams and course grades.

27. Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The internet and higher education*, *7*(1), 59-70.

The purpose of the study is to gain insights into learners' perceptions of online learning. Two types of issues are analyzed: Course design, learner motivation, time management, and comfortableness with online technologies impact the success of an online learning experience. Technical problems, a perceived lack of sense of community, time constraints, and the difficulty in understanding the objectives of the online courses are indicated as challenges.

28. Zhao, Y., Lei, J., Lai, B. Y. C., & Tan, H. S. (2005). What makes the difference? A practical analysis of research on the effectiveness of distance education. Teachers College Record, 107(8), 1836-1884.

The purpose of this study was to identify factors that affect the effectiveness of distance education. Two general conclusions are drawn: (1) although the aggregated data of available studies show no significant difference in outcomes between distance education and face-to-face education (2) the outcome of distance education is associated with a number of pedagogical and technological factors.

29. Maguire, L. L. (2005). Literature review–faculty participation in online distance education: Barriers and motivators. Online journal of distance learning administration, 8(1), 1-16.

The purpose of the study is to examine the overall attitude of higher education faculty toward teaching via distance education. The main conclusions are: (1) Some faculty stated that teaching via distance learning added to their overall job satisfaction (2) online students are actively involved in their learning, participate at a good level, and communicate actively with the course instructors (3) The intrinsic factors that do deter online faculty participation include resistance to change and fear of technology

30. Muilenburg, L. Y., & Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. Distance education, 26(1), 29-48.

The paper uses exploratory factor analysis study to determine the underlying constructs that comprise student barriers to online learning. The analysis illustrated that variables that affected student ratings of these barrier factors included: gender, age, ethnicity, type of learning institution, self-rating of online learning skills, effectiveness of learning online, online learning enjoyment, prejudicial treatment in traditional classes, and the number of online courses completed.

31. Marks, R. B., Sibley, S. D., & Arbaugh, J. B. (2005). A structural equation model of predictors for effective online learning. Journal of management education, 29(4), 531-563.

The authors used a structural equation model of predictors for effective online learning. The results showed that instructor-student interaction is most important, twice that of student-student interaction; that some student-content interaction is significantly related to perceived learning; that antecedent variables are not significant; and that distance education advantages/flexibility, although significant, are less important than other interactions.

32. Stein, D. S., Wanstreet, C. E., Calvin, J., Overtoom, C., & Wheaton, J. E. (2005). Bridging the transactional distance gap in online learning environments. The American Journal of Distance Education, 19(2), 105-118.

The authors explored changes in satisfaction with perceived knowledge gained as a function of learner satisfaction with course structure, learner satisfaction with interaction, and technical expertise in a variety of distance learning environments. Results indicated that learner satisfaction with the course structure-activities, assignments, and instructor guidance and encouragement-led to greater satisfaction with perceived knowledge gained. Interaction was highly correlated with structure.

33. Eom, S. B., Wen, H. J., & Ashill, N. (2006). The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation. Decision Sciences Journal of Innovative Education, 4(2), 215-235.

In this study, structural equation modeling was applied to investigate the determinants of students' satisfaction and their perceived learning outcomes in the context of university online courses. The findings suggest online education can be a superior mode of instruction if it is targeted to learners with specific learning styles (visual and read/write learning styles) and with timely, meaningful instructor feedback of various types.

34. So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. Computers & education, 51(1), 318-336.

The purpose of this study was to examine the relationships of the students' perceived levels of collaborative learning, social presence and overall satisfaction in a blended learning environment. The results highlighted that students who perceived high levels of collaborative learning tended to be more satisfied with their distance course than those who perceived low levels of collaborative learning. Similarly, students with high perceptions of collaborative learning perceived high levels of social presence as well.

35. Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. Computers & education, 50(4), 1183-1202.

This study developed an integrated model with six dimensions: learners, instructors, courses, technology, design, and environment. A survey was conducted to investigate the critical factors affecting learners' satisfaction in e-Learning. The results revealed that learner computer anxiety, instructor attitude toward e-Learning, e-Learning course flexibility, e-Learning course quality, perceived usefulness, perceived ease of use, and diversity in assessments are the critical factors affecting learners' perceived satisfaction.

36. Zawacki-Richter, O., Bäcker, E. M., & Vogt, S. (2009). Review of distance education research (2000 to 2008): Analysis of research areas, methods, and authorship patterns. International Review of Research in Open and Distributed Learning, 10(6), 21-50.

This paper presents a review of distance education literature to describe the status thereof and to identify gaps and priority areas in distance education research based on a validated classification of research areas. The conclusion is that distance education research is strongly dominated by issues related to instructional design and individual learning processes; whereas, other important areas (e.g., innovation and change management or intercultural aspects of distance learning) are dreadfully neglected.

37. Yengin, I., Karahoca, A., & Karahoca, D. (2011). E-learning success model for instructors' satisfactions in perspective of interaction and usability outcomes. Procedia Computer Science, 3, 1396-1403.

In this study, factors related to instructors' satisfaction in e-learning systems have been

investigated in order to develop a basic model called "E-Learning Success Model for Instructors' Satisfactions" which is related to social, intellectual and technical interactions of instructors in whole e-learning system. "E-Learning Success Model for Instructors' Satisfactions" could be a basic guide for e-learning designers, online instructors and policy makers to understand interaction and usability outcomes related to satisfaction of instructors.

38. McFarlane, D. A. (2011). A comparison of organizational structure and pedagogical approach: Online versus face-to-face. Journal of Educators Online, 8(1), n1.

This paper explores the comparison between online and face-to-face organizational structures and teaching methodologies within the context of education. The author clarifies key terms related to distance, online, and e-learning, as well as virtual and traditional learning interactions. The distinctions between asynchronous and synchronous interactions are outlined before delving into the perceived variances in organizational structure and pedagogical approaches between virtual and traditional schools. This examination involves a thorough analysis of organizational structure, knowledge, pedagogical theories, and various constructs. The roles of mission, vision, and other factors contributing to disparities between virtual and traditional schools are also scrutinized. The appropriateness of structure and pedagogy is explored in relation to variables like class size, span of control, and other influencing factors. A comprehensive assessment of the advantages and disadvantages of both virtual and traditional schools is conducted, considering their perceived effectiveness and their connection to perceived differences in organizational structure and pedagogy. The author then offers an informed response to the paper's central thesis based on relevant literature and the preceding discussion. Acknowledging prevailing practices in organizational structure and pedagogy, and recognizing the significant impact of technology, leadership, curriculum, and other factors in both virtual and traditional schools, the paper concludes with several recommendations aimed at enhancing the teaching-learning process.

39. Söderström, T., From, J., Lövqvist, J., & Törnquist, A. (2012). From distance to online education: Educational management in the 21st century. *European Journal of Open, Distance and E-learning*, *15*(2).

This paper outlines and scrutinizes the evolution of distance education by examining the driving forces behind its development and the resulting implications. The study takes the Department of Education at Umea University as a case study. Our examination and evaluation in this paper are based on economic, personnel, and student data spanning the years 1994 to 2010. Additionally, policy and strategy documents pertaining to ICT and learning were gathered for analysis. The collected data has been systematically categorized, considering factors such as the number of courses, the total annual income from distance and campus

courses, the enrollment figures for distance courses, and the overall output of students. In this paper, distance education is defined as a form of education in which teachers and students are geographically and temporally separated, aligning with the definition used in the Swedish higher education study document system.

40. Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, *23*, 124-142.

The paper presents summaries of recent reviews of the literature on distance education Research on barriers to distance education Research on best practices in distance education. Results highlight that distance education proves to be equally effective as traditional education when it comes to learner outcomes. Generally, individuals engaged in distance learning exhibit a more positive attitude toward this mode of education compared to their counterparts in traditional settings, expressing a belief that they learn just as effectively as they would in a conventional classroom. Successful distance learners typically align with characteristics of abstract learners, displaying intrinsic motivation and possessing an internal locus of control. While the importance of interaction in the learning experience is evident, it should be purposeful and not added arbitrarily. Emphasizing the development of collaboration and group interaction may outweigh the significance of individual participation. It's noteworthy that each type of distance education technology has its own set of advantages and disadvantages, contributing uniquely to the overall quality of the learning experience.

41. Alhomod, S., & Shafi, M. M. (2013). Success factors of e-learning projects: A technical perspective. *Turkish Online Journal of Educational Technology-TOJET*, *12*(2), 247-253.

The objective of this research is to pinpoint the factors contributing to the success of e-learning programs in a university, specifically from the perspectives of engineers and technicians. A comprehensive review of existing literature was conducted to identify 11 key success factors for e-learning programs. These factors encompass Sufficient Users Training, Organizational Commitment, Management Support, Technical Support, Positive Attitude of Users, Easy-to-Use Tools, Adequate Training for Engineers, Comprehensive E-learning Initiatives, Adequate Manpower, Availability of Information on E-learning Websites, and Support from Other Departments. Subsequently, a survey was undertaken to assess the effectiveness of these success factors within the university context.

42. Hunt, H. D., Davies, K., Richardson, D., Hammock, G., Akins, M., & Russ, L. (2014). It is (more) about the students: Faculty motivations and concerns regarding teaching online. *Online Journal of Distance Learning Administration*, *17*(2), 62-71.

In this paper, data collected from a diverse range of faculty (including part-time, tenure track, new and experienced members in education, business, and liberal arts) is examined to explore the relationship between faculty attitudes, experiences, self-perceived preparedness, and concerns regarding the teaching of online courses. Specifically, it is investigated whether online teaching experience correlates with increased preparedness, motivation, and positive attitudes among faculty compared to those without online teaching experience. Several implications for policy and practice concerning online teaching can be inferred from these findings.

Firstly, greater comfort and reduced concern with potential issues are reported by faculty members with online teaching experience. Conversely, faculty lacking such experience express discomfort, particularly concerning basic aspects like technological skills, responsiveness to students, and training. This raises the question of a chicken-and-egg scenario: does comfort precede experience, or does teaching online lead to increased comfort? The resolution of concerns for faculty with no online teaching experience appears contingent on their engagement in online teaching.

Secondly, an inquiry is made into the characteristics of faculty who engage in online teaching. It is questioned whether they represent distinct personality types or are average faculty members with slightly varied experiences that led them to online teaching. Alternatively, are they individuals coerced or "forced" into online teaching?

Thirdly, the paper explores methods to motivate faculty with no online teaching experience. The study suggests that reported motivational measures are largely ineffective for less experienced faculty. The consideration of coercion as a last-resort motivational factor is raised, leading to concerns about the potential impact on the quality of courses taught by coerced faculty.

Lastly, to mitigate barriers to online teaching, the paper poses the question of which specific technology, "classroom" management, and pedagogy skills would enhance faculty preparedness for online teaching.

43. Nurmukhametov, N., Temirova, A., & Bekzhanova, T. (2015). The problems of development of distance education in Kazakhstan. *Procedia-Social and Behavioral Sciences*, *182*, 15-19.

The research aims to identify the most effective approaches to organizing and managing distance education within the realm of humanitarian education, utilizing Internet technologies, and proposes practical recommendations for implementation and enhancement. In the Republic of Kazakhstan, a strategic focus on computerizing education involves establishing a sophisticated automated system for monitoring, analysis, and management of educational institutions. This system is intended to facilitate efficient documentary exchange and support a comprehensive database of strategic data aligned with the reporting formats of educational

institutions. The implementation of qualitative monitoring, assessing the objective state of the education system as a whole and across various domains of production and educational activities, is also emphasized. Pedagogical managerial staff play a pivotal role in the information and education domain, and as per strategic objectives, they are encouraged to extensively integrate IT technologies into their professional practices. To achieve this, courses on the methodology of education, grounded in IT technologies, are recommended for inclusion in the curriculum of teacher training programs at secondary, technical, vocational, and higher education levels.

44. Fojtik, R. (2015). Comparison of full-time and distance learning. *Procedia-Social and Behavioral Sciences*, *182*, 402-407.

This paper deals with the quality of distance learning and focus on knowledge gained in distance and blended education of informatics. The study highlights that despite the obvious advantages of distance learning and part-time education, there are still significant problems and obstacles to increasing the quality of teaching.

45. TuĽˇevljak, M., Majcen, L., Mervar, L., Stepankina, T., & Cater, B. (2016). E-Learning in Higher Education: Focus Groups and Survey among Students in Central Europe. *Journal of Educational Technology*, *13*(2), 11-20.

The aim of this study is to contribute to the existing body of knowledge on e-learning by examining students' perceptions and intentions regarding its adoption. Two overarching research objectives are pursued to fulfill this purpose. The first objective is to uncover students' understanding and perception of e-learning, exploring their attitudes and experiences with this mode of education. The second research objective aims to evaluate students' readiness to participate in e-learning and determine their willingness to financially invest in it.
The research findings reveal that international students exhibit more familiarity with e-learning compared to their domestic counterparts in Slovenia. Despite Slovenia having a national strategy for promoting e-learning and smaller competitors offering e-learning programs, the leading business school in the country still follows a traditional approach, conducting lectures on-site. The results indicate a generally positive inclination of students towards e-learning, and their willingness to enroll in online courses, albeit with some reservations, showing a preference for a blended format. While foreign students in focus groups express greater interest in distance learning opportunities than domestic students, this distinction is not evident in a larger sample.

Interestingly, despite e-learning having European roots, a majority of students do not advocate for the full integration of IT into the study process. Instead, they prefer a combination of

traditional learning methods with IT. The qualitative nature of the data obtained aligns with exploratory research, suggesting this trend as a broader tendency in Europe. The study provides insights into student attitudes and intentions in the Central European context, based on a non-representative sample, which stands as a major limitation. The findings necessitate validation on a larger and more representative sample. However, the primary goal at this stage was to gain initial insights and understanding of student perceptions and attitudes in an environment where e-learning is not highly developed. Additionally, the results are context-specific, and student attitudes towards e-learning may vary based on university type and region, with those facing significant travel between home and university possibly showing a greater inclination towards it.

46. Soffer, T., Kahan, T., & Livne, E. (2017). E-assessment of online academic courses via students' activities and perceptions. *Studies in Educational Evaluation*, *54*, 83-93.

The paper aimed to evaluate the quality of online academic courses through a multidimensional analysis of students' activities and perceptions, employing educational data mining techniques and an online questionnaire. The assessment focused on four key aspects: instructional design, communication effectiveness, course workload, and the overall learning experience. The instructional model of the course was identified as well-structured, with video lectures, assignments, and course materials emerging as the most frequently utilized and impactful learning resources. However, a decline in student engagement with video lectures was observed as the course progressed. Discussion forums exhibited low levels of activity. Students generally perceived the course workload as low, leading to a high overall learning experience and high levels of satisfaction among the students.

47. Fadda, D., & Vivanet, G. (2021). Online laboratories for science education: A summary of evidence. *Italian Journal of Educational Research*, *26*, 105-117.

The aim of the study is to evaluate the effectiveness of virtual and remote labs for enhancing learning in STEM education, which have been tested to date in secondary school contexts from 2010 to 2020. A key role for effective workshop practice appears to be the teacher's feedback. student learning, although also supported by elements such as the interface of the digital systems used, does not appear to be attributable to the technology of the laboratories rather to the teacher's management of the workshop teaching and interactions. the centrality of the issue of teacher training in the didactically effective use of digital laboratory technologies is highlighted, which appears to be an area of research that is still insufficiently developed.
Further reflections concern the fact that the studies relate to short-term interventions and small samples and do not make it possible to assess the persistence of learning; a final note concerning technological supports concerns the fact that although smartphones and tablets and

interactive whiteboards are becoming increasingly widespread in the classroom, the computer remains the hardware support most widely used for conducting science labs

Finally, it is noted that with respect to the integration of online workers with traditional workers, further studies should better investigate which aspects of physical experiences may not be replaced with remote virtual experiences, as well as the extent to which this replacement or integration affects the development of students' psychomotor skills and attitudes towards scientific learning.

A more comprehensive database of papers with the most important conclusions is provided at the project's website.

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Identifying characteristics of the educators

COVID19 has completely reengineered the ongoing educational programs. A great shift has taken place in the current educational system. Educators, instructors, professors, teachers are called to offer their knowledge through online systems and virtual classrooms. Students are no longer face to face with their instructors. Instead, they may be thousands of kilometers away. Therefore, the educational system has moved from its traditional form and caused changes to the requirements of the instructors that take part in distance learning educational programs. The current research agenda investigates distance educational objectives, distance educational students and their needs, adult learning theory, human and organizational limiting factors, implications for instructors. The current study focuses on clarifying a number of teaching styles and then defining the ones that are adopted by Instructors. An investigation has taken place during the last year to collect data regarding instructors and distance education. In order to collect relevant information a questionnaire was designed, and a following survey took place. The sample of the University Instructors is equal to 275 responses. The responses were appropriately inserted into a database and were classified either as quantitative or qualitative data. The number of questions that the instructors answered was equal to 100. The survey was disseminated through email and interviews. The survey succeeded in collecting data regarding distance education experience, teaching styles, and the participants' personality characteristics. This study will try to correlate the profile of the instructors with their preferences.
More specific the current research agenda investigates distance educational objectives, distance education students and their needs, adult learning theory, human and organizational limiting factors, implications for instructors. The current report focuses on clarifying a number of teaching styles and then defining the ones that are adopted by Instructors. An investigation has taken place during the last year (2023) and the responses were appropriately inserted into a database and were classified either as quantitative or qualitative data. The language of the survey was Greek, English, Serbian and Italian and succeeded in collecting data regarding distance education experience, teaching styles, and the participants' personality characteristics. The findings of the current research indicate that instructors carefully choose to set priorities and then stick to them. Instructors like to be creative and spark creative ideas to students. They welcome team teaching and like to experiment with new teaching methods.

Methodological Approach

The current report focuses on clarifying a number of teaching styles and then defining the ones that are adopted by Instructors in the context of distance learning. An investigation has taken place during the last year to collect data regarding instructors and distance education within Greece, Italy, Serbia and Romania. Six universities were involved in the specific project. In order to collect relevant information a questionnaire was designed, and a following survey took place. The sample of the University Instructors – survey participants is equal to 275 responses.

The responses were appropriately inserted into an SPSS database and were classified either as quantitative or qualitative data. The number of questions that the instructors answered was equal to 100. The survey was disseminated mainly through email and additionally interviews have taken place. The questionnaire was originally designed in English and has been translated into Greek, Italian, Serbian and succeeded in collecting data regarding distance education experience, teaching styles, learning styles and the participants' personality characteristics.
The questionnaire includes one hundred questions, as mentioned earlier and it is divided into four discrete parts:

- Participants' Profile
- Distance Education Experience
- Learning and Teaching Styles
- Personality Characteristics

An SPSS Database was created. Corresponding parameters were created for the data to be inserted in the SPSS database. The sample of the University Instructors is equal to 275 responses.
The questionnaire recorded the instructors' characteristics and attributes, that included the following group of questions:

- Nationality
- Gender
- Age
- Marital Status
- Number of Children
- The Participants Position / Professional Title
- Monthly Income
- Institution / University (at present)
- Organization type
- Department

The following set of questions recorded the distance education experience, and included the following set of questions:

- Semesters of distance learning education taught
- Level of computer expertise
- Are you Certified for distance education Programs
- Platform/s for distance learning education used in the past
- How efficient do you consider distance learning as a method of education
- Do you prefer face to face educational methods over distance education
- In distance learning and online courses do you prefer a larger (> 30 students) to a smaller number of students

- Have you taught foreign students

Then the questionnaire survey investigated the teaching style preferences. The ones selected in the current study included a number of statements, where the instructors were called to suggest how much those statements described themselves as an instructor. The evaluation scale was ranging from 1 meaning not at all, to 5 which denoted completely. These teaching styles originate from Sternberg & Zhang (2005).

More specifically, these teaching styles are described as follows Sternberg & Zhang (2005):

- A **monarchic teacher** might be one who has a preferred way of doing things, and who does not much like to do things in otherways
- A **hierarchic** teacher might be one who carefully sets priorities and then sticks to them
- An **oligarchic** teacher might be one who does not easily allocate class time so that the most important things receive the most coverage
- An **anarchic** teacher might be one who is very disorganized in his teaching style, but who nevertheless is very creative and sparks creative ideas in his students.
- A **local** teacher tends to be very detail- oriented in lecturing
- A **global** teacher tends to be very general in her teaching and to concentrate on the big picture rather than the details

There are two scopes of mental self-government: **internal and external**

- An **internal** teacher may eschew team teaching and prefer to teach on his own
- An **external** teacher would probably welcome team teaching or other opportunities to collaborate with fellow teachers

There are two leanings of mental self-government: **liberal and conservative**

- A l**iberal** teacher likes to teach in new ways and to try new teaching techniques
- A **conservative** teacher likes to teach in traditional ways and may be hesitant to try new ways of teaching

In this context, the following statements were presented to the survey participants:

a. *I have a preferred way of doing things, and I do not much like to do things in other ways.*
b. *I carefully set priorities and then stick to them.*
c. *I do not easily allocate class time so that the most important things receive the most coverage.*
d. *I am not so organized in my teaching style, but I am very creative, and I spark creative ideas in my students.*

e. *I tend to be very detail - oriented in lecturing.*
f. *I tend to be very general in my teaching and concentrate on the big picture rather than the details.*
g. *I am not so enthusiastic about team teaching and prefer to teach on my own.*
h. *I welcome team teaching or other opportunities to collaborate with fellow instructors.*
i. *I like to teach in new ways and to try new teaching techniques.*
j. *I like to teach in traditional ways, and I am hesitant to try new ways of teaching.*

Then the instructors were asked about their preferences regarding students' attributes. Again a number of statements were presented to the instructors, describing their potential preference regarding their students' learning styles. These statements were based on the following theories. There are **three functions of government in the theory**: legislative, executive, and judicial. These functions are presented and clarified within the following statements (Sternberg & Zhang, 2005)**:**

- Legislative: I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told.
- Executive: I have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefers to be told what to do, and I will then give it my best shot at doing it well.
- Judicial: I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies, projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

The following different forms of mental self-government provide an additional description of the students. In this context, there are four different forms of mental self-government in the theory, that include monarchic, hierarchic, oligarchic, and anarchic. The following statements describe the forms of mental self-government (Sternberg & Zhang, 2005):

- **Monarchic**: I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.
- **Hierarchic**: I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.
- **Oligarchic:** I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important. I like to do multiple things within a given time frame, but I have trouble setting priorities. I adapt well if the competing demands are of roughly equal importance, but I have more

trouble if the things are of different importance.

- **Anarchic:** I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please. I tend to be asystematic or even antisystematic.

Then a number of statements where included that describe different levels of mental self-government as a student. There are two levels of mental self-government: local and global. These are described in the following

- **Local:** I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation
- **Global:** I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details.

The following statements describe different levels of mental self-government as a student. There are two scopes of mental self-government: internal and external

- **Internal.** I have a preference for tasks, projects, and situations that allow me to work independently of others
- **External.** I have a preference for tasks, projects, and situations that require activities that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone.

How much do the following statements describe yourself as a student: There are two leanings of mental self-government: liberal and conservative

- **Liberal.** I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity.
- **Conservative.** I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity.

These phrases were combined with a number of additional statements based on VARK Learning Styles by Arbabisarjou et al. (Arbabisarjou et al., 2016), that included: Kinesthetic, Auditory, Read/Write, Visual and Multiple styles. Vark's four learning styles include: visual, aural, reading, writing and kinesthetic - motor.

As a result, the instructors were presented with the following list and were asked how much do the following statements describe their preferred student, using a likert scale (1 not at all, 5 completely):

1. Students that better discern the material through watching a demonstrative presentation of the information

2. Students that can understand the material better through listening and oral teaching methods.

3. Students that can better learn the teaching materials through taking notes and reading the written contexts and texts.

4. Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).

5. Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told.

6. Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. These students often prefer to be told what to do and will then give it their best shot at doing it well.

7. Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

8. Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.

9. Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists.

10. Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.

11. Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please

(work asystematic or even antisystematic).

12. Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.

13. Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details.

14. Students that have a preference for tasks, projects, and situations that allow them to work independently of others.

15. Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone.

16. Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity.

17. Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity.

The questionnaire included also a psychometric test to assess the personality of the participating instructors. The assessment is based on the big five personality traits and facets. Below are the phrases that describe people's attitudes. Instructors' were asked to use the answers next to each sentence to describe how closely each sentence describe them. They were kindly reminded to describe themselves as they are right now, not as they would like to be in the future. This description should honestly picture themselves in relation to other people of the same sex and about the same age. Therefore, the instructors were asked how accurately each sentence described them on a Likert scale (1 not at all, 5 completely). The statements were the following:

1. *Am easy to satisfy.*
2. *Am hard to get to know.*
3. *Am not easily frustrated.*
4. *Am not interested in abstract ideas.*

5. *Am not interested in theoretical discussions.*
6. *Am often down in the dumps.*
7. *Am out for my own personal gain.*
8. *Am very pleased with myself.*
9. *Avoid contacts with others.*
10. *Avoid philosophical discussions.*
11. *Believe in the importance of art.*
12. *Believe that I am better than others.*
13. *Believe that others have good intentions.*
14. *Believe that too much tax money goes to support artists.*
15. *Can say things beautifully.*
16. *Carry out my plans.*
17. *Carry the conversation to a higher level.*
18. *Cheer people up.*
19. *Complete tasks successfully.*
20. *Contradict others.*
21. *Cut others to pieces.*
22. *Dislike myself.*
23. *Do just enough work to get by.*
24. *Do not enjoy going to art museums.*
25. *Do not like art.*
26. *Do not like poetry.*
27. *Don't put my mind on the task at hand.*
28. *Don't see things through.*
29. *Enjoy hearing new ideas.*
30. *Enjoy thinking about things.*
31. *Enjoy wild flights of fantasy.*
32. *Fear for the worst.*
33. *Finish what I start.*
34. *Follow through with my plans.*
35. *Get excited by new ideas.*
36. *Have a rich vocabulary.*
37. *Have a sharp tongue.*
38. *Have a vivid imagination.*
39. *Have difficulty understanding abstract ideas.*
40. *Keep others at a distance.*
41. *Leave things unfinished.*
42. *Make demands on others.*
43. *Mess things up.*

44. *Need a push to get started.*
45. *Often feel blue.*
46. *Rarely look for a deeper meaning in things.*
47. *Remain calm under pressure.*
48. *Respect others.*
49. *Retreat from others.*
50. *Seldom get mad.*
51. *Suspect hidden motives in others.*
52. *Tend to vote for conservative political candidates.*
53. *Tend to vote for liberal political candidates.*
54. *Treat all people equally.*
55. *Trust what people say.*
56. *Warm up quickly to others.*

The following sections, introduce the way that the information was parameterized, the descriptive analysis that has taken place and the respective results.

Questionnaire Parameters

The questionnaire recorded a large amount of responses. The questionnaire included 100 questions. As mentioned above, the questionnaire included the following discrete parts:

- Participants' Profile
- Distance Education Experience
- Learning and Teaching Styles
- Personality Characteristics

An SPSS Database was created and the 275 responses were recorded. Variables such as Age, Number of Children and Semesters of Distance Learning Education Taught, have remained unchanged. Platforms for distance learning education used in the past was not used in the database. For the rest of the variables, the parameters defined for the analysis are presented in the following Tables (4-19).

Parameter	Response
GREEK	1
CYPRIOT	2
ALBANIAN	3
ITALIAN	4
GERMAN	5
ROMANIAN	6
SERBIAN	7
UKRAINE	8

Table 4 Instructors' Nationality

Response	PARAMETERS
FEMALE	1
MALE	2
I don't wish to answer	3
OTHER	4

Table 5 Instructors' Gender

Response	Parameter
Married	1
Single	2
I don't wish to answer	3

Table 6 Instructors' Marital Status

Response	PARAMETERS
PROFESSOR	1
ASSOCIATE PROFESSOR	2
ASSISTANT PROFESSOR	3
PHD	4
MS	5
LECTURER	6
OTHER	7
POSTDOC	8
RESEARCHER	9

Table 7 Instructors' Position / Professional Title

Response	Parameter
<300	1
301-500	2
501-700	3
701-900	4
901-1100	5
1101-1400	6
1401-1700	7
1701-2000	8
2001-2500	9
2501-3000	10
3001-4000	11
>4001	12
I don't wish to answer	13

Table 8 Instructors' monthly income (in euros)

Response	Parameter
No Answer Provided	0
Aristotle University of Thessaloniki	1
University of Ioannina	2
Technical University of Crete	3
Hellenic Open University	4
National and Kapodistrian University of Athens	5
Supreme Joint War College	6
University of Piraeus	7
Hellenic Army Academy	8
University of West Attica	9
University of the Aegean	10
Democritus University of Thrace	11
University of Macedonia	12
International Hellenic University	13
ETH Zürich	14

Table 9 Instructors' Institution / University (At Present)

Response	Parameter
State Government University	1
Private College	2
No Answer	0

Table 10 Instructors' Organization type

Response	Parameter
YES	1
NO	2

Table 11 Instructors' Certification for Distance Education Programs

Response	Parameter
1	Poor
2	Poor to Average
3	Average
4	Average to Good
5	Good
Not answering	0

Table 12 Instructors' Level of computer expertise

Response	Parameter
No answer provided	0
Inefficient	1
Inefficient to Average Efficient	2
Average Efficient	3
Average Efficient to Most Efficient	4
Most Efficient	5

Table 13 How efficient do you consider distance learning as a method of education

Response	Parameter
I prefer face to face	1
I prefer distance education	2
No answer provided	0

Table 14 Do you prefer face to face educational methods or distance education

Response	Parameter
Larger groups (>30 students)	1
Smaller groups (<30 students)	2

Table 15 In distance education and online courses do you prefer larger (>30 students) over smaller number of student groups

Response	Parameter
YES	1
NO	2

Table 16 Have you taught foreign students

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 17 How much do the following statements describe yourself as an Instructor

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 18 How much do the following statements describe your preferred students

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 19 How accurately each sentence describes you: (1 not at all, 5 completely)

Participants' Profile

Summarizing the Instructors' profile the following statements describe in detail their attributes:

- The mean age of the participating instructors is 49,6 years of age.
- The mean number of semesters of distance learning education taught equals to almost 6.
- The mode number representing the level of computer expertise (1 Poor – 5 Expert) is four, while the mean number is 3,93.
- In the case of how efficient instructors consider distance learning as a method of education, where 1 represents inefficient, and 5 represents most efficient. The mode is three and the mean is 3,35.
- Female Instructors are 43,6% and Male Instructors 51,3%
- Married are 67,2%, Single 25,4 while 7,4 didn't wish to answer
- The majority of Instructors with 38,3% are professors and 23% being assistant professors
- 84,8% work in State Government universities
- Only 28,6% are certified for distance education programs
- The majority of them 41,6% mention that the level of computer expertise is average to good
- Distance learning as an education method is considered of average efficient by 35,2% while another 35,2% characterize it as average efficient to most efficient
- 84,6% prefer face to face teaching
- 77,1% prefer smaller groups of students (<30 students)
- 57,1% have taught foreign students

Statements Describing Instructors based on the Questionnaire Findings

Also, in this case the responses are based on a likert scale ranging from 1 to 5, where 1 refers to *not at all*, and 5 refers to *completely.* More specifically, the scale used is presented below:

- Not at all 1
- Slightly 2

- Moderately 3
- Very 4
- Completely 5

Then follows the statements and the scores assigned to these statements, more specifically, to the teaching styles. The metrics include mean, median, mode and the classification with the greatest frequency percentage:

- *I have a preferred way of doing things, and I do not much like to do things in other ways*. Mean value: 2,83, Median: 3, Mode: 3, (33,9% Moderately)
- *I carefully set priorities and then stick to them.* Mean value: 3,79, Median: 4, Mode: 4. (48,2% **Very**)
- *I do not easily allocate class time so that the most important things receive the most coverage.* Mean value: 2,60, Median: 3, Mode: 3. (33,1% Moderately)
- *I am not so organized in my teaching style, but I am very creative, and I spark creative ideas in my students.* Mean value: 2,67, Median: 3, Mode: 3. (33,2 Moderately)
- *I tend to be very detail - oriented in lecturing.* Mean value: 3,13, Median: 3, Mode: 3. (39,2% Moderately)
- *I tend to be very general in my teaching and concentrate on the big picture rather than the details.* Mean value: 3,08, Median: 3, Mode: 3. (37,1% Moderately)
- *I am not so enthusiastic about team teaching and prefer to teach on my own*. Mean value: 2,73, Median: 3, Mode: 3. (26,5% Moderately)
- *I welcome team teaching or other opportunities to collaborate with fellow instructors.* Mean value: 3,36, Median: 4, Mode: 4.(32,7% **Very**)
- *I like to teach in new ways and to try new teaching techniques.* Mean value: 3,82, Median: 4, Mode: 4. (40% **Very**)
- *I like to teach in traditional ways, and I am hesitant to try new ways of teaching.* Mean value: 2,33, Median: 2, Mode: 2. (40% Slightly)

These teaching styles that seem to be more preferable include:

- *I carefully set priorities and then stick to them.*
- *I welcome team teaching or other opportunities to collaborate with fellow instructors.*
- *I like to teach in new ways and to try new teaching techniques.*

Statements Describing the Preferred Students' Attributes

Instructors were called to assess based on their preference regarding the desired learning styles of their students. The following statements present and summarize the main findings of the statistical analysis.

- *Students that better discern the material through watching a demonstrative presentation of the information.* Mean value: 3,61, Median: 4, Mode: 4 (41,7% **Very**)
- *Students that can understand the material better through listening and oral teaching methods.* Mean value: 3,55, Median: 4, Mode: 3 (39,3% Moderately)
- *Students that can better learn the teaching materials through taking notes and reading the written contexts and texts.* Mean value: 3,28, Median: 3, Mode: 3 (39,3% Moderately)
- *Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).* Mean value: 3,8, Median: 4, Mode: 4 (40,1% **Very**)
- *Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told.* Mean value: 3,76, Median: 4, Mode: 4 (38,8% **Very**)
- *Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. These students often prefer to be told what to do and will then give it their best shot at doing it well.* Mean value: 3,45, Median: 3, Mode: 3 (37,2% Moderately)
- *Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.* Mean value: 3,31, Median: 3, Mode: 3 (39% Moderately)
- *Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.* Mean value: 3,32, Median: 3, Mode: 3 (40,2% Moderately)
- *Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists.* Mean value: 3,02, Median: 3, Mode: 3 (42,3% Moderately)
- *Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.* Mean value: 3,37, Median: 3, Mode: 3 (39,4% Moderately)
- *Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they*

please (work asystematic or even antisystematic). Mean value: 3,21, Median: 3, Mode: 3 (34,4% Moderately)

- *Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.* Mean value: 3,44, Median: 3, Mode: 3 (42,3% Moderately)
- *Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details.* Mean value: 2,99, Median: 3, Mode: 3 (42,7% Moderately)
- *Students that have a preference for tasks, projects, and situations that allow them to work independently of others.* Mean value: 3,24, Median: 3, Mode: 3 (43,2% Moderately)
- *Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone.* Mean value: 3,45, Median: 3, Mode: 3 (39,8% Moderately)
- *Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity.* Mean value: 3,45, Median: 3, Mode: 3 (36,9% Moderately)
- *Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity.* Mean value: 3,02, Median: 3, Mode: 3 (42,3% Moderately)

The attributes that seem to be more preferable by the instructors regarding their students include:

- Students that better discern the material through watching a demonstrative presentation of the information.
- Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).
- Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told.

Instructors' Attributes

In the nationality variable it becomes obvious that 53,13% of the participants are Greek, while 24,61% of them are Italian, 11,33% are Serbian and 9,77% are Romanian. The Cypriot, German and Ukrainian nationalities present percentages below 1%.

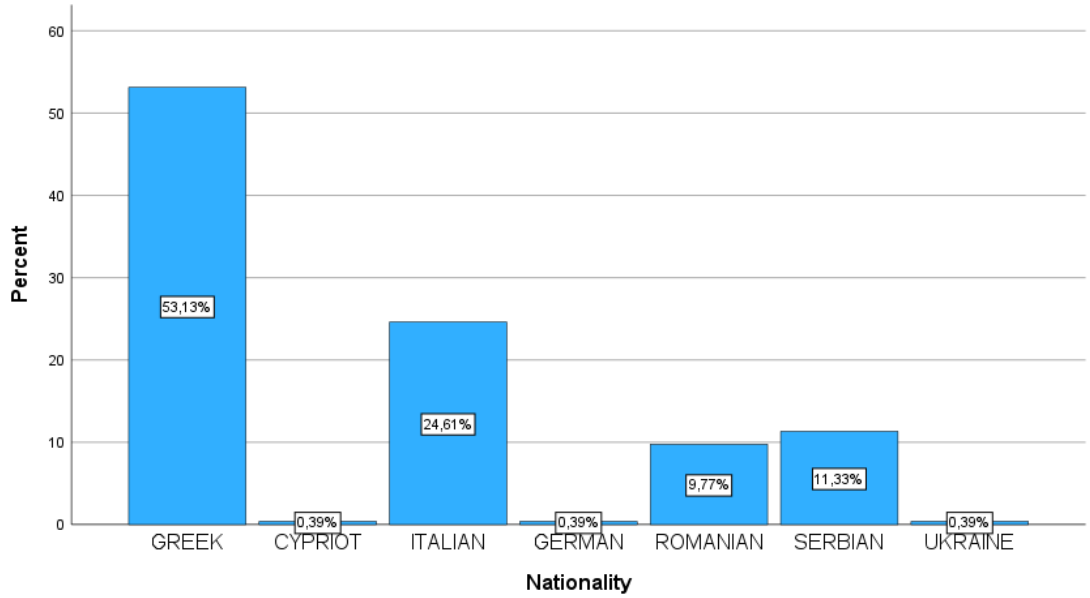

Figure 12 Nationality

As far as the gender is concerned, 43,58% of the instructors are female, while 54,86% are male.

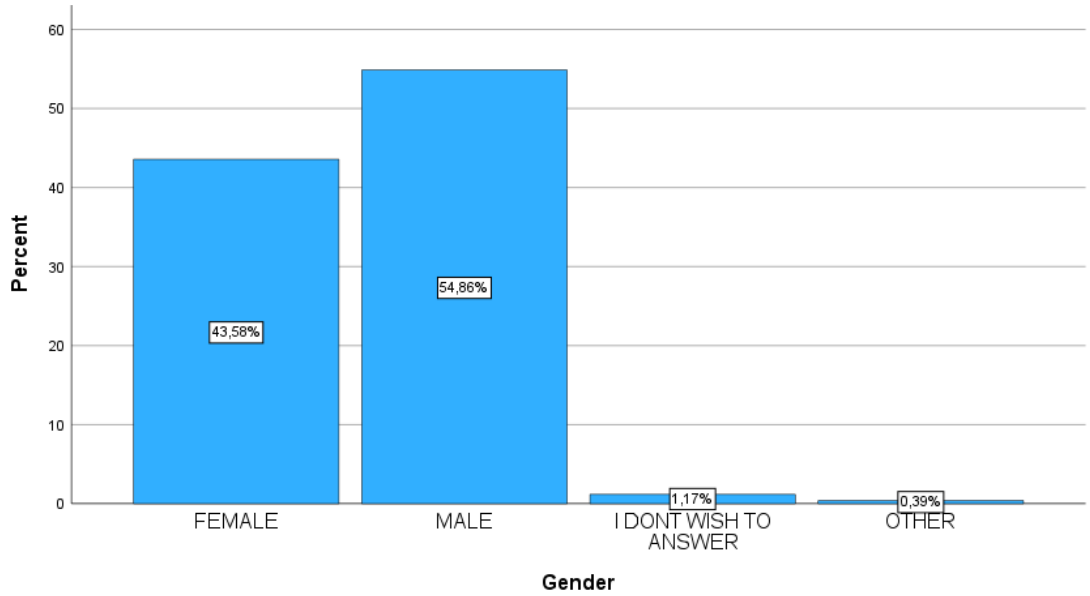

Figure 13 Gender

Regarding the age, the average value of the participants is approximately 49,5 years, based on the statistical analysis. It is worth mentioning that oldest participant is 74 years old.

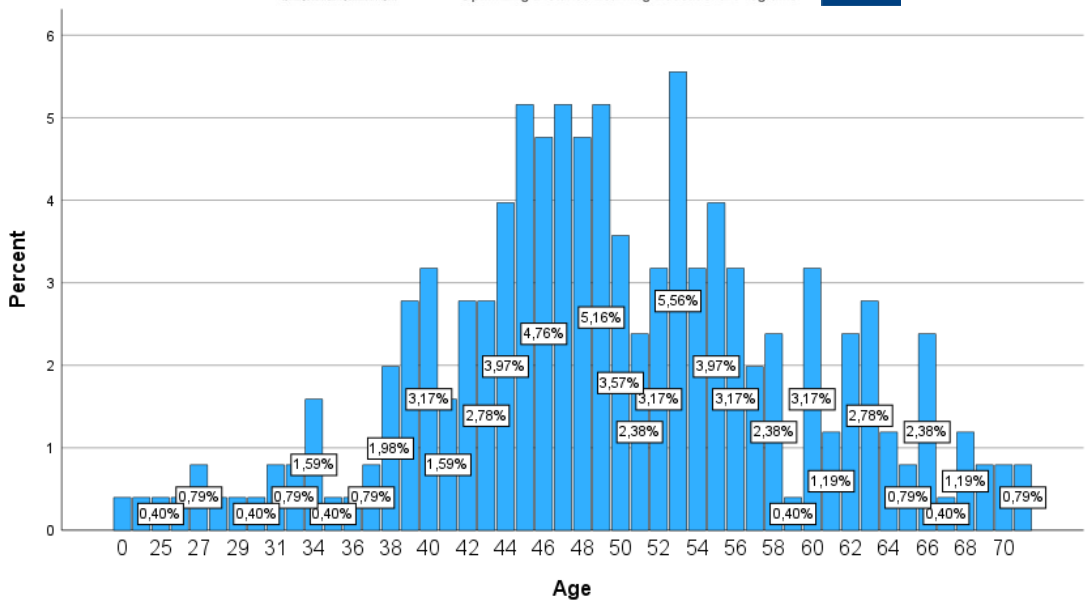

Figure 14 Age Distribution

Regarding the marital status, it becomes evident that the majority of the instructors (67,19%) are married, while 25,39% of them are single.

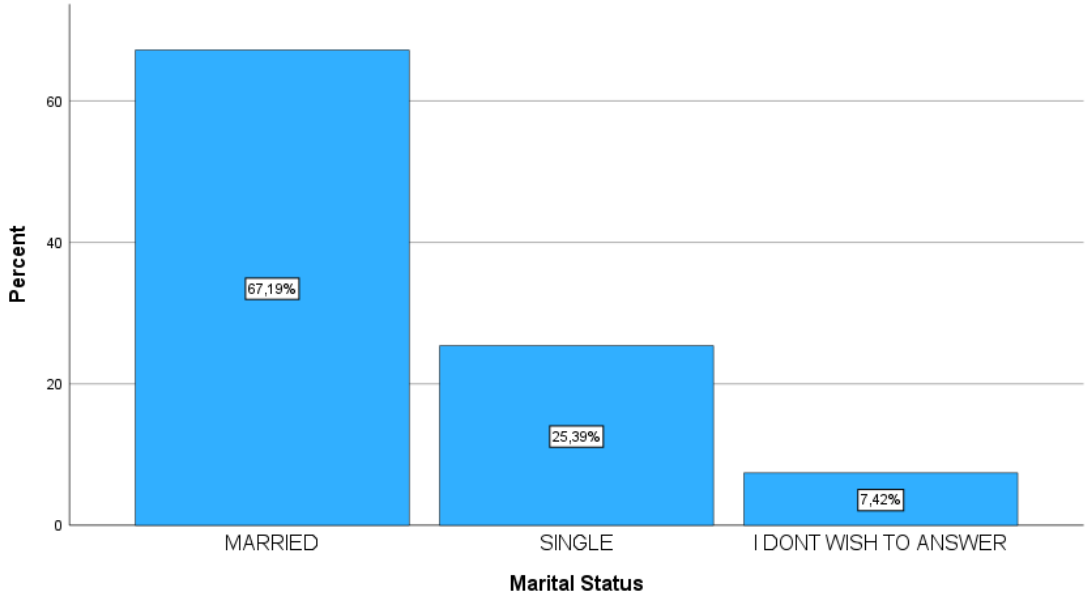

Figure 15 Marital Status

In the following figure it is shown that 36,73% of the participants have two children, 30,20% have no children, while 27,35% of them have one child.

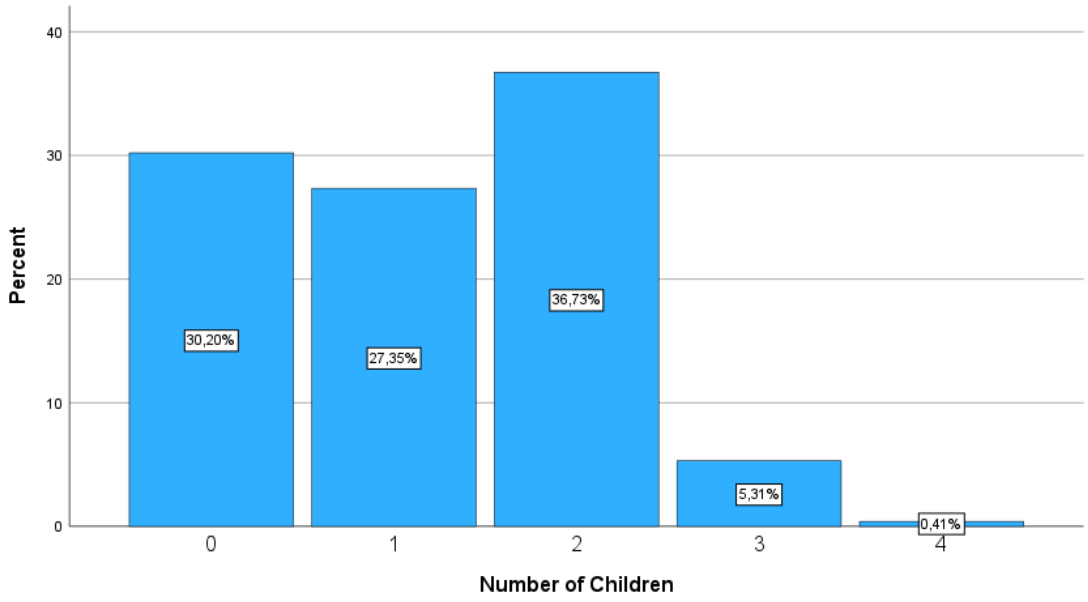

Figure 16 Number of Children

As far as the participants' position / professional title is concerned, it is noteworthy that 38,28% are Professors, while 23,05% are Assistant professors.

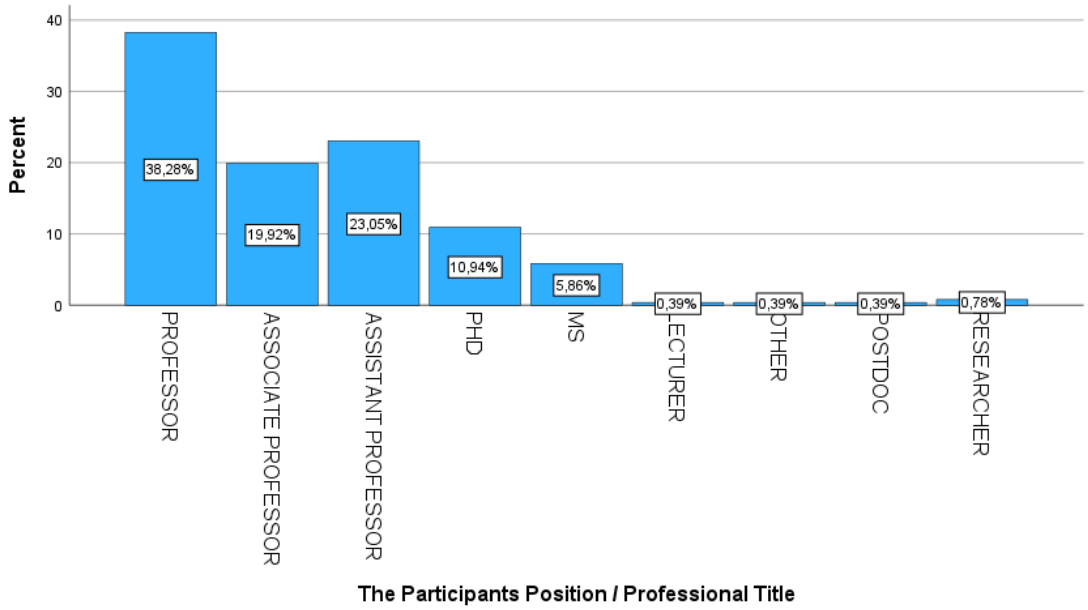

Figure 17 The Participants' Position / Professional Title

Regarding the monthly income (in euros) of the instructors, it is worth mentioning that the majority of instructors' income seem to range from 1100 to 2500 euros on a monthly basis.

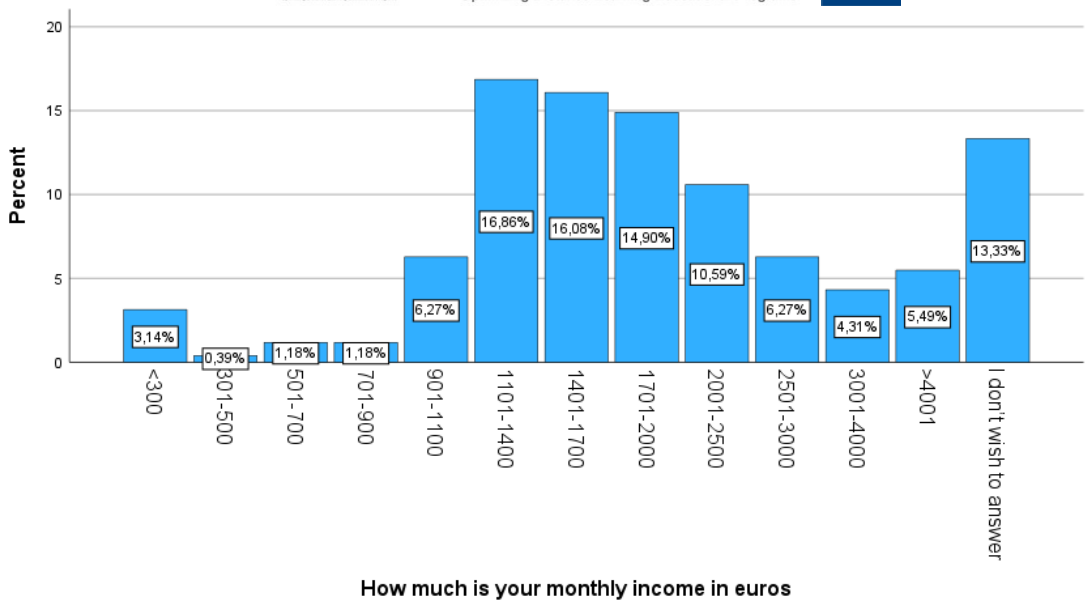

Figure 18 Question: How much is your monthly income (in euros)?

In the variable of organization type it becomes obvious that the great majority (84,82%) of the instructors are employed in a State Government University, while only 15,18% are employed in a Private College.

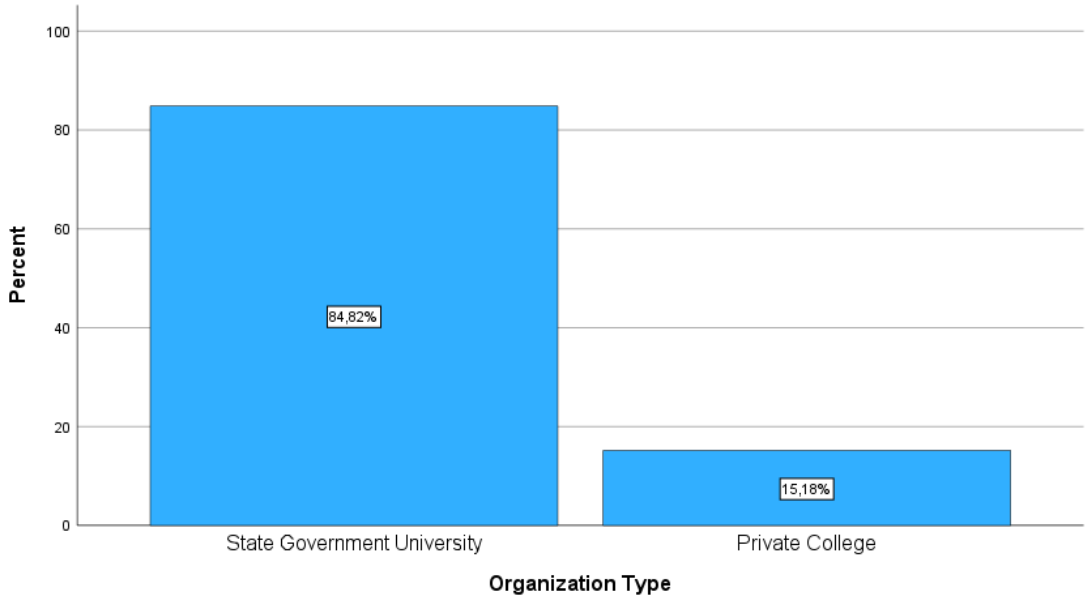

Figure 19 Organization Type

With respect to the semesters of distance learning education taught by the instructors, it is noteworthy that the average value, based on the statistical analysis is 6 semesters.

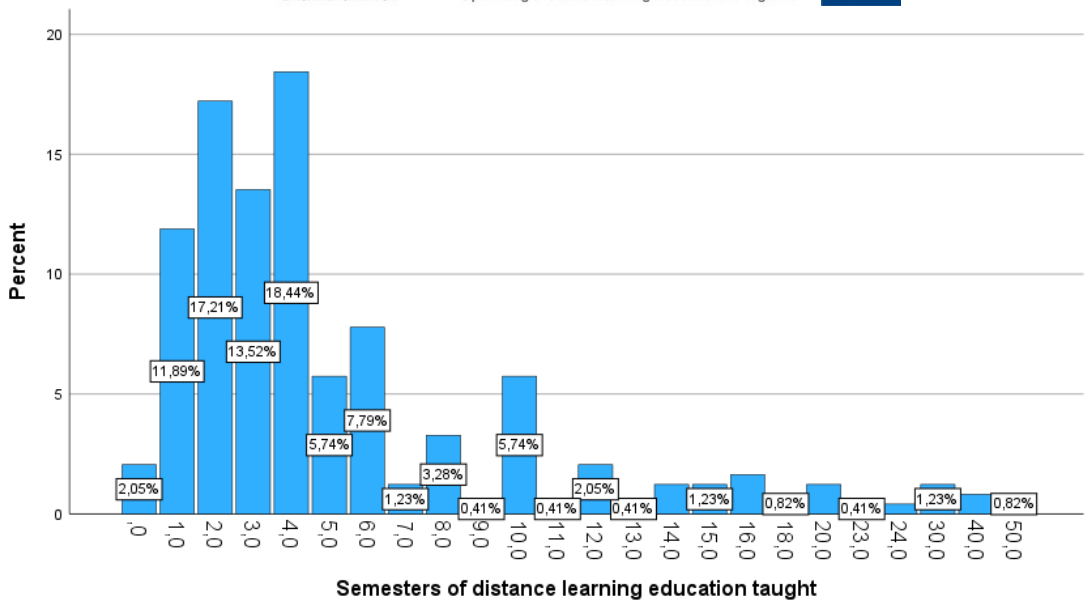

Figure 20 Semesters of distance learning education taught

Regarding the question if the instructors are certified for distance education Programs, it is noted that the great majority (71,43%) answered that they are not.

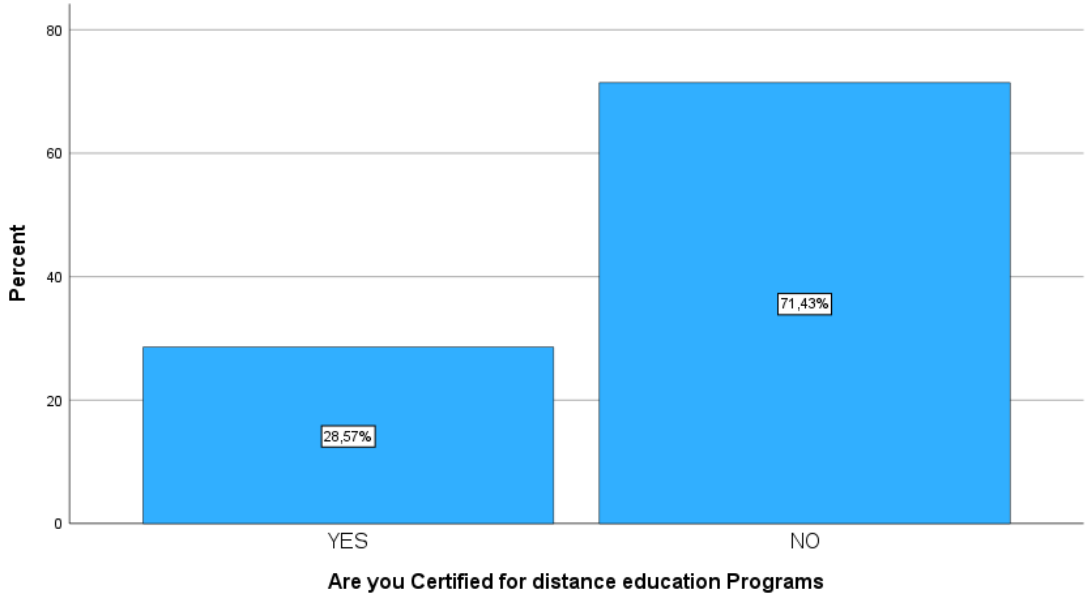

Figure 21 Question: Are you Certified for distance education Programs?

As shown in the following graph, most of the participants (41,63%) mention that their level of computer expertise is average to good. Then follow with the same percentage the responses "average" and "good" with 27,76%.

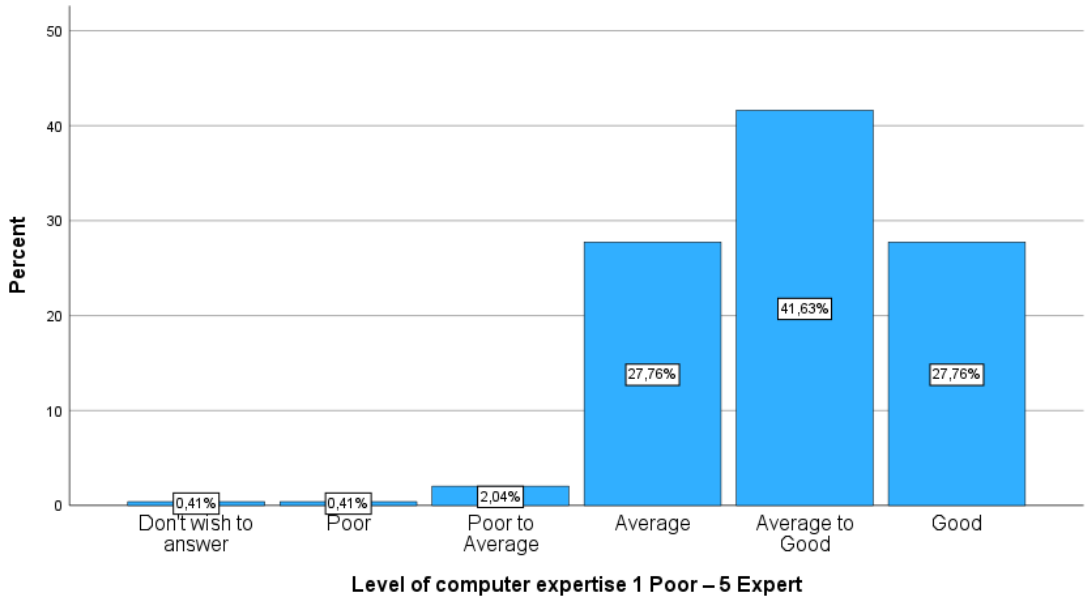

Figure 22 Level of computer expertise (1 poor – 5 Expert)

Concerning the question how efficient do the participants consider distance learning as a method of education, it is noted that the responses "average efficient" and "average efficient to most efficient" are the most popular, having the same percentage (35,22%).

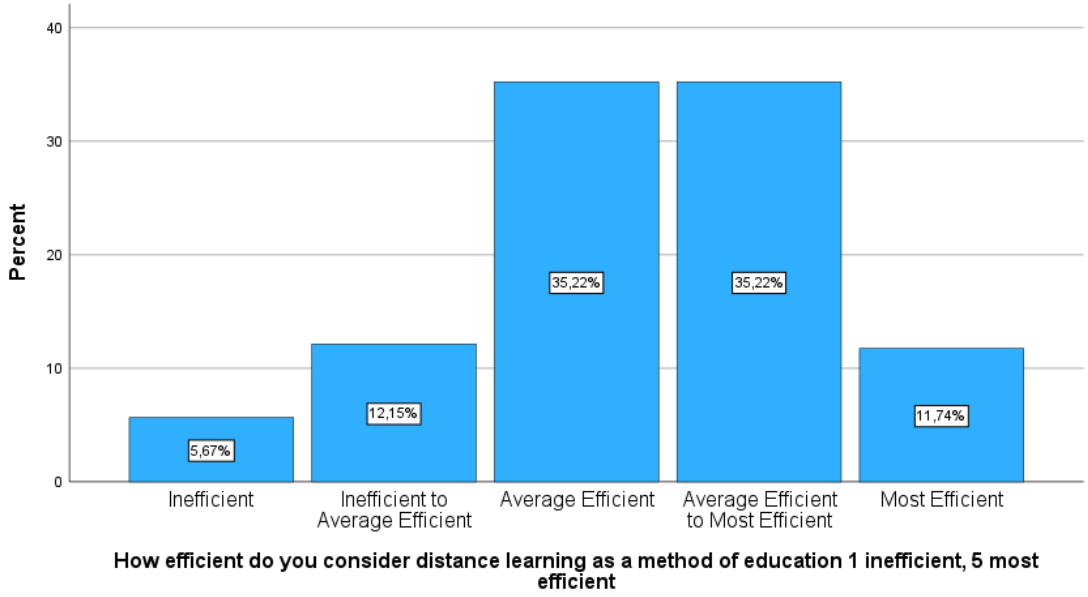

Figure 23 Question: How efficient do you consider distance learning as a method of education? (1 inefficient - 5 most efficient)

It is notable that to the question "Do you prefer face to face educational methods or distance education?" by far the majority of participants (84,62%) answer that they prefer face to face.

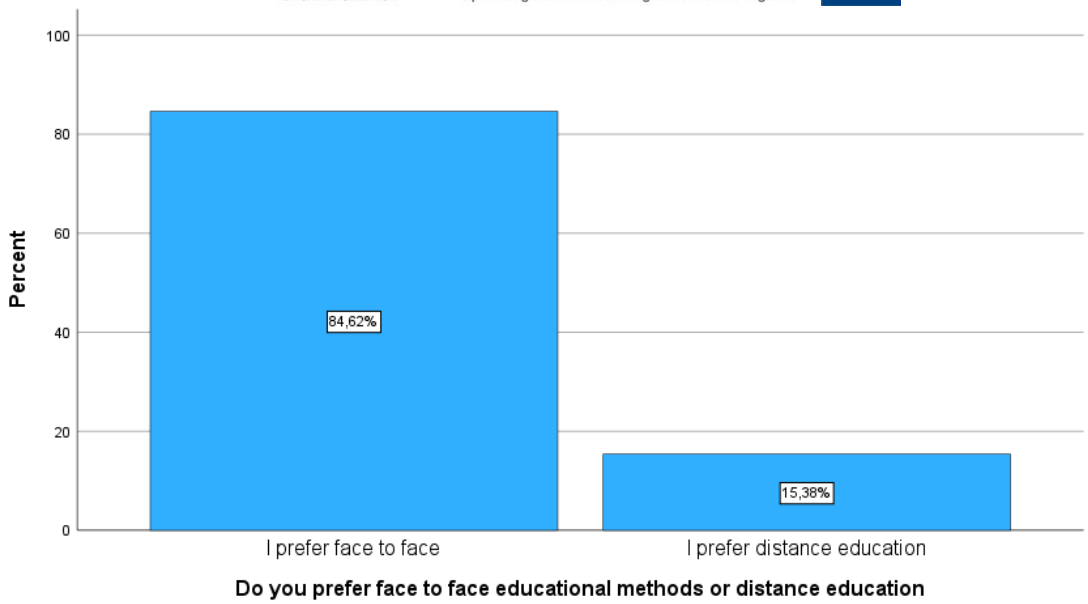

Figure 24 Question: Do you prefer face to face educational methods or distance education?

Additionally, to the question "In distance education and online courses do you prefer larger (>30 students) over smaller number of student groups?" the great majority of the instructors (77,14%) answer that they prefer smaller groups (<30 students).

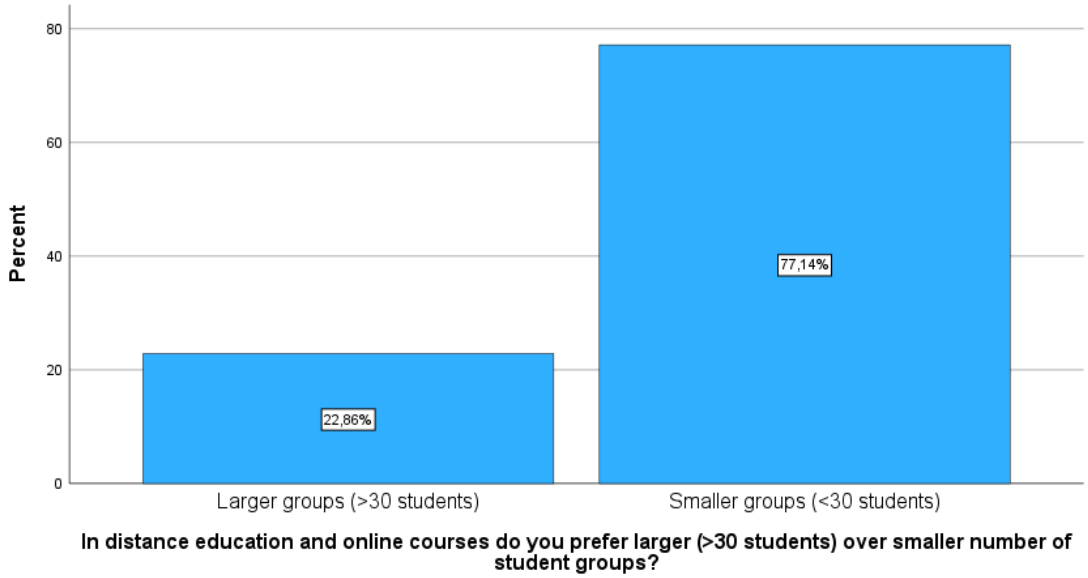

Figure 25 In distance education and online courses do you prefer larger (>30 students) over smaller number of student groups?

Moreover, to the question if the instructors have taught foreign students, a slight majority (57,09%) answers "Yes".

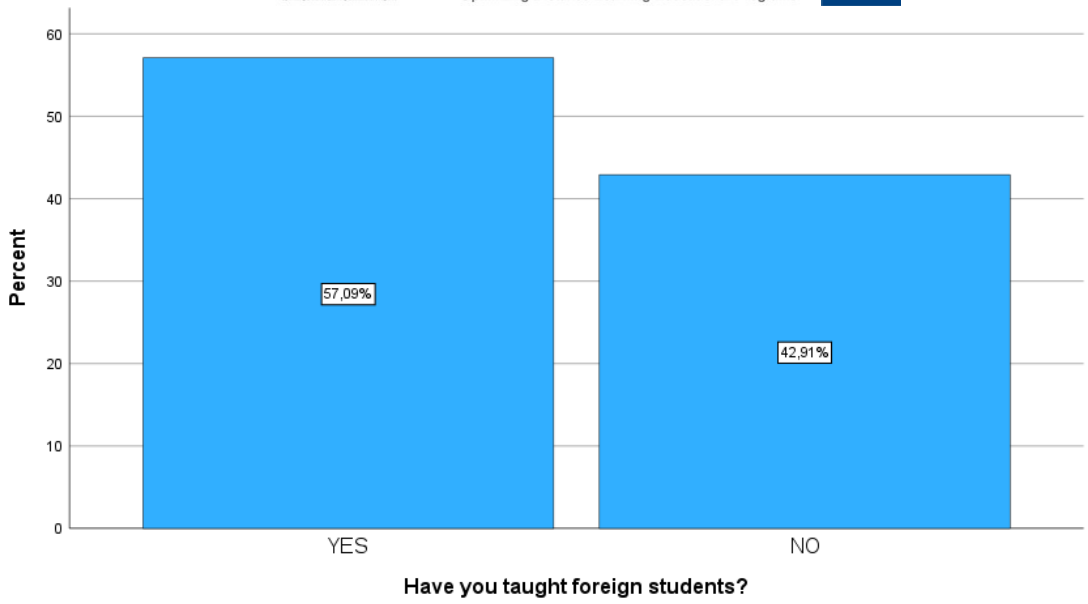

Figure 26 Have you taught foreign students?

Instructors' Teaching Styles

In the teaching style "*I have a preferred way of doing things, and I do not much like to do things in other ways"* the response with the greatest percentage (33,88%) is **Moderately**.

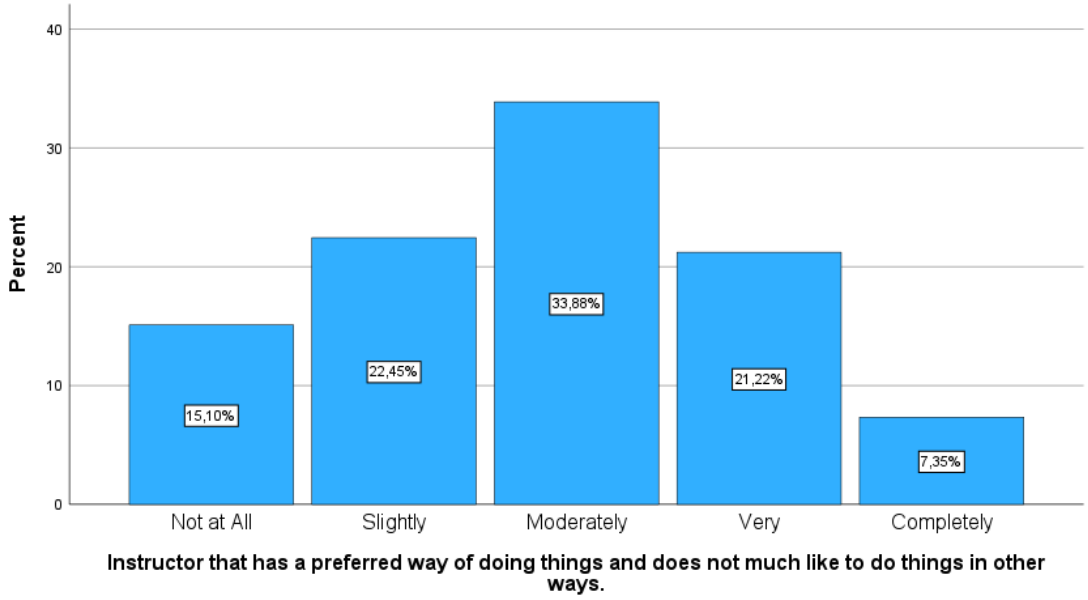

Figure 27 Instructor: I have a preferred way of doing things, and I do not much like to do things in other ways.

In comparison to the other responses, the majority of instructors (48,16%) state that the teaching style "*I carefully set priorities and then stick to them*" describes them **very** much.

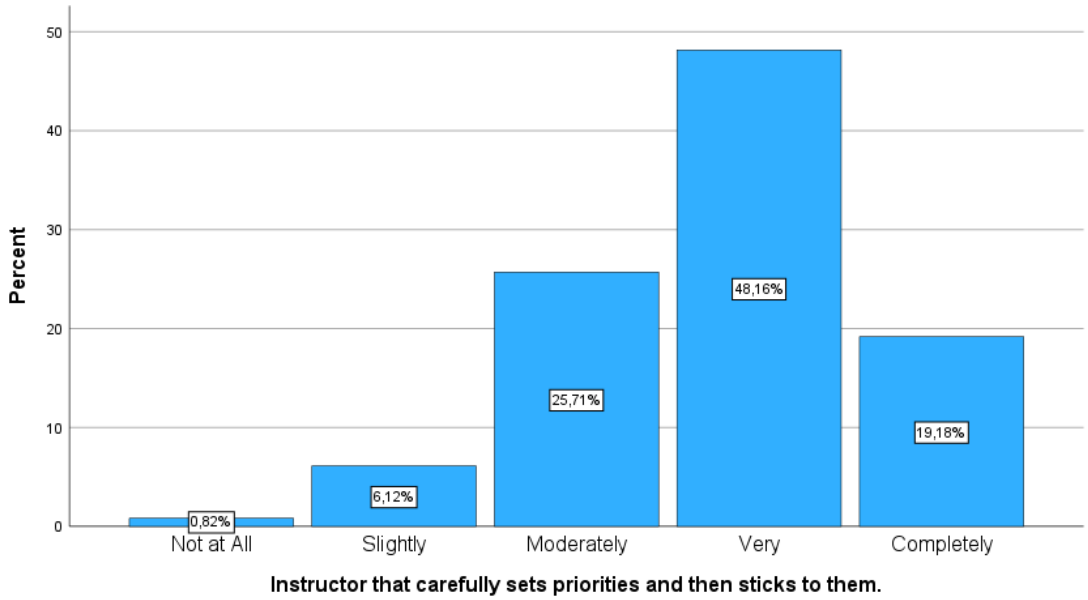

Figure 28 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I carefully set priorities and then stick to them.]

Regarding the statement "*I do not easily allocate class time so that the most important things receive the most coverage"*, the response with the greatest percentage (33,06%) is that it describes the instructors **moderately**.

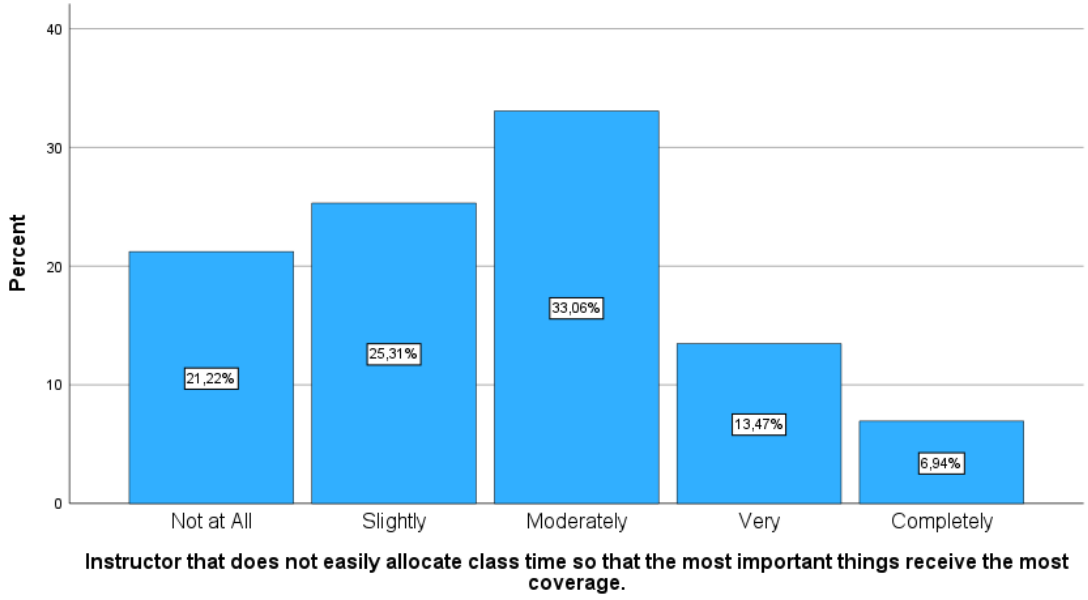

Figure 29 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I do not easily allocate class time so that the most important things receive the most coverage.]

Moreover, concerning the statement "*I am not so organized in my teaching style, but I am very creative, and I spark creative ideas in my students"*, the responses with the greatest percentage are that it describes the instructors **moderately** (32,24%) and that it describes them **slightly**

(31,84%).

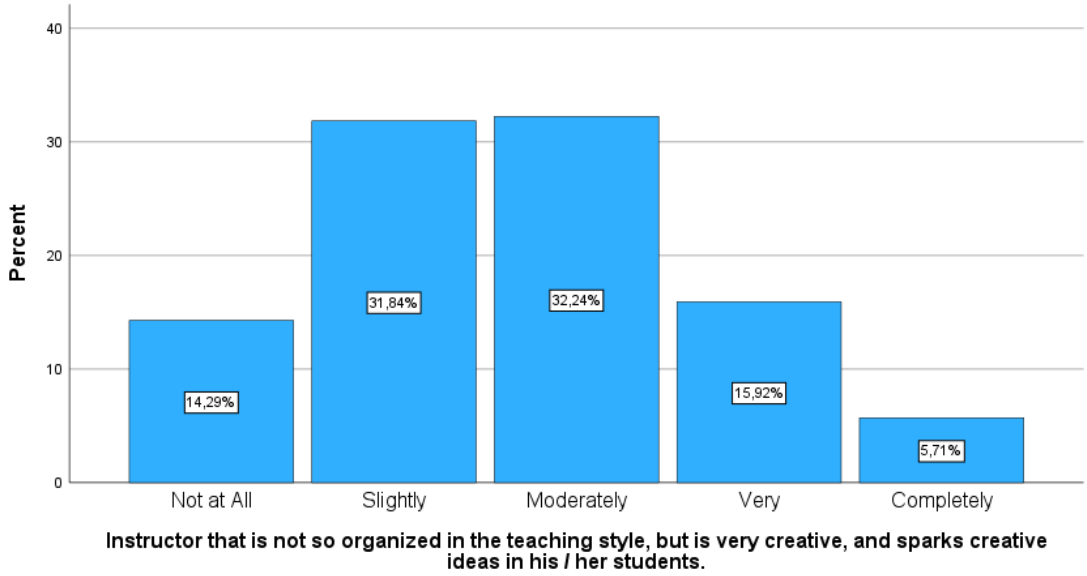

Figure 30 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I am not so organized in my teaching style, but I am very creative, and I spark creative ideas in my students.]

In comparison to the other responses, the majority of instructors (39,18%) state that the teaching style "*I tend to be very detail - oriented in lecturing*" describes them **moderately**.

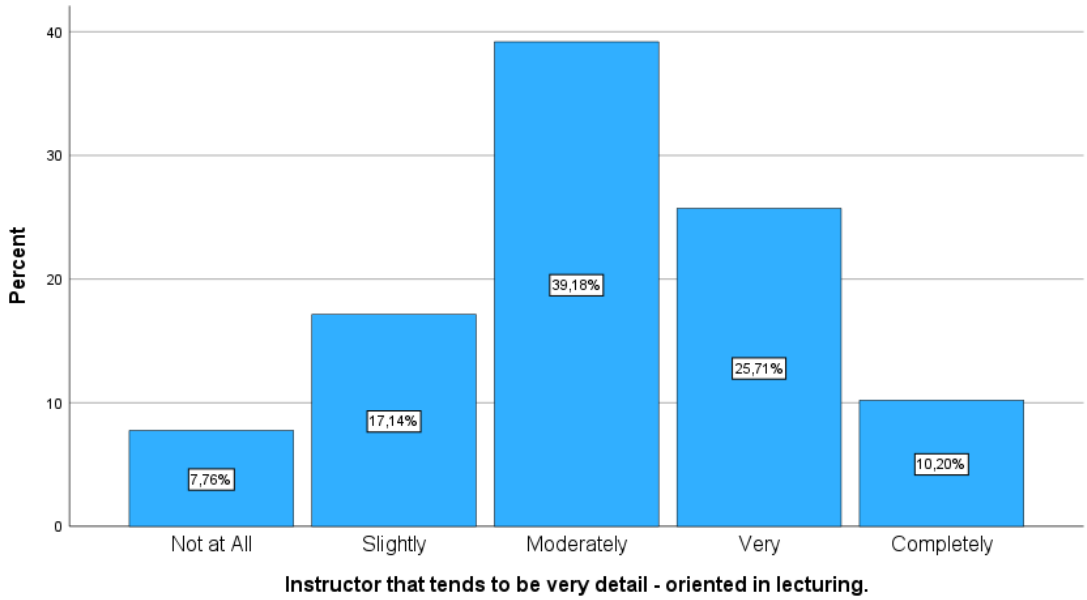

Figure 31 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I tend to be very detail - oriented in lecturing.]

As it is presented in the following figure, in the teaching style "*I tend to be very general in my teaching and concentrate on the big picture rather than the details"* the response with the greatest percentage (37,14%) is that it describes the instructors **moderately**.

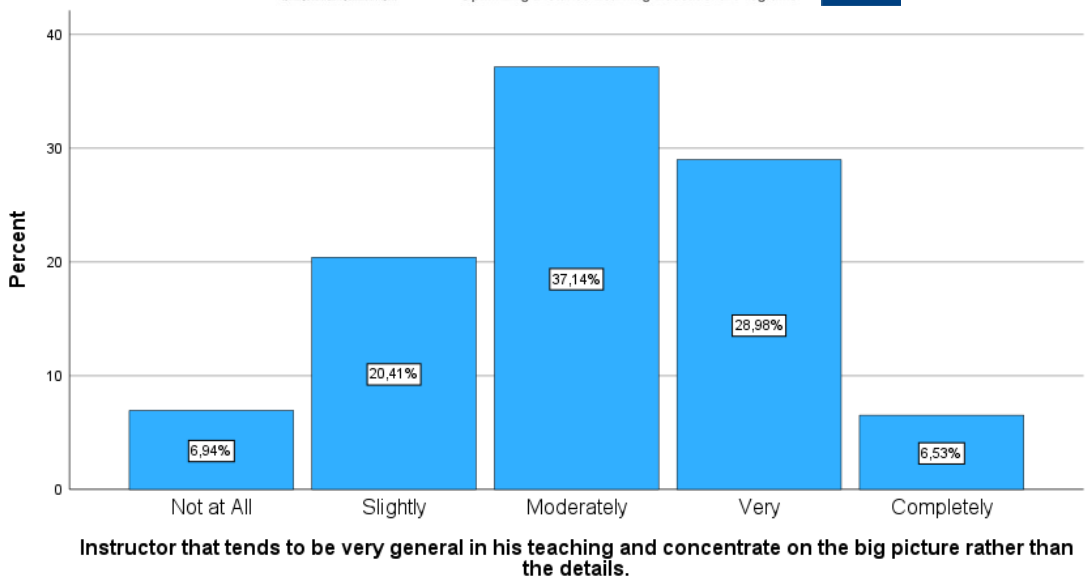

Figure 32 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I tend to be very general in my teaching and concentrate on the big picture rather than the details.]

The following graph shows that, in comparison to the other responses, a slight majority of instructors (26,53%) state that the teaching style "*I am not so enthusiastic about team teaching and prefer to teach on my own*" describes them **moderately**, and then follow the responses "Slightly" (with 23,27%) and "Not at all" (with 21,63%).

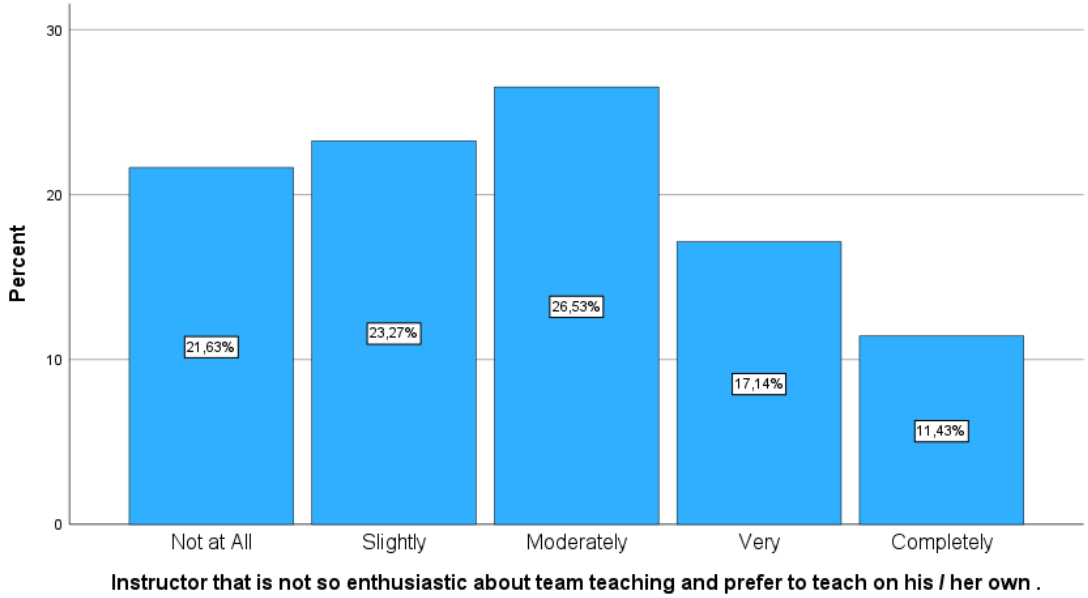

Figure 33 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I am not so enthusiastic about team teaching and prefer to teach on my own.]

Regarding the statement "*I welcome team teaching or other opportunities to collaborate with fellow instructors"*, the response with the greatest percentage (32,65%) is that it describes the instructors **very** much.

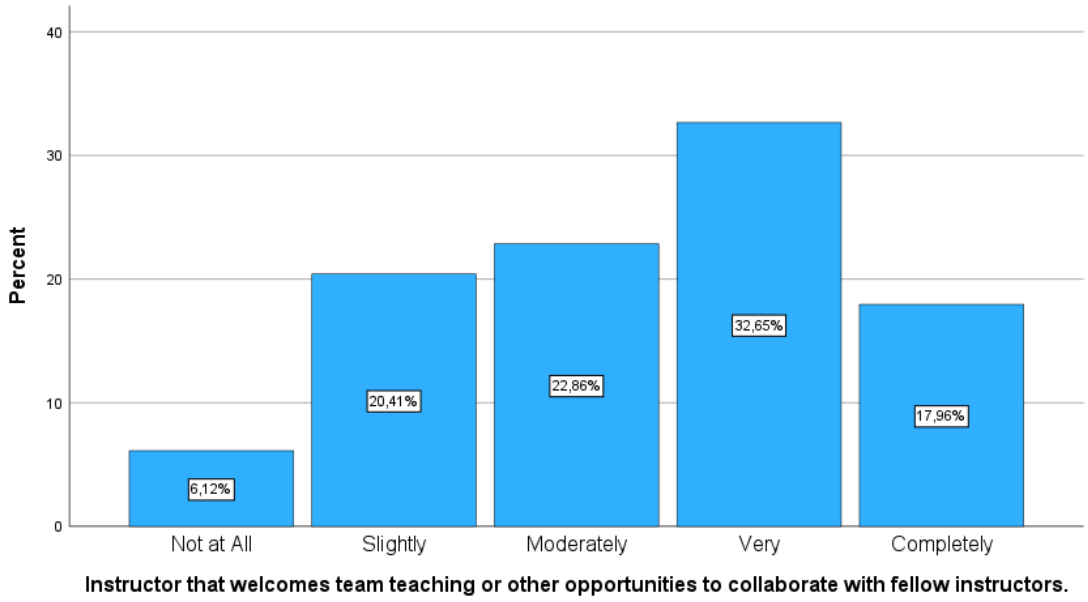

Figure 34 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I welcome team teaching or other opportunities to collaborate with fellow instructors.]

Compared to the other responses, the majority of instructors (40%) state that the teaching style "*I like to teach in new ways and to try new teaching techniques*" describes them **very** much.

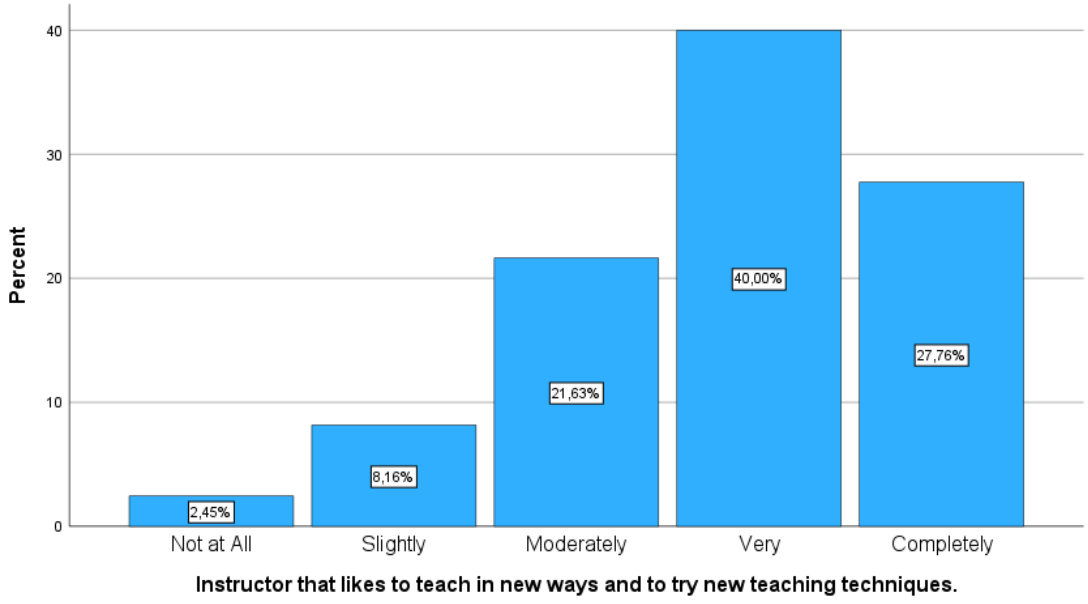

Figure 35 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I like to teach in new ways and to try new teaching techniques.]

Additionally, a large majority of instructors (40%), in comparison to the other responses, state that the teaching style "*I like to teach in traditional ways, and I am hesitant to try new ways of teaching*" describes them **slightly**.

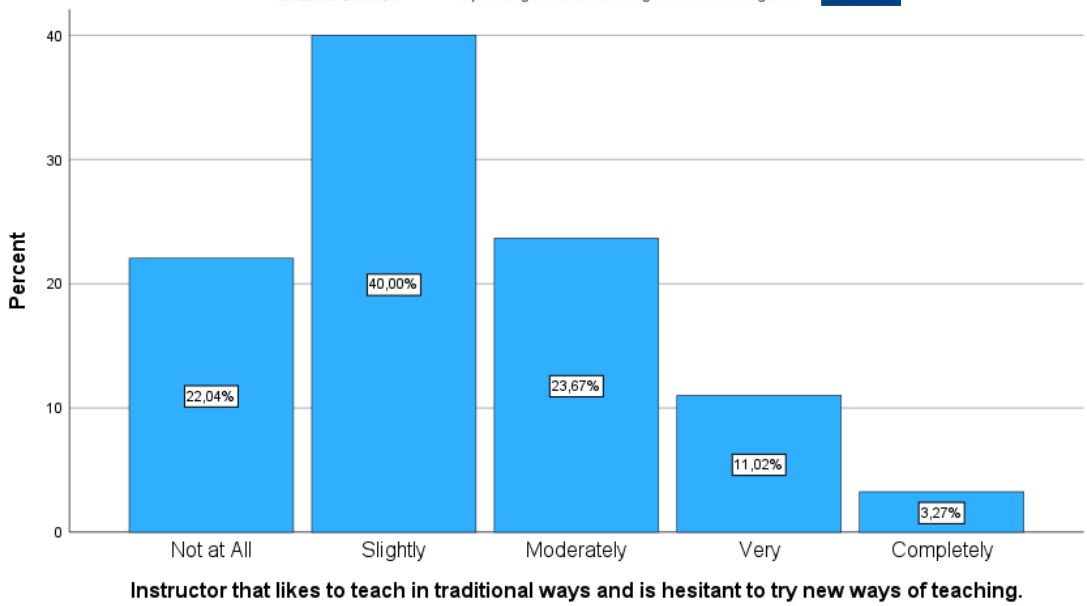

Figure 36 How much do the following statements describe yourself as an instructor: (1 not at all, 5 completely) [I like to teach in traditional ways, and I am hesitant to try new ways of teaching.]

PREFFERED STUDENTS' LEARNING STYLES ACCORDING TO INSTRUCTORS

The section of the questionnaire regarding the students' learning styles collected responses / feedback from the instructors based on their opinion of the preferred learning styles of the students. Instructors were presented with a number of statements and were asked how much these statements describe their preferred students. In the following section the frequencies of responses, regarding the students' learning style, as considered by the participating instructors, are presented and discussed.

Comparatively with the other responses, the majority of instructors (41,74%) considering the learning style "*Students that better discern the material through watching a demonstrative presentation of the information"* mention that they **very** much prefer the specific learning style for their students.

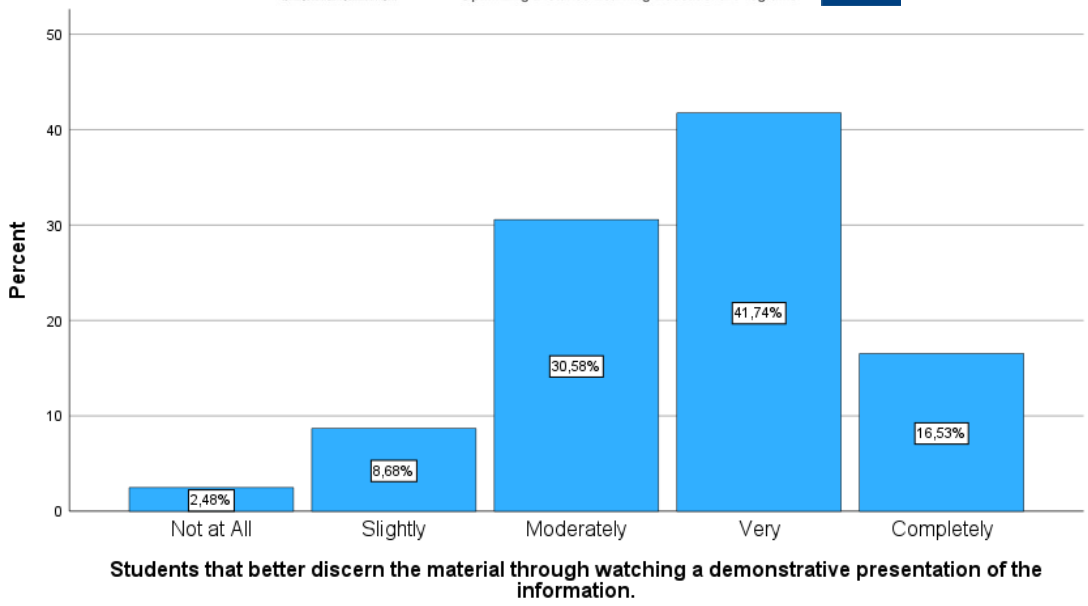

Figure 37 Students that better discern the material through watching a demonstrative presentation of the information

In comparison to the other responses, the majority of instructors (39,26%) considering the learning style "*Students that can understand the material better through listening and oral teaching methods*" mention that they **moderately** prefer the specific learning style for their students.

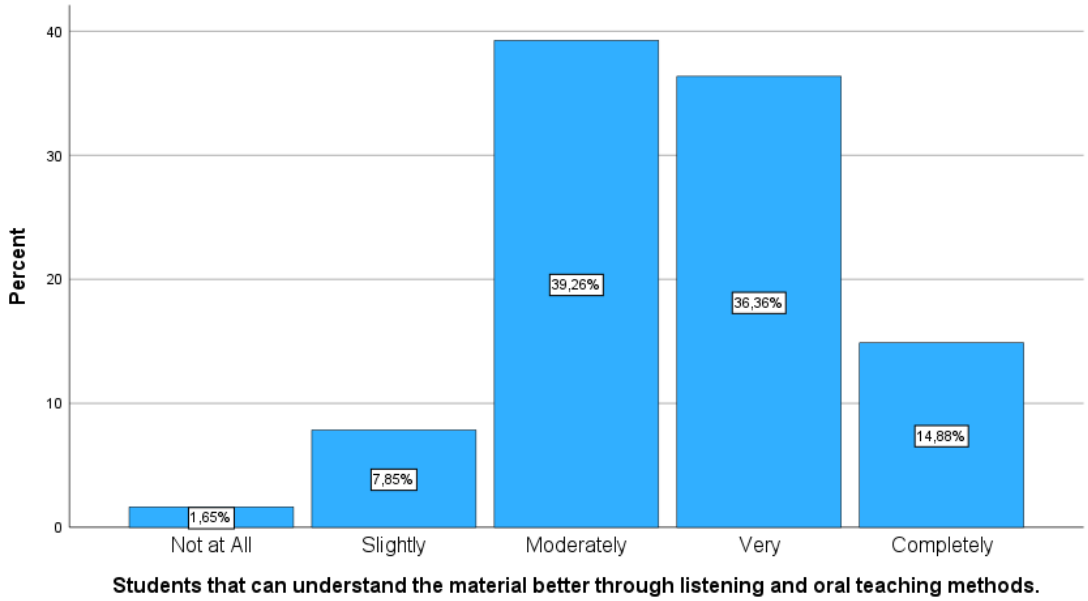

Figure 38 Students that can understand the material better through listening and oral teaching methods

In addition, comparatively with the other responses, the majority of instructors (39,26%) regarding the learning style "*Students that can better learn the teaching materials through taking notes and reading the written contexts and texts*" state that they **moderately** prefer the specific learning style for their students.

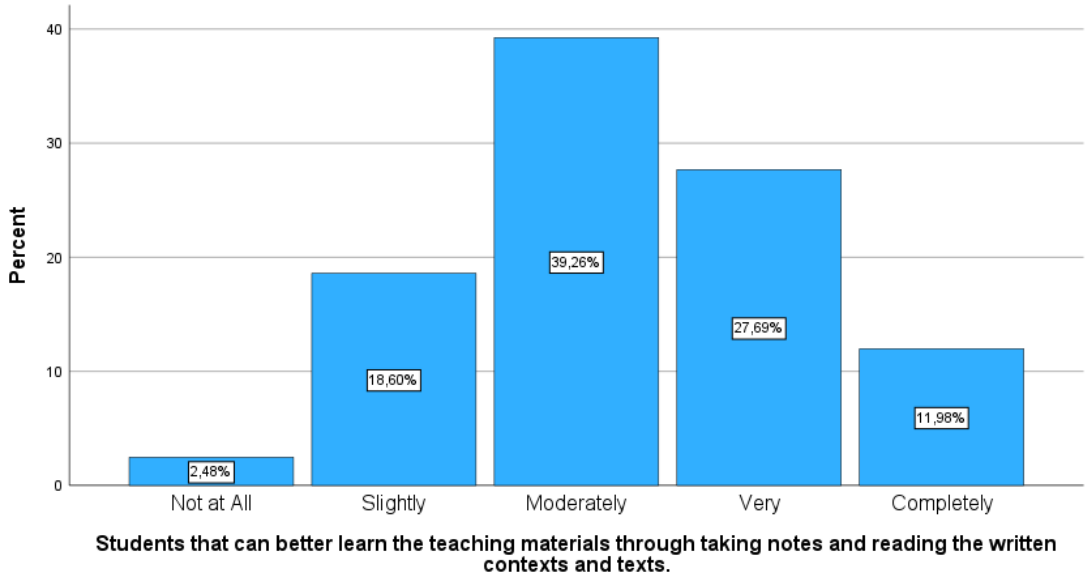

Figure 39 Students that can better learn the teaching materials through taking notes and reading the written contexts and texts

In the following graph it is presented that the majority of instructors (40,08%), compared to the other responses, concerning the learning style "*Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)*" mention that they **very** much prefer the specific learning style for their students.

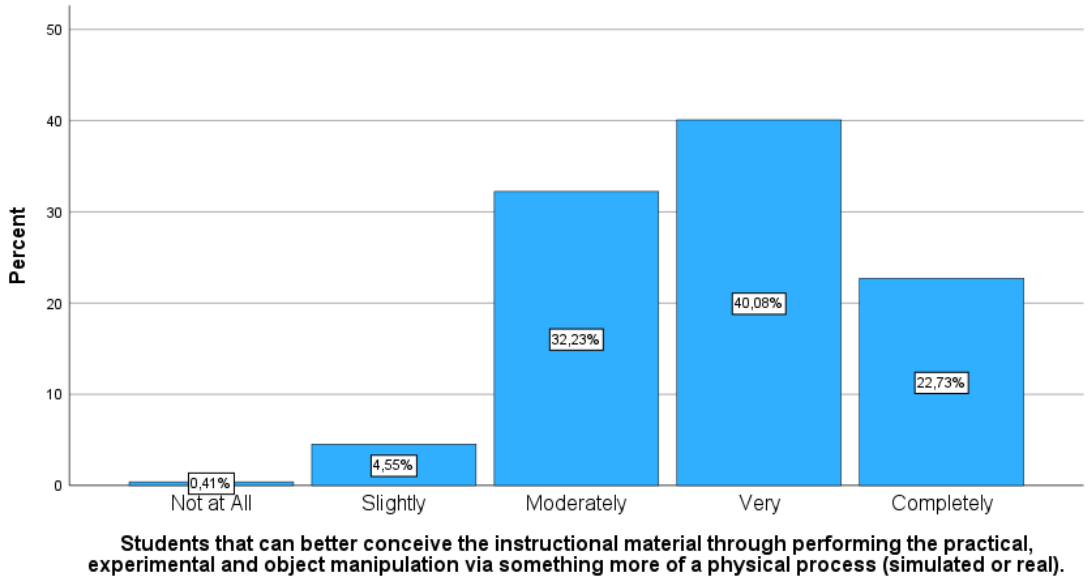

Figure 40 Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)

Moreover, in comparison to the other responses, the majority of instructors (38,84%) considering the learning style "*Students that have preference for tasks, projects, and situations*

that require creation, formulation, planning of ideas, strategies, and who like to decide what to do and how to do it, rather than to be told", suggest that they **very** much prefer this learning style for their students.

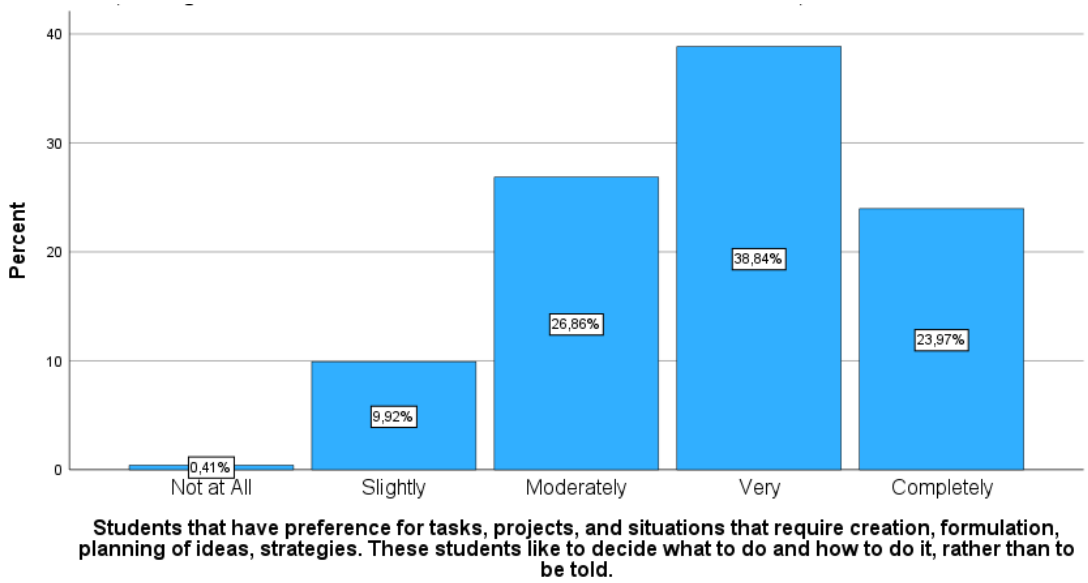

Figure 41 Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told

In the following figure it is shown that the majority of instructors (37,19%), compared to the other responses, concerning the learning style "*Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress, and who often prefer to be told what to do and will then give it their best shot at doing it well*", mention that they **moderately** prefer the specific learning style for their students.

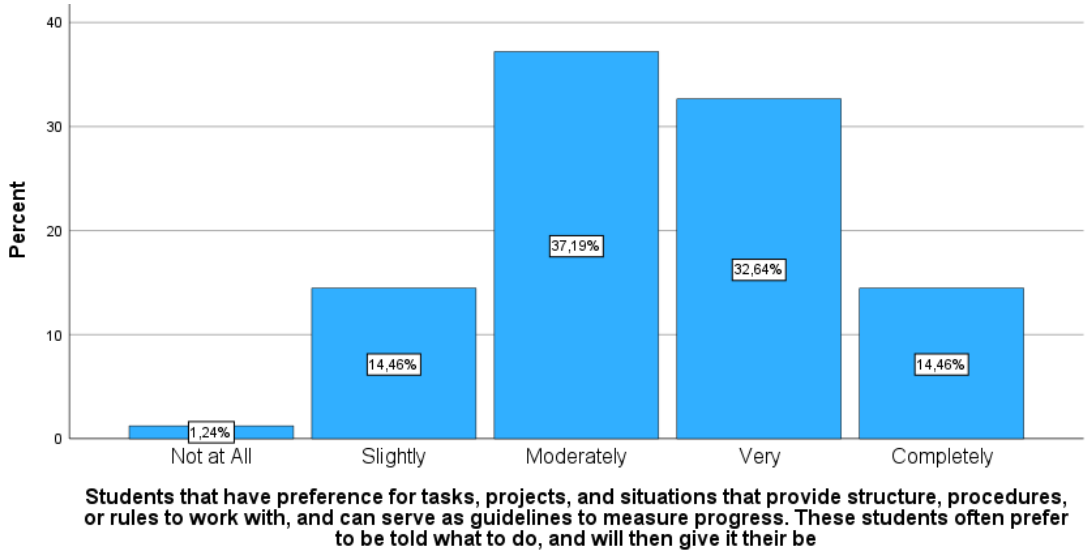

Figure 42 Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work

with, and can serve as guidelines to measure progress. These students often prefer to be told what to do and will then give it their best shot at doing it well

Comparatively with the other responses, the majority of instructors (39%) considering the following learning style "*Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects, and who tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses"*, state that they **moderately** prefer this learning style for their students.

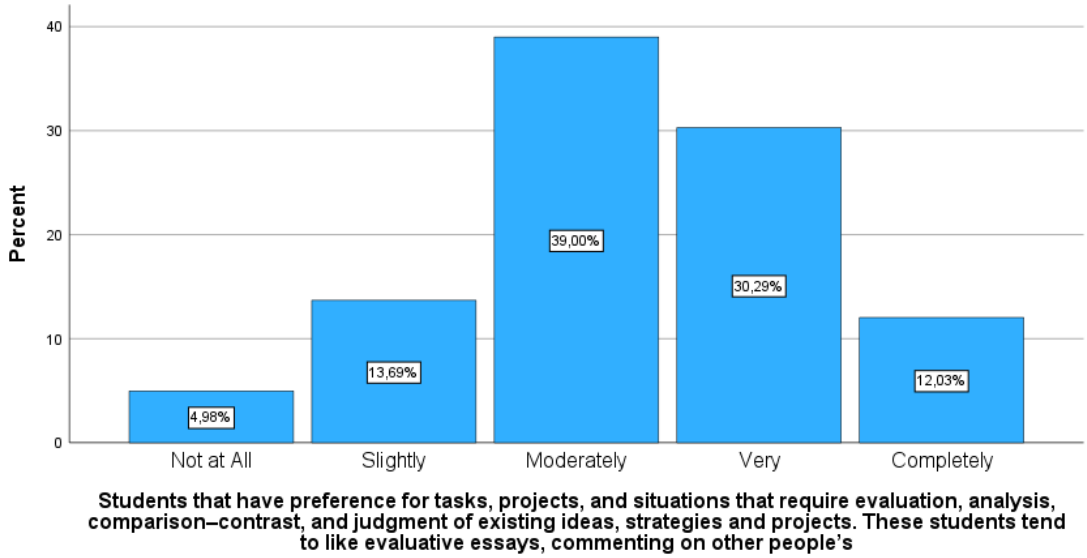

Figure 43 Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people' s ideas, and assessing others' strengths and weaknesses

In addition, the majority of instructors (40,25%), compared to the other responses, regarding the learning style "*Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete*" mention that they **moderately** prefer the specific learning style for their students.

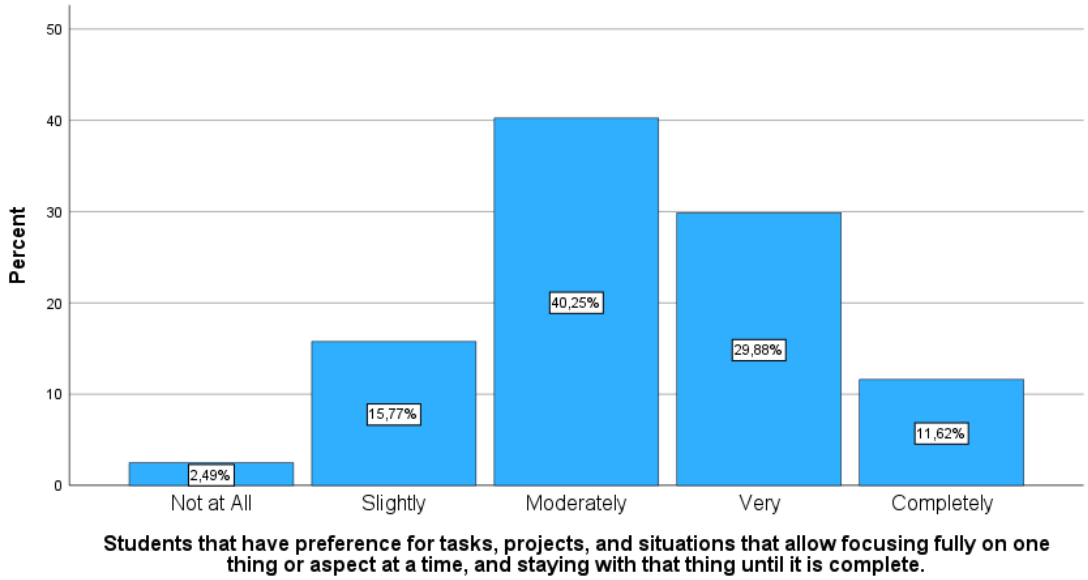

Figure 44 Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete

Correspondingly, a large majority of instructors (42,32%), in comparison to the other responses, considering the learning style "*Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill, and who will often make lists, and sometimes even lists of lists*" mention that they **moderately** prefer the specific learning style for their students.

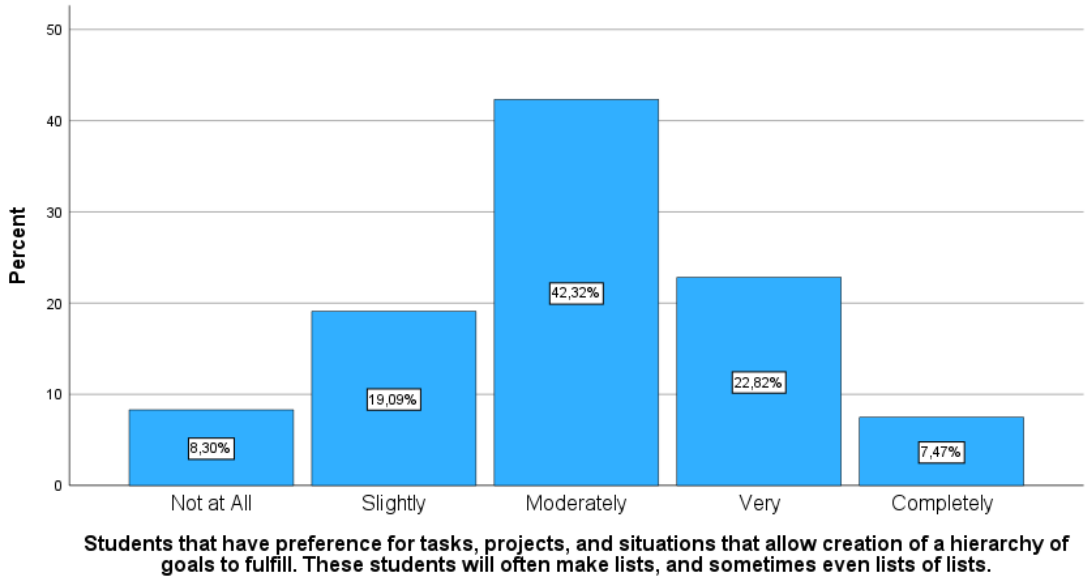

Figure 45 Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists

The following figure shows that in comparison to the other responses, the majority of instructors (39,42%), regarding the learning style "Students that have preference for tasks,

projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important", suggest that they **moderately** prefer this specific learning style for their students.

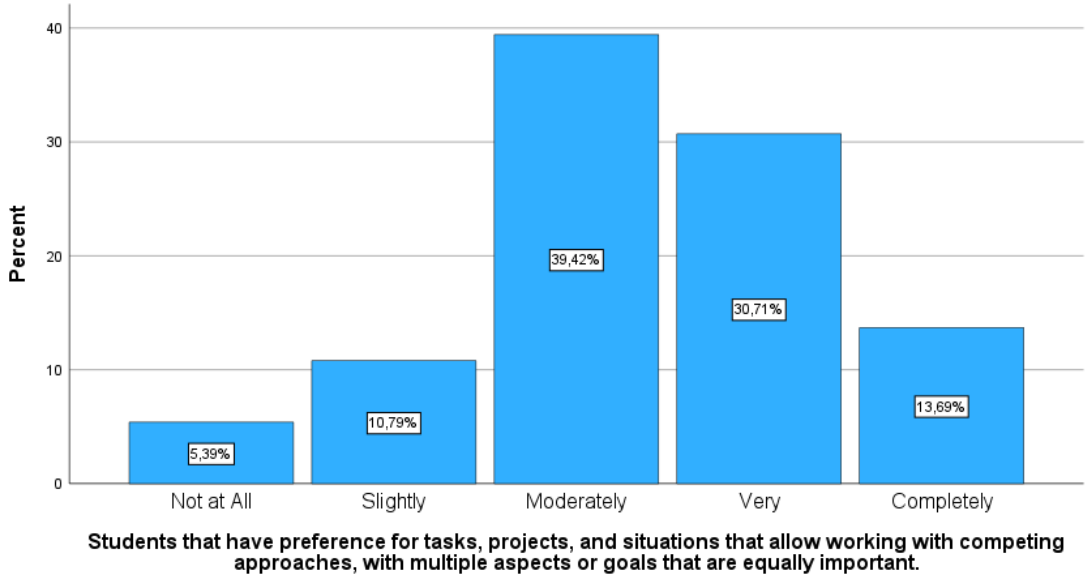

Figure 46 Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important

According to the next graph, a slight majority of instructors (34,44%), compared to the other responses, considering the learning style "*Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic)*", state that they **moderately** prefer the specific learning style for their students. On the other hand, 31,95% of the instructors suggest that they very much prefer this learning style.

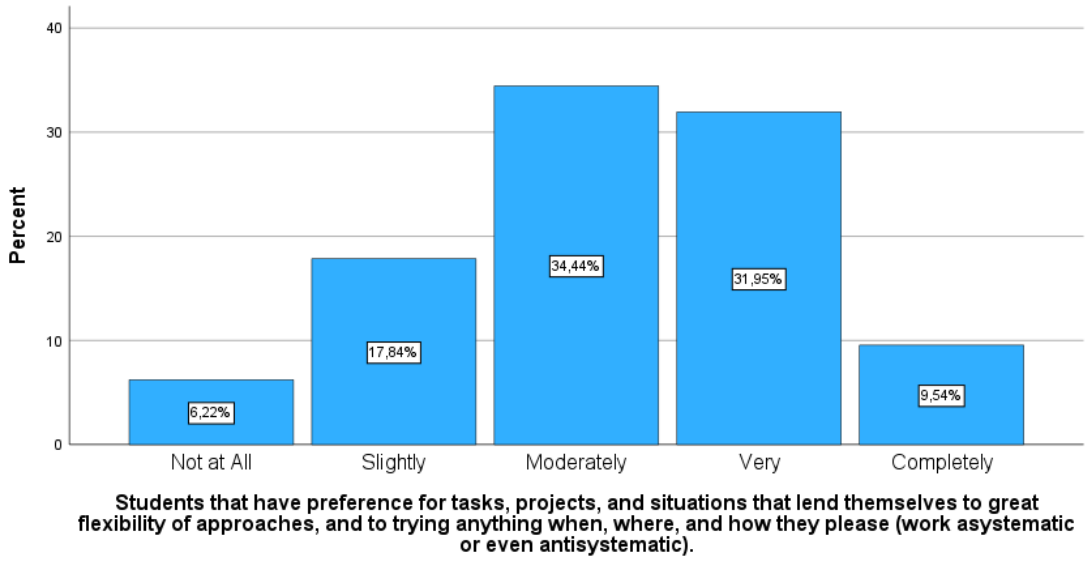

Figure 47 Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of

approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic)

Comparatively with the other responses, the majority of instructors (42,32%) considering the learning style "*Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details, and who tend to enjoy tasks that require keeping track of details and to focus on concrete specifics of a situation"* mention that they **moderately** prefer this learning style for their students.

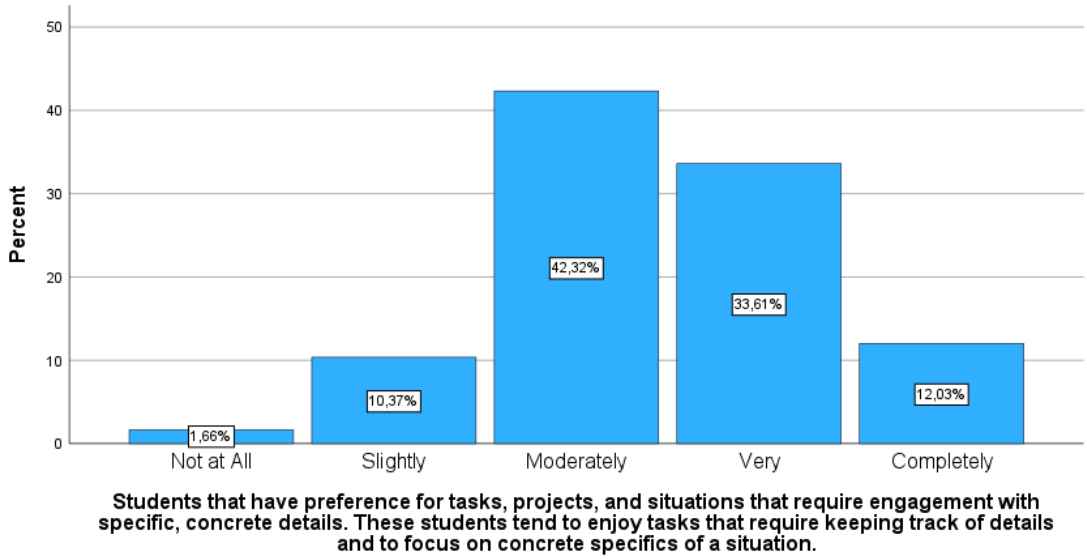

Figure 48 Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require keeping track of details and to focus on concrete specifics of a situation

The next figure indicates that a large majority of instructors (42,74%), in comparison to the other responses, considering the learning style "*Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas, and who like to deal with big ideas, but sometimes they can lose touch with the details*" state that they **moderately** prefer the specific learning style for their students.

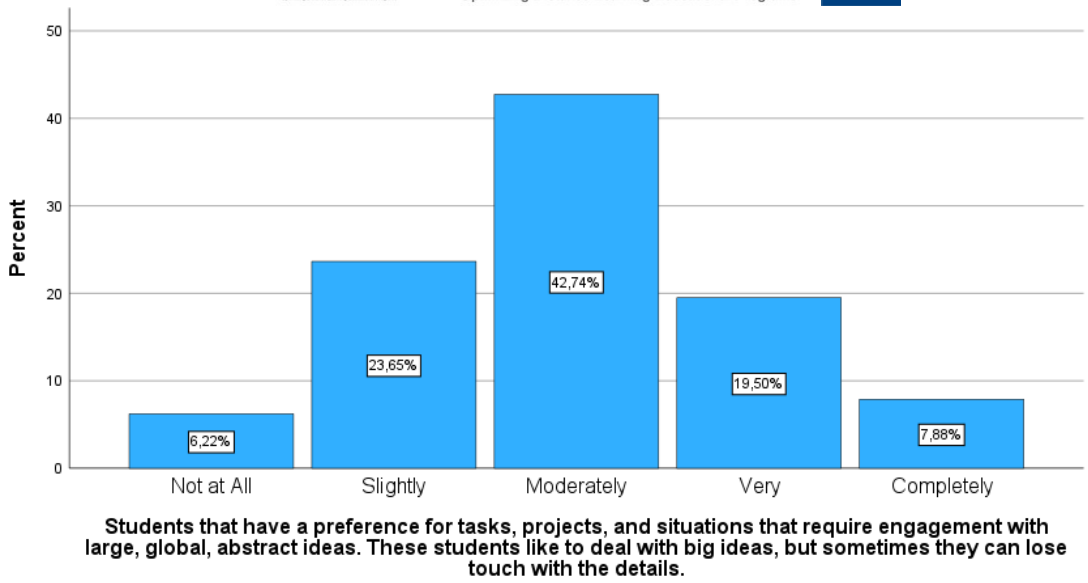

Figure 49 Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details

Correspondingly, a large majority of instructors (43,15%), in comparison to the other responses, regarding the learning style "*Students that have a preference for tasks, projects, and situations that allow them to work independently of others*" state that they **moderately** prefer this learning style for their students.

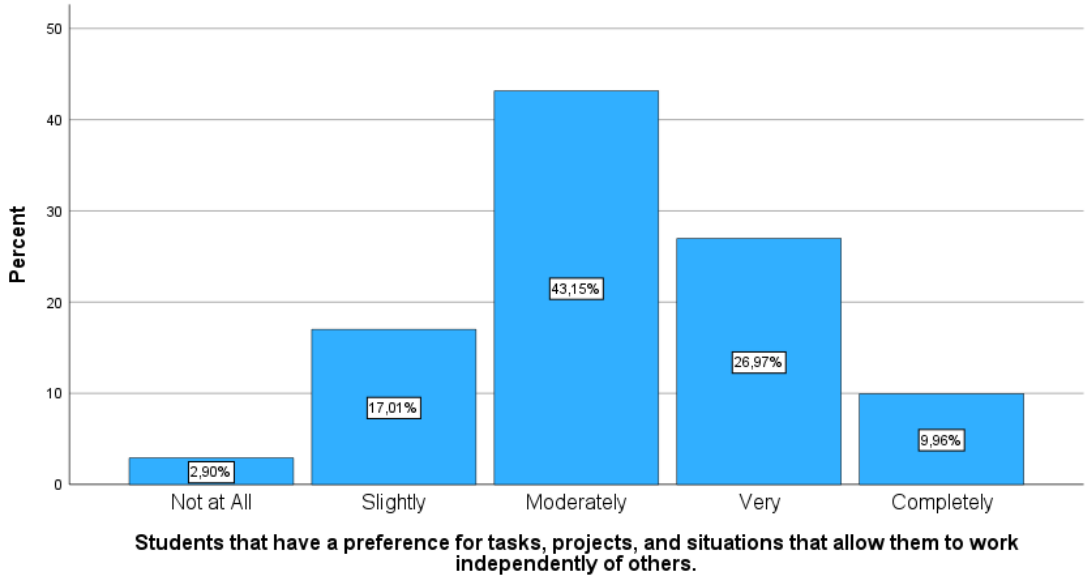

Figure 50 Students that have a preference for tasks, projects, and situations that allow them to work independently of others

On the other hand, considering the learning style "*Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress, and who do not enjoy working alone"*, it is worth mentioning that 39,83% of instructors mention that they **moderately** prefer this learning style for their students,

while 36,93% suggest that they **very** much prefer the specific learning style.

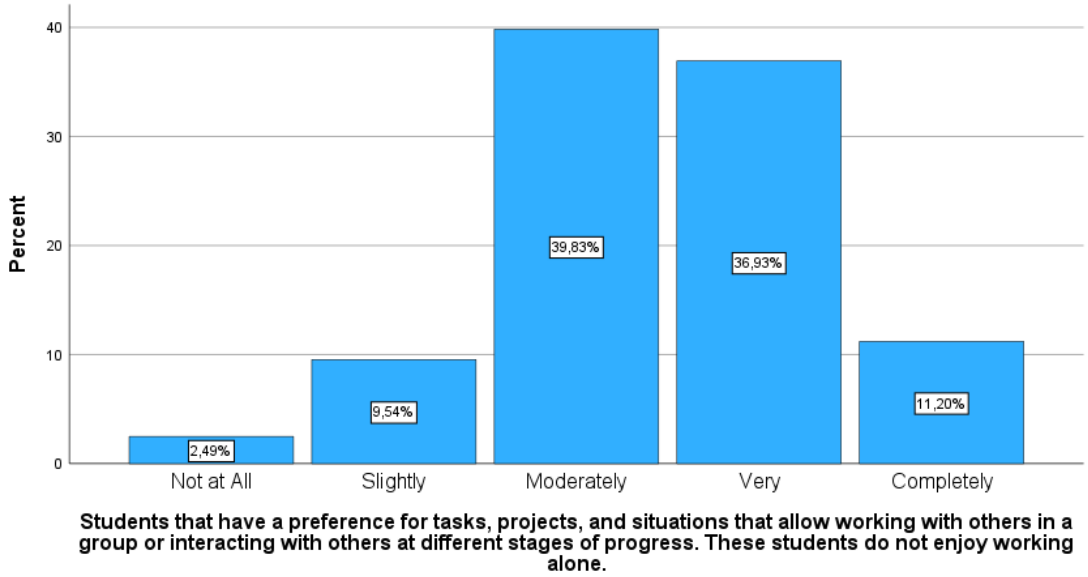

Figure 51 Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone

In the following graph it is shown that the majority of instructors (36,93%) compared to the other responses, concerning the learning style "*Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change, and who like new challenges and thrive on ambiguity*", mention that they **moderately** prefer for their students the specific learning style.

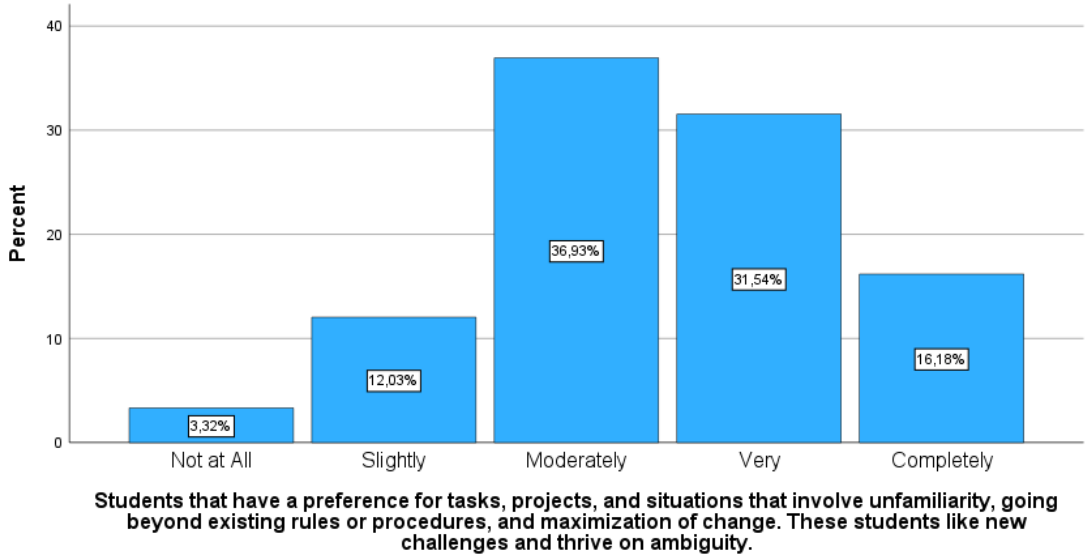

Figure 52 Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity

Finally, comparatively with the other responses, the majority of instructors (42,32%) considering the learning style "*Students that have a preference for tasks, projects, and*

situations that require adherence to and observance of existing rules and procedures, and who like to minimize change and avoid ambiguity" state that they **moderately** prefer the specific learning style for their students.

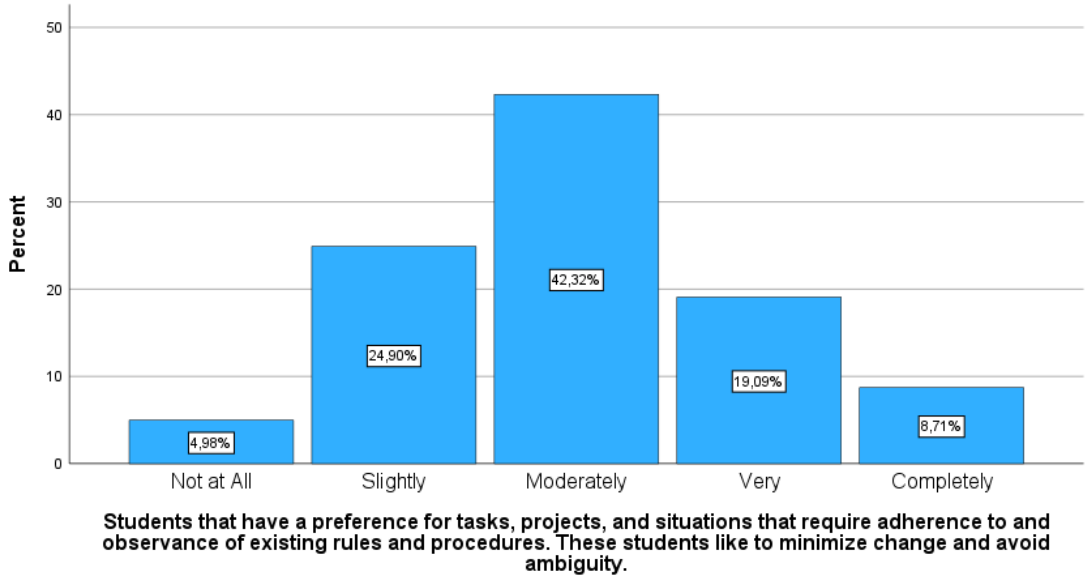

Figure 53 Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity

CrossTab Analysis

The specific research managed to identify a number of interesting correlations among instructors' profile and their preferred learning styles. A crosstab analysis was selected with the aid of SPSS 29.

In order to identify the relevant correlations, two criteria were selected:

- Asymptotic significance was required to be less than 0.05
- Adjusted residual was required to be greater than 1.96.

For the cases that the asymptotic significance ranges among 0,5 and 0,6 they are considered as tendencies.

What follows is the presentation of a number of the most interesting correlations that were recognized within the research. The following Table focuses on the gender association with the preferred students' learning style.

Table 20 Correlation among Instructors' gender and Students' learning preferences

Instructors' Gender and Students' Learning Preferences	Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Female Instructors respond with	,051	2,0	Slightly
Male Instructors respond with	,051	2,6	Very

In the following section the Instructors' marital status is associated with students' learning styles.

Table 21 Correlation among Instructors' Marital Status and Students' learning preferences

Instructors' Marital Status and Students' Learning Preferences	Students that can better learn the teaching materials through taking notes and reading the written contexts and texts.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Married Instructors respond with	0,004	2,6	Moderately
Single Instructors respond with	0,004	3,5	Completely

Research is examining the association among Instructors profile and their preferred teaching styles. The analyses returned the following findings:

Table 22 Correlation among Instructors' Marital Status and Students' learning preferences

Instructors' Organization Type and Teaching Preferences	Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
State Government University Instructors respond with	0,011	2,1	Slightly
Private College Instructors respond with	0,011	2,8	Completely

In the next table the instructors' organization type is associated with new teaching techniques.

Table 23 Correlation among Instructors' Marital Status and Students' learning preferences

Instructors' Organization Type and Teaching Preferences	Instructor that likes to teach in new ways and to try new teaching techniques.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
State Government University Instructors respond with	0,012	-	-
Private College Instructors respond with	0,012	3,3	Moderately

Following, certification for distance education Programs is associated with the Instructor that likes to teach in new ways and to try new teaching techniques. Indeed, the instructors that were certified in distance learning, are open to new techniques and willing to try new ways.

Table 24 Correlation among Instructors' certification for distance education Programs and teaching style preferences

Instructors' certification for distance education Programs and Teaching Preferences	Instructor that likes to teach in new ways and to try new teaching techniques.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors without certification respond with	0,045	2,4	Slightly
Certified Instructors respond with	0,045	3,3	Completely

The next table presents the association among the level of computer expertise and the instructors' tendency to be very detail - oriented in lecturing. There is a slight tendency to appear an increase in detail – oriented lecturing with the increase in computer expertise.

Table 25 Correlation among Instructors' level of computer expertise and detail-oriented lecturing

Instructors' level of computer expertise and Teaching Preferences	Instructors' tendency to be very detail – oriented in lecturing		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who are poor to average experts in computers respond with	0,000	4,4	Not at All
Instructors who are average experts in computers respond with	0,000	2,4	Slightly

The next table presents the correlation among the instructors' consideration of efficiency of distance learning as a method of education and the instructors' tendency not to be so organized in the teaching style, but to be very creative, and spark creative ideas in his / her students.

Table 26 Correlation among the instructors' consideration of efficiency of distance learning as a method of education and the instructors' tendency not to be so organized in the teaching style, but to be very creative, and spark creative ideas in his / her students

Instructors' assessment of the efficiency of distance learning as a method of education and Teaching Preferences	Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who "not at all" consider efficient distance learning as a method of education respond with	0,013	2,4	Not at All
Instructors who consider distance learning as a method of education "very efficient" respond with	0,013	2,1	Very
Instructors who consider distance learning as a method of education "Inefficient to average efficient" respond with	0,013	2,8	Completely

The next table presents the correlation among the instructors' consideration of efficiency of distance learning as a method of education and the instructors' tendency to be very detail -

oriented in lecturing.

Table 27 Correlation among the instructors' consideration of efficiency of distance learning as a method of education and Instructor that tends to be very detail - oriented in lecturing.

Instructors' assessment of the efficiency of distance learning as a method of education and Teaching Preferences	Instructor that tends to be very detail - oriented in lecturing.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who consider average efficient distance learning as a method of education respond with	0,010	2,5	Slightly
Instructors who consider distance learning as a method of education "Inefficient to average efficient" respond with	0,010	2,5	Completely
Instructors who consider distance learning as a method of education "Inefficient" respond with	0,010	2,3	Completely

The next table presents the correlation among the instructors' consideration of efficiency of distance learning as a method of education and the instructors' preference for team teaching or other opportunities to collaborate with fellow instructors. Once again Instructors that believe in the efficiency of distance learning seem to welcome team teaching.

Table 28 Correlation among the instructors' consideration of efficiency of distance learning as a method of education and Instructor preference for team teaching or other opportunities to collaborate with fellow instructors.

Instructors' assessment of the efficiency of distance learning as a method of education and Teaching Preferences	Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who consider most efficient distance learning as a method of education respond with	0,038	2,2	Completely
Instructors who consider distance learning as a method of education "Inefficient to average efficient"	0,038	2,6	Not at All

respond with			

The next table presents the correlation among the instructors' consideration of efficiency of distance learning as a method of education and the instructors' preference to teach in new ways and to try new teaching techniques. Once again Instructors that believe in the efficiency of distance learning seem to welcome new ways of teaching.

Table 29 Correlation among the instructors' consideration of efficiency of distance learning as a method of education and Instructor preference for teaching in new ways and trying new teaching techniques.

Instructors' assessment of the efficiency of distance learning as a method of education and Teaching Preferences	Instructor that likes to teach in new ways and to try new teaching techniques.		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who consider inefficient distance learning as a method of education respond with	0,052	1,9	Slightly
Instructors who consider distance learning as a method of education "Inefficient to average efficient" respond with	0,052	1,9	Completely

The next table presents the correlation among the instructors' consideration of efficiency of distance learning as a method of education and the Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.

Table 30 Correlation among the instructors' consideration of efficiency of distance learning as a method of education and Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.

Instructors' assessment of the efficiency of distance learning as a method of education and Teaching Preferences	Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who consider Average Efficient to Most Efficient distance learning as a method of education	0,032	2,0	Slightly

respond with			

The next table presents the correlation among the instructors' preference regarding face to face educational methods to distance education and the Instructor that tends to be very detail - oriented in lecturing.

Table 31 Correlation among the instructors' preference regarding face to face educational methods to distance education and the Instructor that tends to be very detail - oriented in lecturing.

Instructors' preference regarding face to face educational methods to distance education	Instructor that tends to be very detail - oriented in lecturing		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who prefer distance education respond with	0,042	3,1	Very

The next table presents the correlation among the instructors' preference regarding face-to-face educational methods to distance education and the Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.

Table 32 Correlation among the instructors' preference regarding face-to-face educational methods to distance education and the Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details

Instructors' preference regarding face-to-face educational methods to distance education	Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who prefer distance education respond with	0,055	3,1	Very

The next table presents the correlation among the instructors' preference regarding face-to-face educational methods to distance education and the Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own.

Table 33 Correlation among the instructors' preference regarding face-to-face educational methods to distance education and the Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own

Instructors' preference regarding face-to-face educational methods to distance education	Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who prefer distance education respond with	0,002	3,6	Very
Instructors who prefer face to face education respond with	0,002	1,9	Moderately

The next table presents the correlation among the instructors' preference in distance education and online courses for larger (>30 students) over smaller number of student groups and the Instructor that tends to be very detail - oriented in lecturing.

Table 34 Correlation among the instructors' preference regarding face-to-face educational methods to distance education and the Instructor that tends to be very detail - oriented in lecturing

In distance education and online courses for larger (>30 students) over smaller number of student groups	Instructor that tends to be very detail - oriented in lecturing		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	AS	AR	Response
Instructors who prefer distance education respond with	0,002	3,6	Very
Instructors who prefer face to face education respond with	0,002	1,9	Moderately

The study has examined the association among the participating students' learning styles and their preferences regarding the available teaching styles. Crosstab analysis has taken place which highlighted the association among learning and teachings styles based on the scores provided at the questionnaire survey. The criteria to identify the correlations are: significance

< 0,05 and adjusted residual greater than 1,96.

The learning styles considered were seventeen. In this context, students were presented with the following list and were asked how much do the following statements describe their preferred learning style using a likert scale (1 not at all, 5 completely):

1. I can better discern the material through watching a demonstrative presentation of the information.

2. I can understand the material better through listening and oral teaching methods.

3. I can better learn the teaching materials through taking notes and reading the written contexts and texts.

4. I can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).

5. I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told.

6. I have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and I will then give it my best shot at doing it well.

7. I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

8. I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.

9. I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.

10. I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.

11. I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic).

12. I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.

13. I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details.

14. I have a preference for tasks, projects, and situations that allow me to work independently of others.

15. I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone.

16. I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity.

17. I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity.

Furthermore, the teaching styles considered in the current study included:

1. *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
2. *Instructor that carefully sets priorities and then sticks to them.*
3. *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
4. *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
5. *Instructor that tends to be very detail - oriented in lecturing.*
6. *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*

7. *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
8. *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
9. *Instructor that likes to teach in new ways and to try new teaching techniques.*
10. *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

Based on these parameters each learning style was examined for its correlation with the corresponding teaching styles. In the section below the associations among learning and teaching styles are presented. Students assigned scores to learning and teaching styles on a 5-point Likert scale with 1 meaning that the stated learning or teaching style is "not at all' preferred and 5 meaning that the presented learning or teaching style is completely preferred by the participating students.

The results which will be presented, will focus on the correlations that have as description the complete preference in both learning and teaching styles. The findings will be presented for each learning style.

The first learning Style: *I can better discern the material through watching a demonstrative presentation of the information.*

The specific learning style in the cases of students that completely prefer it is correlated with the teaching style which is also completely preferred by the responding students.

- Instructor that has a preferred way of doing things and does not much like to do things in other ways.
- Instructor that carefully sets priorities and then sticks to them.
- Instructor that does not easily allocate class time so that the most important things receive the most coverage.
- Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.
- Instructor that tends to be very detail - oriented in lecturing.
- Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.
- Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.
- Instructor that likes to teach in new ways and to try new teaching techniques
- Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.

The only teaching style which was not correlated is the: ***Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own*** .

The next learning style examined for correlation is: *I can understand the material better*

through listening and oral teaching methods. The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*

The teaching style which had no correlation was: ***Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.***

The next learning style examined for correlation is: ***I can better learn the teaching materials through taking notes and reading the written contexts and texts***. The correlations observed are the following:

- Instructor that has a preferred way of doing things and does not much like to do things in other ways.
- Instructor that carefully sets priorities and then sticks to them.
- Instructor that does not easily allocate class time so that the most important things receive the most coverage.
- Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.
- Instructor that tends to be very detail - oriented in lecturing.
- Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.
- Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .
- Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.
- Instructor that likes to teach in new ways and to try new teaching techniques.

The teaching style which had no correlation was: *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*

The next learning style examined for correlation is: ***I can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).*** The correlations observed are the following:

- ***Instructor that has a preferred way of doing things and does not much like to do things in other ways.***
- ***Instructor that carefully sets priorities and then sticks to them.***
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was: *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*

The following learning style examined for correlation is*: I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told.* The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow*

instructors.
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was: *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*

The next learning style examined for correlation is*: I have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and I will then give it my best shot at doing it well.*
The correlations observed are the following:
- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was:
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own*

Then follows the learning style: I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was: *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*

The next learning style examined for correlation is: I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture*

rather than the details.

- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was: Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.

The next learning style examined for correlation is:
I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

The following learning style was also examined for correlation:
I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

The learning style which was examined for correlation is:
I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic).
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

The next learning style examined for correlation is:

I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.

The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was:

- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*

The next learning style considered was:
I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

The study examined the following learning style:
I have a preference for tasks, projects, and situations that allow me to work independently of others.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The teaching style which had no correlation was:

- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*

Crosstab analysis has taken place for the learning study as stated below:
I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

The next learning style examined for correlation is:
I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

Examination for correlation has taken place for the next learning style:
I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity.
The correlations observed are the following:

- *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
- *Instructor that carefully sets priorities and then sticks to them.*
- *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
- *Instructor that tends to be very detail - oriented in lecturing.*
- *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
- *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
- *Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors.*
- *Instructor that likes to teach in new ways and to try new teaching techniques.*
- *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

All the teaching styles had correlations.

From all the above findings the only teaching style which seems not to satisfy the students is:

- *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*

Identifying Characteristics of the Students

Technology is increasingly developing and influencing the context and content of distance education. Technology has the capability to transform and alter distance education. These changes lead academicians to essentially reinvent their roles. Indeed, in this new environment instructors are acting as facilitators and it is fair to mention that their role is also to lead the students. On the other hand, students are also faced with a new educational reality. Students are no longer located within a physical classroom but in a virtual one.

Nowadays the educational process is being redefined and reorganized in order to adapt to the new environment. It should be mentioned that a pivotal moment was the COVID 19 pandemic. It was then that the urgent need for distance education programs was realized. It is true to mention that distance education must be able to reach remote areas. This should be realized without extreme costs for new infrastructure. Within the context of the online class, available electronic communication systems replace the face-to-face classroom. Distance education provides the capability to improve interactive classrooms which in turn strengthen learning communities. The critical quality reviewers of such distance education programs are the students. It is imperative to organize a system that provides satisfaction to the end user, in this case the student. The current study has as a goal to firstly present a number of learning styles and then define the ones that appear to be preferable by students. In addition, the study associates students' profile with their learning preferences and the ones of their fellow students. Research focused on university students and has taken place during 2023. The main tool of the study is a structured questionnaire survey along with interviews. Students from six universities participated in the research and 646 responses were collected. The answers were appropriately processed into both categorical and quantitative data. The number of questions that the survey participants answered was equal to 124. The survey was based on google forms and lime survey. The language of the survey was Greek, English, Italian and Serbian. The questionnaire survey and interviews collected a plethora of data ranging from participants' profile to distance education experience, learning and teaching preferences, and the students' personality characteristics. A corresponding database was created in SPSS 29, including 124 variables (columns) and 646 responses (lines). A following descriptive statistics analysis has taken place and in addition a correlation analysis (crosstab analysis). The analyses succeeded in identifying the dominant learning preferences as stated by the university students and also recorded what students prefer in their fellow students regarding learning preferences. Moreover, research discovered correlations among students' profiles and learning preferences. Highlights of the current study include the fact that students better discern the material through watching a demonstrative presentation of the information. Finally, the current study explains how the profile of the students associates with their stated learning preferences.

Methodological Approach

The current study aims at introducing a number of learning and teaching styles and then defining the ones that are preferred by Students. The research has taken place during 2023 to collect data regarding university students and distance education within four participating countries, which include: Greece, Italy, Serbia and Romania. Six universities were participating in the current research, namely Aristotle University of Thessaloniki, University of Ioannina, Macedonia University, University of NIS, Universitatea "Lucian Blaga" din Sibiu and Università Telematica degli Studi. In order to collect relevant information a structured questionnaire was designed, and a following survey took place. The questionnaire responses of the University students are equal to 646. The answers were appropriately processed and corresponding values were assigned to the original variable values to create a database including both of quantitative and qualitative data. The questions that the students answered were equal to 124. The survey was disseminated mainly through email but also interviews have taken place. The languages of the survey included: Greek, English, Italian, Serbian.

The platforms of the questionnaire were Google Forms and Limesurvey. The questionnaire received the approvement of the Aristotle University of Thessaloniki Research Ethics Committee and succeeded in collecting data regarding distance education experience, learning styles of the students, instructors' teaching styles and the participants' personality characteristics. The questionnaire includes as mentioned above 124 questions, and It consists of the following discrete parts:

- Introductory note on the Specific Research Survey
- Students' Attributes
- Students' Distance Education Experience
- Students' Preferred Learning Styles
- Fellow Students' Preferred Learning Styles
- Preferred teaching style of Instructors as considered by students
- Students' Personality (big five personality traits and facets)

The questionnaire for the students was synthesized for the purpose of the current research needs and requirements. In the following passage, an attempt will be made to explain the structure of the questionnaire and the corresponding survey. An initial part was designed to capture / record the characteristics of the students (general attributes – profile). Then a number of questions were added to evaluate distance education experience. All the initial questions were produced by comparison with relevant research and the experience of the research team in the specific subject. The next step was to introduce required learning styles. These learning styles originated from the work of Sternberg and Zhang (Sternberg & Zhang, 2005; Zhang & Sternberg, 2002) and then a complimentary approach was added as presented by the work of Arbabisarjou et al. (Arbabisarjou et al., 2016). In this context, Sternberg and Zhang introduced (Sternberg & Zhang, 2005) in the subject of learning styles:

- Three functions of government: legislative, executive, and judicial
- Four different forms of mental self-government in the theory, that include: monarchic, hierarchic, oligarchic, and anarchic
- Two levels of mental self-government: local and global
- Two scopes of mental self-government: internal and external
- Two types of learning of mental self-government: liberal and conservative

Then follows a number of additional statements based on VARK Learning Styles by Arbabisarjou et al. (Arbabisarjou et al., 2016), that included: Kinesthetic, Auditory, Read/Write, Visual and Multiple styles. Vark's four learning styles include: visual, aural, reading / writing and kinesthetic - motor.

The same set of questions are presented to the participants with the aim to identify the preferred learning styles as the respondents consider, regarding their fellow students. One more section in the questionnaire investigates the preferred instructors' teaching styles as considered / required by the respondents.

Finally, the personality questionnaire based on the big five personality traits and facets assesses the personality of the participants (McCrae & Costa Jr, 1997). An SPSS Database was produced. Corresponding parameters were created for the data to be inserted in the SPSS database. The sample of the Greek University Students is equal to 646 responses.

More specifically the current research report focuses on clarifying a number of learning and teaching styles and then defining the ones that are adopted and preferred by Students in the context of distance learning. At the same, research is trying to associate the students profiles with their learning preferences. An investigation has taken place during the last year (2023) to collect data regarding students and distance education within Greece, Italy, Serbia and Romania. Six universities were involved in the specific project. The universities that took place in the research project include: Aristotle University of Thessaloniki, University of Ioannina, Macedonia University, University of NIS, Universitatea "Lucian Blaga" din Sibiu and Università Telematica degli Studi. In order to collect relevant information a questionnaire was designed, and a following survey took place. The sample of the University students – survey participants is equal to 646 responses. The responses were appropriately inserted into an SPSS database and were classified either as quantitative or qualitative data. The number of questions that the students answered was equal to 124. The survey was disseminated mainly through email and additionally interviews have taken place. The questionnaire was originally designed in English and has been translated into Greek, Italian, Serbian and succeeded in collecting data regarding distance education experience, teaching styles, learning styles and the participants' personality characteristics. The survey was disseminated through google forms and at the same time through lime survey.

The questionnaire recorded the student's characteristics and attributes, that included the following group of questions:

- Nationality

- Gender
- Age
- Marital Status
- Number of Children
- Level of Education (at present)
- Years at University (Undergraduate)
- Years at University (Master Degree)
- Years at University (PhD)
- Occupational Status
- Monthly Income
- Institution / University (at present)
- Organization type
- Department
- Have you attended courses in a foreign university (being physically present abroad) ?

The following set of questions recorded the distance education experience, and included the following set of questions:

- Semesters of distance learning education attended
- Number of Courses completed with Distance learning Education Programs
- Number of courses with tuition fees
- Number of courses without tuition fees
- Level of computer expertise
- Platform/s for Distance learning education used in the past
- Efficiency of distance learning as a method of education
- Do you prefer face to face educational methods over distance education?
- During an online course do you usually keep your camera on or off?
- In distance education and online courses do you prefer larger (>30 students) over smaller number of student groups?

Then the students were asked about their preferences regarding their learning preferences. Again a number of statements were presented to the students, describing their potential preference regarding their learning styles. These statements were based on the following theories.

There are **three functions of government in the theory**: legislative, executive, and judicial. These functions are presented and clarified within the following statements (Sternberg & Zhang, 2005)**:**

- Legislative: I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told.
- Executive: I have preference for tasks, projects, and situations that provide structure,

procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefers to be told what to do, and I will then give it my best shot at doing it well.

- Judicial: I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies, projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

The following different forms of mental self-government provide an additional description of the students. In this context, there are four different forms of mental self-government in the theory, that include monarchic, hierarchic, oligarchic, and anarchic. The following statements describe the forms of mental self-government (Sternberg & Zhang, 2005):

- **Monarchic**: I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.
- **Hierarchic**: I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.
- **Oligarchic:** I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important. I like to do multiple things within a given time frame, but I have trouble setting priorities. I adapt well if the competing demands are of roughly equal importance, but I have more trouble if the things are of different importance.
- **Anarchic:** I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please. I tend to be asystematic or even antisystematic.

Then a number of statements where included that describe different levels of mental self-government as a student. There are two levels of mental self-government: local and global. These are described in the following

- **Local:** I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation
- **Global:** I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details.

The following statements describe different levels of mental self-government as a student. There are two scopes of mental self-government: internal and external

- **Internal.** I have a preference for tasks, projects, and situations that allow me to work independently of others
- **External.** I have a preference for tasks, projects, and situations that require activities

that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone.

How much do the following statements describe yourself as a student: There are two leanings of mental self-government: liberal and conservative

- **Liberal.** I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity.
- **Conservative.** I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity.

These phrases were combined with a number of additional statements based on VARK Learning Styles by Arbabisarjou et al. (Arbabisarjou et al., 2016), that included: Kinesthetic, Auditory, Read/Write, Visual and Multiple styles. Vark's four learning styles include: visual, aural, reading, writing and kinesthetic - motor.
As a result, the students were presented with the following list and were asked how much do the following statements describe their preferred learning style using a likert scale (1 not at all, 5 completely):

18. I can better discern the material through watching a demonstrative presentation of the information.

19. I can understand the material better through listening and oral teaching methods.

20. I can better learn the teaching materials through taking notes and reading the written contexts and texts.

21. I can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).

22. I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told.

23. I have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and I will then give it my best shot at doing it well.

24. I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

25. I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.

26. I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.

27. I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.

28. I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic).

29. I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.

30. I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details.

31. I have a preference for tasks, projects, and situations that allow me to work independently of others.

32. I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone.

33. I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity.

34. I have a preference for tasks, projects, and situations that require adherence to and

observance of existing rules and procedures. I like to minimize change and avoid ambiguity.

Similarly, the survey participating students were presented with the following list and were asked how much the following statements describe their preferred learning style for their fellow – students, using a Likert scale (1 not at all, 5 completely):

18. Students that better discern the material through watching a demonstrative presentation of the information

19. Students that can understand the material better through listening and oral teaching methods.

20. Students that can better learn the teaching materials through taking notes and reading the written contexts and texts.

21. Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).

22. Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told.

23. Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. These students often prefer to be told what to do and will then give it their best shot at doing it well.

24. Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

25. Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.

26. Students that have preference for tasks, projects, and situations that allow creation of a

hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists.

27. Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.

28. Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic).

29. Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation.

30. Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details.

31. Students that have a preference for tasks, projects, and situations that allow them to work independently of others.

32. Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone.

33. Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity.

34. Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity.

Then the questionnaire survey focused on the preferences of the students regarding their ideal instructors. Therefore, students were called to highlight their teaching style preferences. The ones selected in the current study included a number of statements, where the students were called to suggest how much those statements described their preferred instructor. The evaluation scale was ranging from 1 meaning not at all, to 5 which denoted completely. These teaching styles originate from Sternberg & Zhang (2005).

More specifically, these teaching styles are described as follows Sternberg & Zhang (2005):

- A **monarchic teacher** might be one who has a preferred way of doing things, and who does not much like to do things in otherways
- A **hierarchic** teacher might be one who carefully sets priorities and then sticks to them
- An **oligarchic** teacher might be one who does not easily allocate class time so that the most important things receive the most coverage
- An **anarchic** teacher might be one who is very disorganized in his teaching style, but who nevertheless is very creative and sparks creative ideas in his students.
- A **local** teacher tends to be very detail- oriented in lecturing
- A **global** teacher tends to be very general in her teaching and to concentrate on the big picture rather than the details

There are two scopes of mental self-government: **internal and external**

- An **internal** teacher may eschew team teaching and prefer to teach on his own
- An **external** teacher would probably welcome team teaching or other opportunities to collaborate with fellow teachers

There are two leanings of mental self-government: **liberal and conservative**

- A l**iberal** teacher likes to teach in new ways and to try new teaching techniques
- A **conservative** teacher likes to teach in traditional ways and may be hesitant to try new ways of teaching

In this context, the following statements were presented to the survey participants:

11. *Instructor that has a preferred way of doing things and does not much like to do things in other ways.*
12. *Instructor that carefully sets priorities and then sticks to them.*
13. *Instructor that does not easily allocate class time so that the most important things receive the most coverage.*
14. *Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students.*
15. *Instructor that tends to be very detail - oriented in lecturing.*
16. *Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details.*
17. *Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own .*
18. *Instructor that welcomes team teaching or other opportunities to collaborate with*

fellow instructors.

19. *Instructor that likes to teach in new ways and to try new teaching techniques.*
20. *Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching.*

The questionnaire included also a psychometric test to assess the personality of the participating students. The assessment is based on the big five personality traits and facets. Below are the phrases that describe people's attitudes. Students' were asked to use the answers next to each sentence to describe how closely each sentence describe them. They were kindly reminded to describe themselves as they are right now, not as they would like to be in the future. This description should honestly picture themselves in relation to other people of the same sex and about the same age. Therefore, the students were asked how accurately each sentence described them on a Likert scale (1 not at all, 5 completely). The statements were the following:

1. *Am easy to satisfy.*
2. *Am hard to get to know.*
3. *Am not easily frustrated.*
4. *Am not interested in abstract ideas.*
5. *Am not interested in theoretical discussions.*
6. *Am often down in the dumps.*
7. *Am out for my own personal gain.*
8. *Am very pleased with myself.*
9. *Avoid contacts with others.*
10. *Avoid philosophical discussions.*
11. *Believe in the importance of art.*
12. *Believe that I am better than others.*
13. *Believe that others have good intentions.*
14. *Believe that too much tax money goes to support artists.*
15. *Can say things beautifully.*
16. *Carry out my plans.*
17. *Carry the conversation to a higher level.*
18. *Cheer people up.*
19. *Complete tasks successfully.*
20. *Contradict others.*
21. *Cut others to pieces.*
22. *Dislike myself.*
23. *Do just enough work to get by.*
24. *Do not enjoy going to art museums.*
25. *Do not like art.*

26. *Do not like poetry.*
27. *Don't put my mind on the task at hand.*
28. *Don't see things through.*
29. *Enjoy hearing new ideas.*
30. *Enjoy thinking about things.*
31. *Enjoy wild flights of fantasy.*
32. *Fear for the worst.*
33. *Finish what I start.*
34. *Follow through with my plans.*
35. *Get excited by new ideas.*
36. *Have a rich vocabulary.*
37. *Have a sharp tongue.*
38. *Have a vivid imagination.*
39. *Have difficulty understanding abstract ideas.*
40. *Keep others at a distance.*
41. *Leave things unfinished.*
42. *Make demands on others.*
43. *Mess things up.*
44. *Need a push to get started.*
45. *Often feel blue.*
46. *Rarely look for a deeper meaning in things.*
47. *Remain calm under pressure.*
48. *Respect others.*
49. *Retreat from others.*
50. *Seldom get mad.*
51. *Suspect hidden motives in others.*
52. *Tend to vote for conservative political candidates.*
53. *Tend to vote for liberal political candidates.*
54. *Treat all people equally.*
55. *Trust what people say.*
56. *Warm up quickly to others.*

The following sections, introduce the way that the information was parameterized, the descriptive analysis that has taken place and the respective results.

Questionnaire Parameters

The questionnaire recorded a large amount of responses. The questionnaire included 124 questions. As mentioned above, the questionnaire included the following discrete parts:

- Introductory note on the Specific Research Survey

- Students' Attributes
- Students' Distance Education Experience
- Students' Preferred Learning Styles
- Fellow Students' Preferred Learning Styles
- Preferred teaching style of Instructors as considered by students
- Students' Personality (big five personality traits and facets)

An SPSS Database was created and the 646 responses were recorded. Variables such as Age, Number of Children and Semesters of Distance Learning Education Taught, have remained unchanged. Semesters of distance learning education attended, Number of Courses with tuition fees completed with Distance learning Education Programs, Number of Courses without tuition fees completed with Distance learning Education Programs have remained unchanged. Platforms for distance learning education used in the past was not used in the database. For the rest of the variables, the parameters defined for the analysis are presented in the following Tables (35-53).

Table 35 Students' Nationality

Parameter	Response
GREEK	1
CYPRIOT	2
ALBANIAN	3
ITALIAN	4
ROMANIAN	5
SERBIAN	6
GEORGIAN	7

Table 36 Students' Gender

Response	PARAMETERS
FEMALE	1
MALE	2
I don't wish to answer	3

Table 37 Students' Marital Status

Response	Parameter
Married	1
Single	2
I don't wish to answer	3

Table 38 Students' Level of Education

Response	PARAMETERS
Post Doctoral Studies	1
PhD	2
Master of Science	3
Undergraduate	4

Table 39 Students' Occupational Status

Response	Parameter
Student	1
Unemployed	2
Employed in Private Sector	3
Employed in Public Sector	4

Table 40 Students' monthly income (in euros)

Response	Parameter
<300	1
301-500	2
501-700	3
701-900	4
901-1100	5
1101-1400	6
1401-1700	7
1701-2000	8
2001-2500	9
2501-3000	10
3001-4000	11
>4001	12
I don't wish to answer	13

Table 41 Students' Institution / University (At Present)

Response	Parameter
No Answer Provided	0
Aristotle University of Thessaloniki	1
University of Ioannina	2
Technical University of Crete	3
Hellenic Open University	4
National and Kapodistrian University of Athens	5
Supreme Joint War College	6
University of Piraeus	7
Hellenic Army Academy	8
University of West Attica	9
University of the Aegean	10
Democritus University of Thrace	11
University of Macedonia	12
International Hellenic University	13
ETH Zürich	14

Table 42 Students' Organization type

Response	Parameter
State Government University	1
Private College	2
No Answer	0

Table 43 Students' University Department

Response	Parameter
No answer	0
Civil Engineering	1
MBA	2
Law	3
Psychology	4
Master in Project Management	5
International and European Studies	6

Table 44 Have you attended courses in a foreign university (being physically present abroad) ?

Response	Parameter
Yes	1
No	2
No answer provided	0

Table 45 Students' Level of computer expertise

Response	Parameter
1	Poor
2	Poor to Average
3	Average
4	Average to Good
5	Good
Not answering	0

Table 46 How efficient do you consider distance learning as a method of education

Response	Parameter
No answer provided	0
Inefficient	1
Inefficient to Average Efficient	2
Average Efficient	3
Average Efficient to Most Efficient	4
Most Efficient	5

Table 47 Do you prefer face to face educational methods or distance education

Response	Parameter
I prefer face to face	1
I prefer distance education	2
No answer provided	0

Table 48 Do you usually keep your camera on or off?

Response	Parameter
Camera On	1
Camera Off	2

No answered provided	0

Table 49 In distance education and online courses do you prefer larger (>30 students) over smaller number of student groups

Response	Parameter
Larger groups (>30 students)	1
Smaller groups (<30 students)	2

Table 50 How much do the following statements describe yourself as a Student

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 51 How much do the following statements describe your preferred fellow students

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 52 How accurately each sentence describes your preferred instructor

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Table 53 How accurately each sentence describes you

Response	Parameter
Not at all	1
Slightly	2
Moderately	3
Very	4
Completely	5

Participants' Profile

The sample includes 646 students.

The sample consists of 48,3% female participants and almost 51,4% were male participants and a number of participants didn't provide an answer (0,3%). Regarding the marital status 36,4% are married, while 60,5% are single. As far as the occupational status is concerned, students were the 34,5% of the sample, unemployed were 3,4%, employed in Private Sector 36,2% and finally employed In Public Sector were 25,9%. Students studying at State Government University are 71,1%, while 26,6% are in Private Colleges. As far as the level of the computer expertise of the participating students is concerned, the following figure presents that in comparison, the majority (40,93%) of students have an average level of computer expertise.

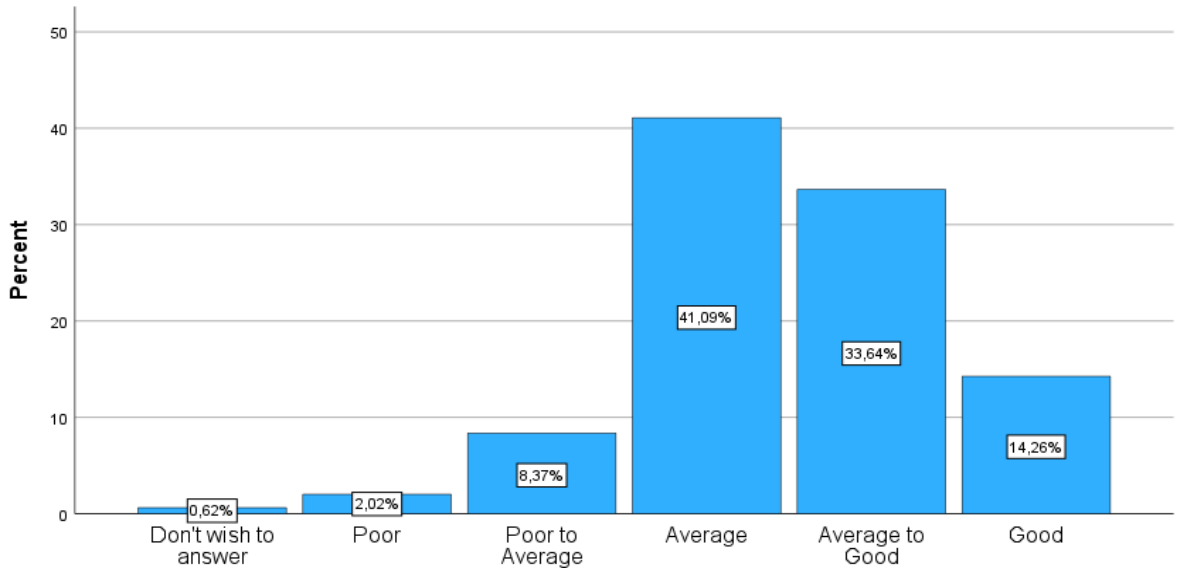

Figure 54 Level of computer expertise

The mean years of undergraduate studies are 3,7 years, the mean years at university master degree are 0,7, and at the PhD 0,28 years. Regarding the rest of the responses, the mean number of semesters of distance learning education attended equals to almost 2,6. Moreover, the mean number of courses with tuition fees completed with distance learning education programs are 2,9 while the mean number of courses without tuition fees completed with distance learning education programs are 3,71. The majority of students with 71,8% are undergraduate students and at the same time, the majority of the students (36,2%) that participated are employed in the private sector.

It is worth mentioning that 87,5% have not attended courses in a foreign university, being physically present abroad. Distance learning as an education method is considered as average efficient to most efficient by 36,7% of the students. Furthermore, it is interesting to mention that 59% of the students prefer face to face teaching and 61,5% tend to keep their camera off. In general, 78,3% prefer smaller groups of students (<30 students).

Students through the questionnaire survey evaluated various learning styles and the results are presented in the following figures. Figure 55 presents that the majority of students very much prefer the learning style "I can better discern the material through watching a demonstrative presentation of the information".

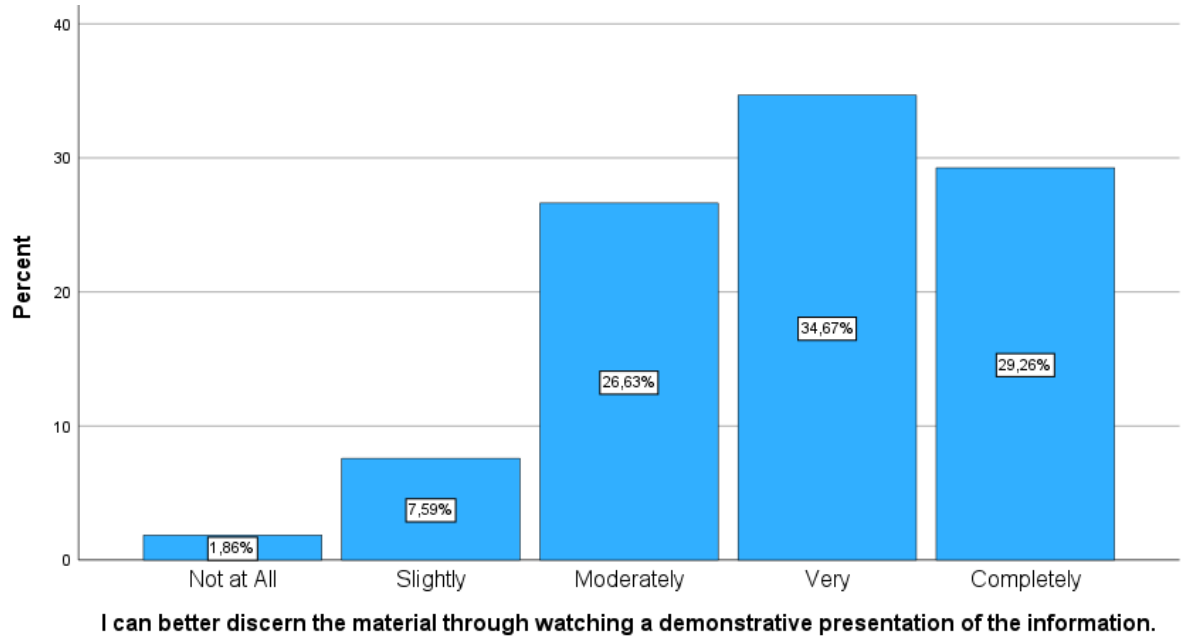

Figure 55 Discern the material through watching a demonstrative presentation of the information

In the next Figure students suggest that they very much prefer to understand the material through listening and oral teaching methods.

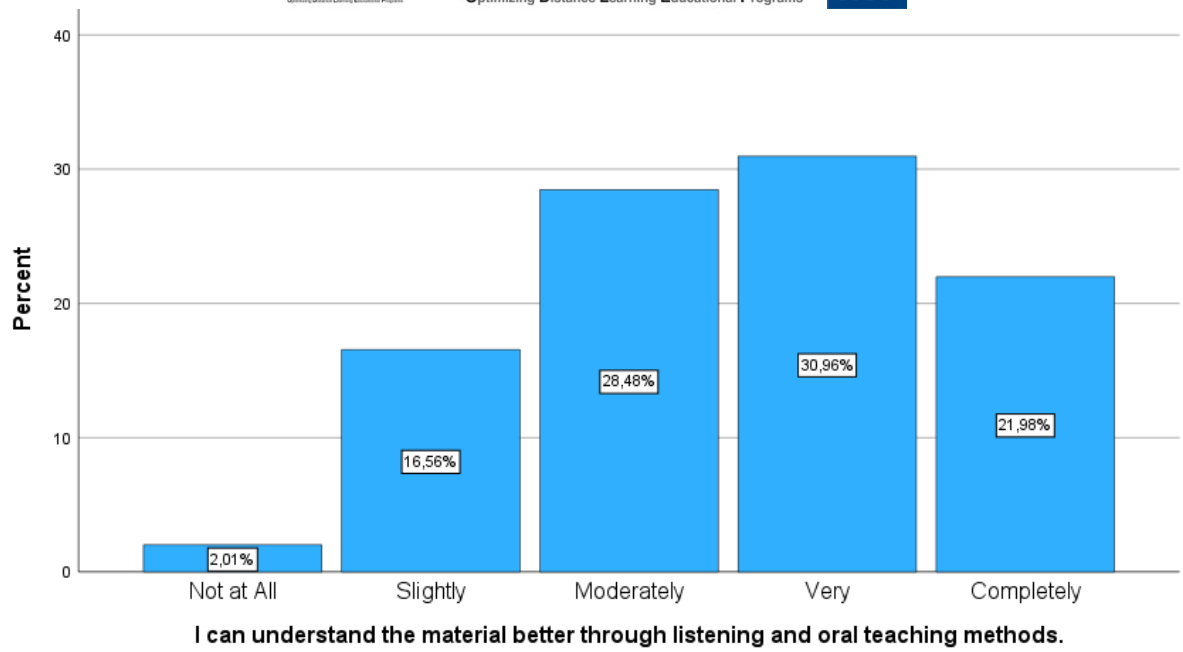

Figure 56 Understand the material better through listening and oral teaching methods

In the next Figure students suggest that they very much prefer to learn the teaching materials through taking notes and reading the written contexts and texts.

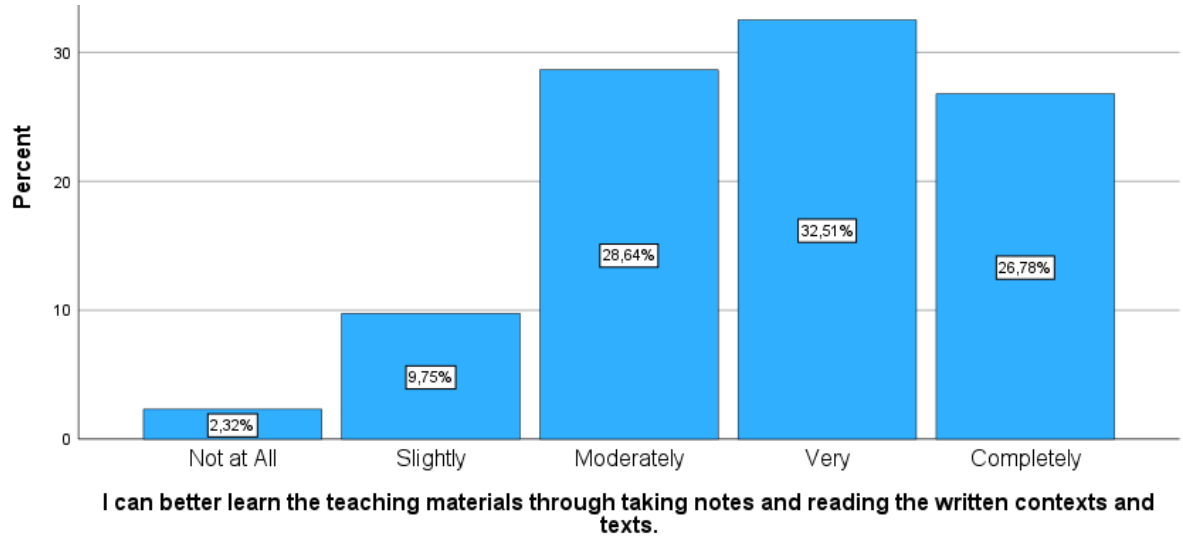

Figure 57 I can better learn the teaching materials through taking notes and reading the written contexts and texts

In the next Figure, students suggest that they completely prefer to conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real).

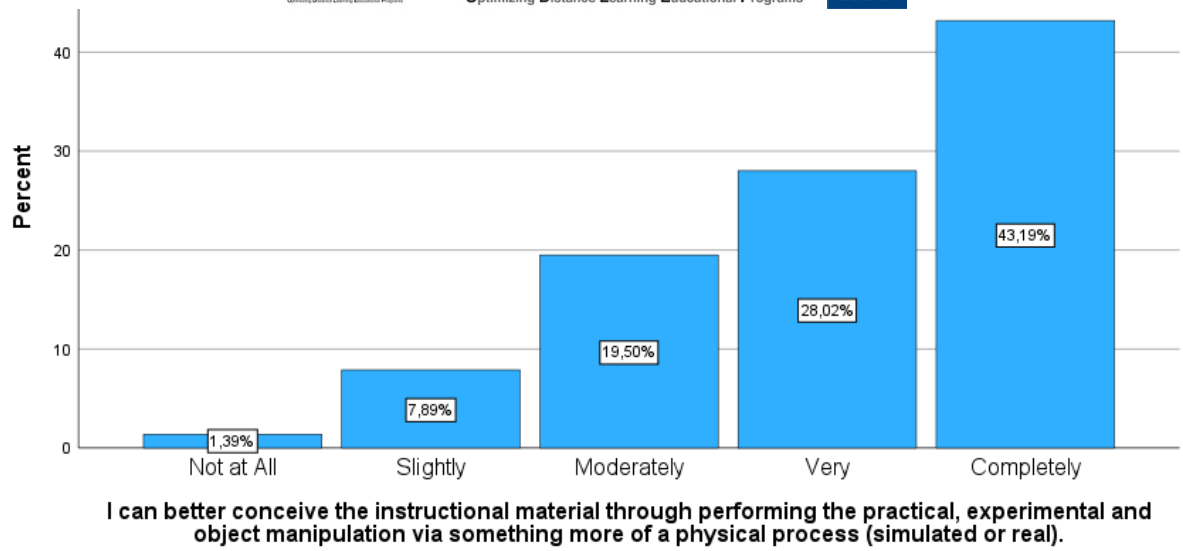

Figure 58 I can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)

In the next Figure, students considering the learning style "I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told" express an almost similar in percentage preference, ranging from moderately to completely.

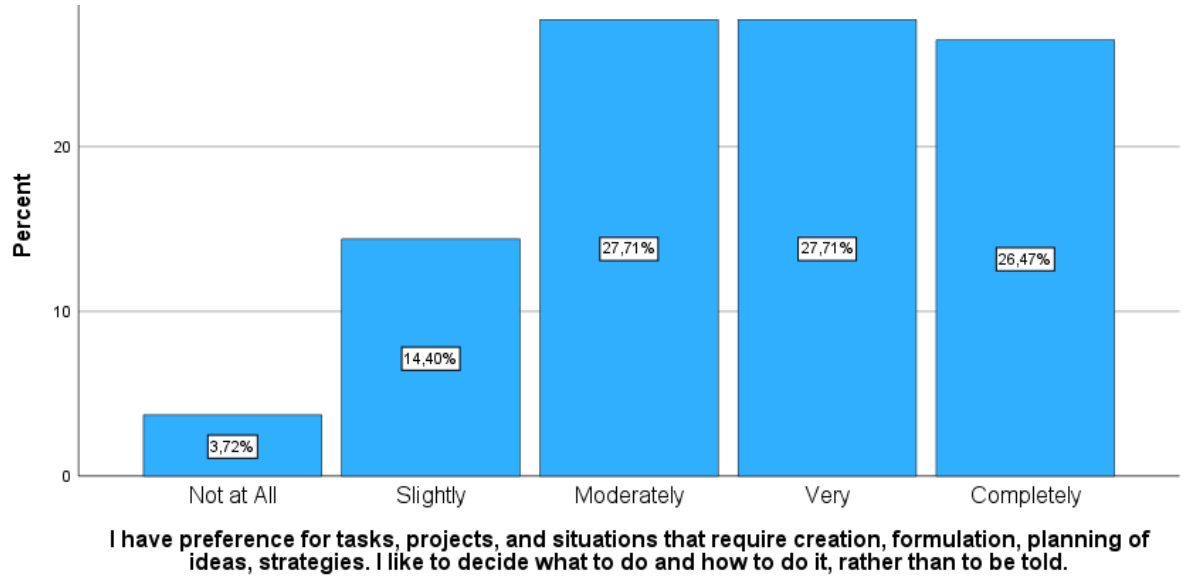

Figure 59 I have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told

In the next Figure, students suggest that they moderately or very much prefer tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and I will then give it my

best shot at doing it well.

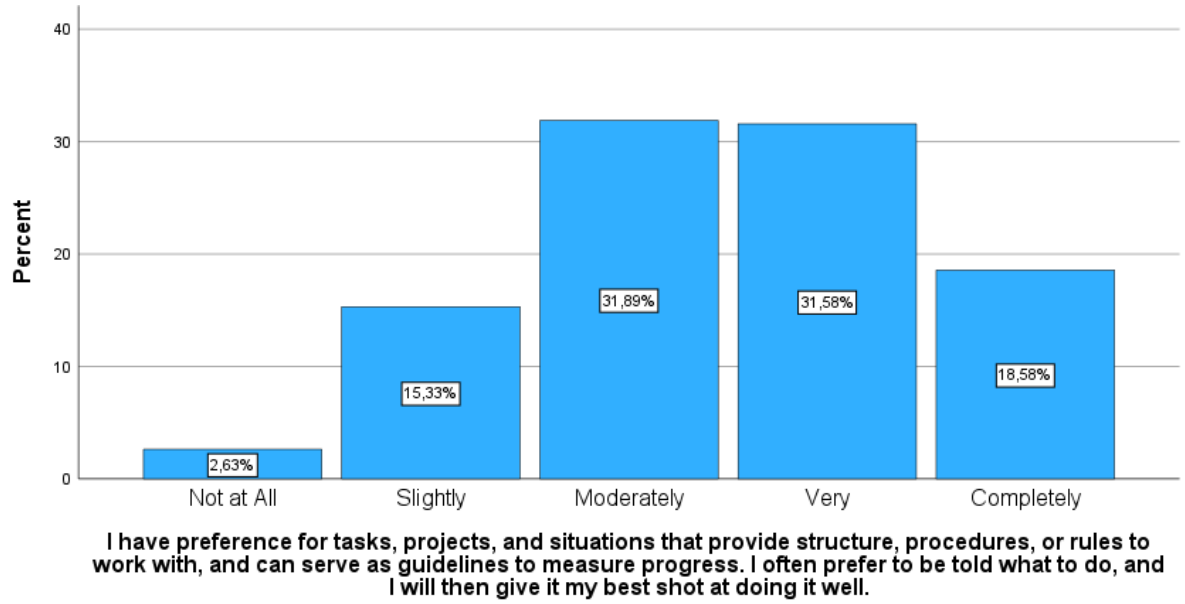

Figure 60 I have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and I will then give it my best shot at doing it well

In the next Figure, students (33,44%) suggest that they moderately prefer tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses.

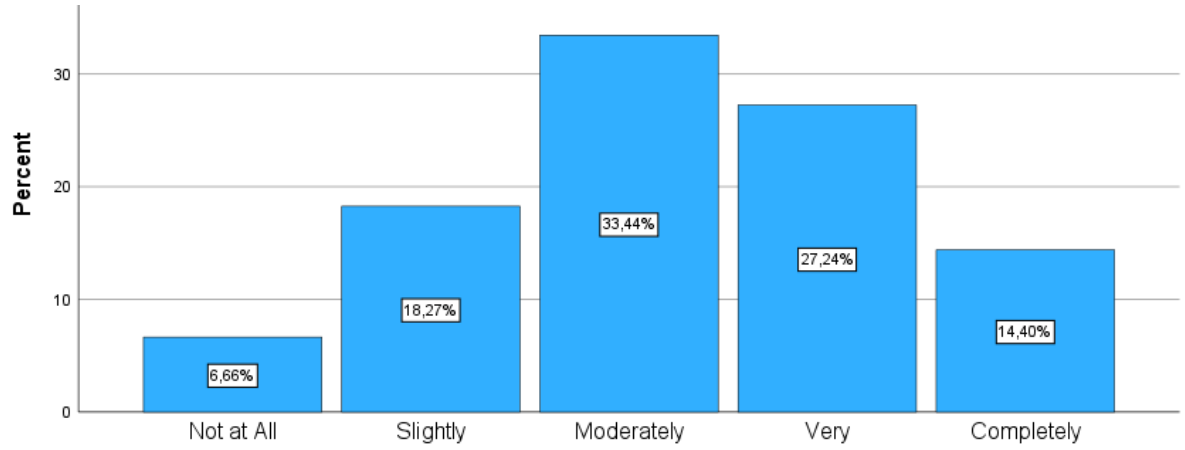

Figure 61 I have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses

Students (33,28%) suggest that they moderately prefer tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete.

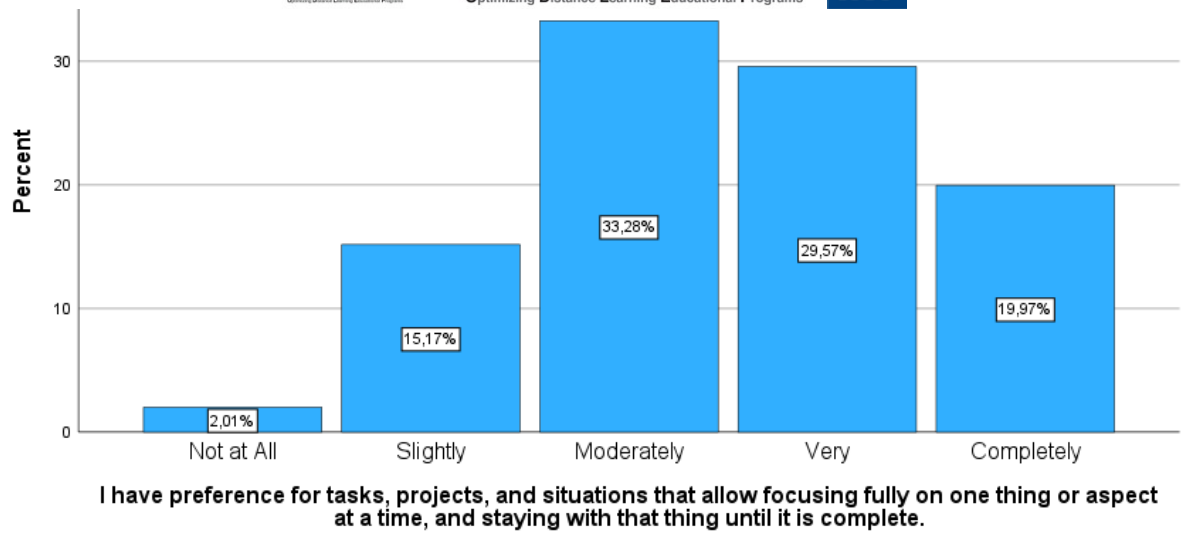

Figure 62 I have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete

Students (29,26%) suggest that they moderately prefer tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. They will often make lists, and sometimes even lists of lists.

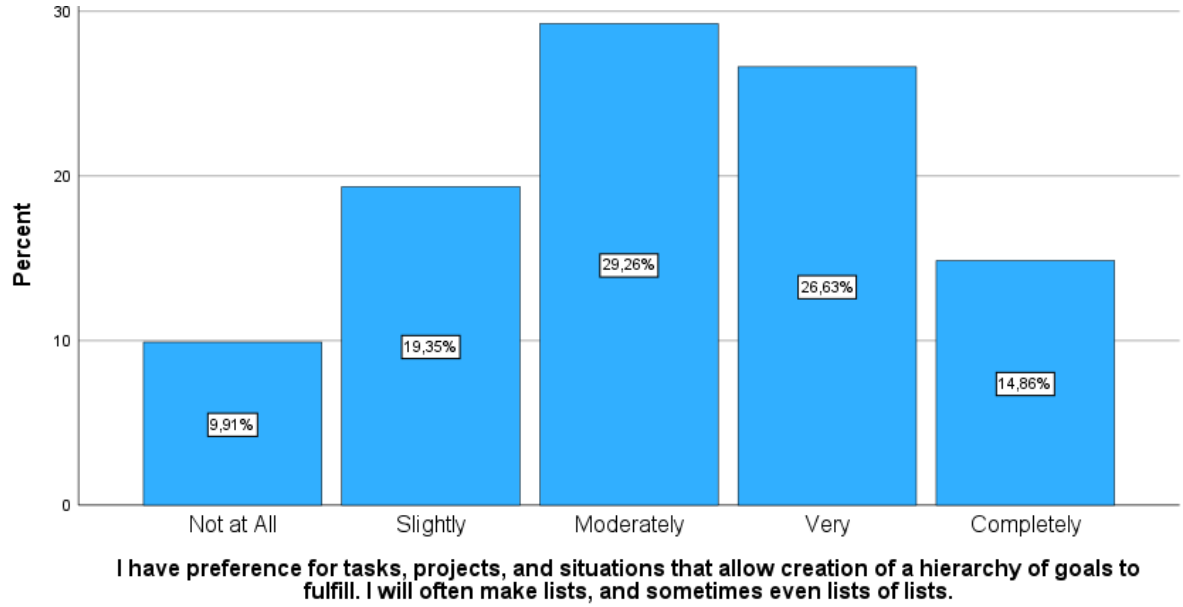

Figure 63 I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists

In the next Figure, students (35,29%) suggest that they moderately prefer tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important.

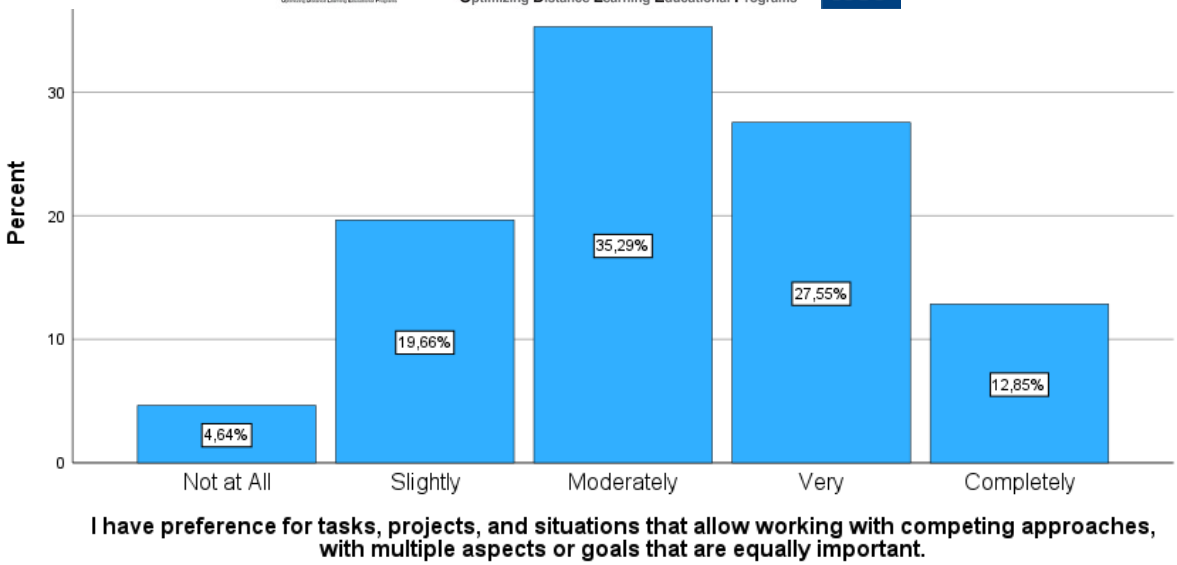

Figure 64 I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important

Moreover, students (33,28%) suggest that they moderately prefer tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic).

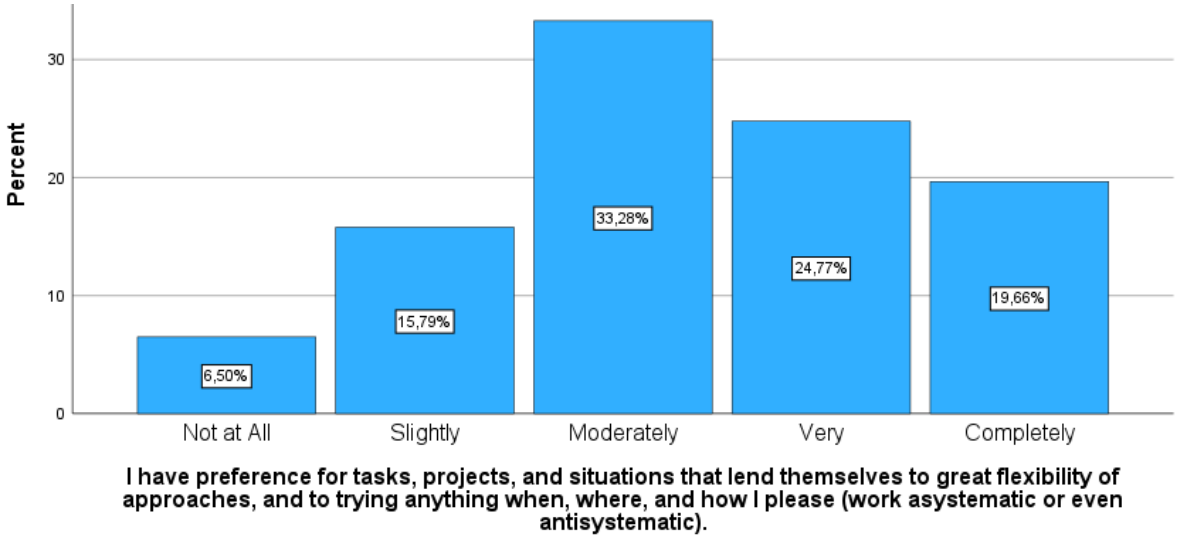

Figure 65 I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic)

In addition, students (34,06%) suggest that they moderately prefer tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation

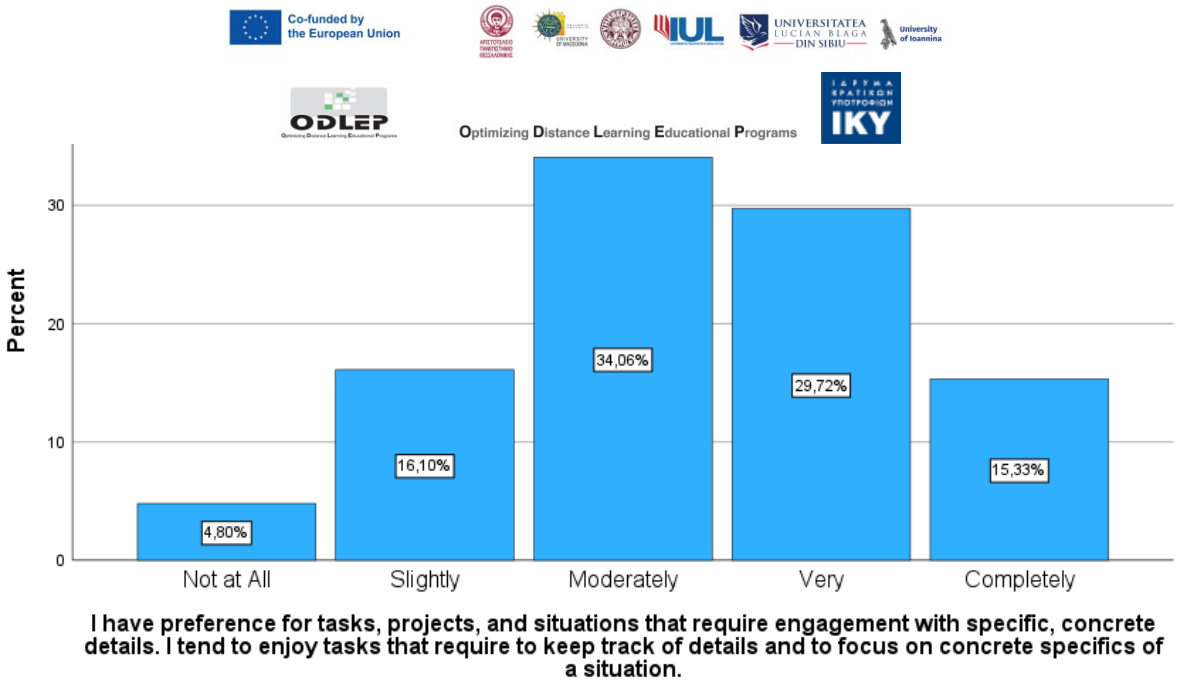

Figure 66 I have preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require to keep track of details and to focus on concrete specifics of a situation

In the next Figure, students (31,11%) suggest that they moderately prefer tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details

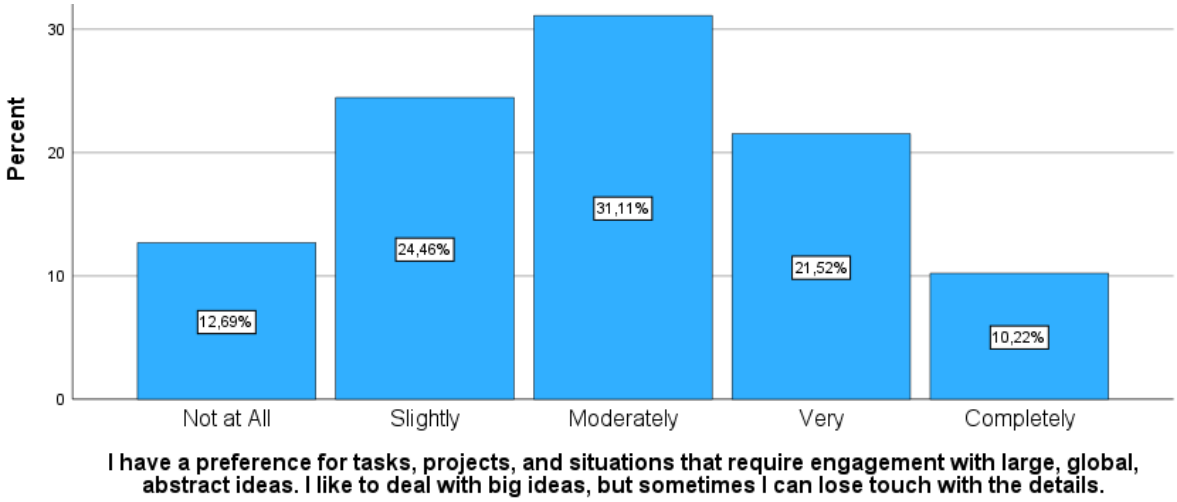

Figure 67 I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes I can lose touch with the details

Students considering the learning style "Preference for tasks, projects, and situations that allow me to work independently of others" respond with almost equal percentages, characterizing this learning style as moderately, very and completely preferable.

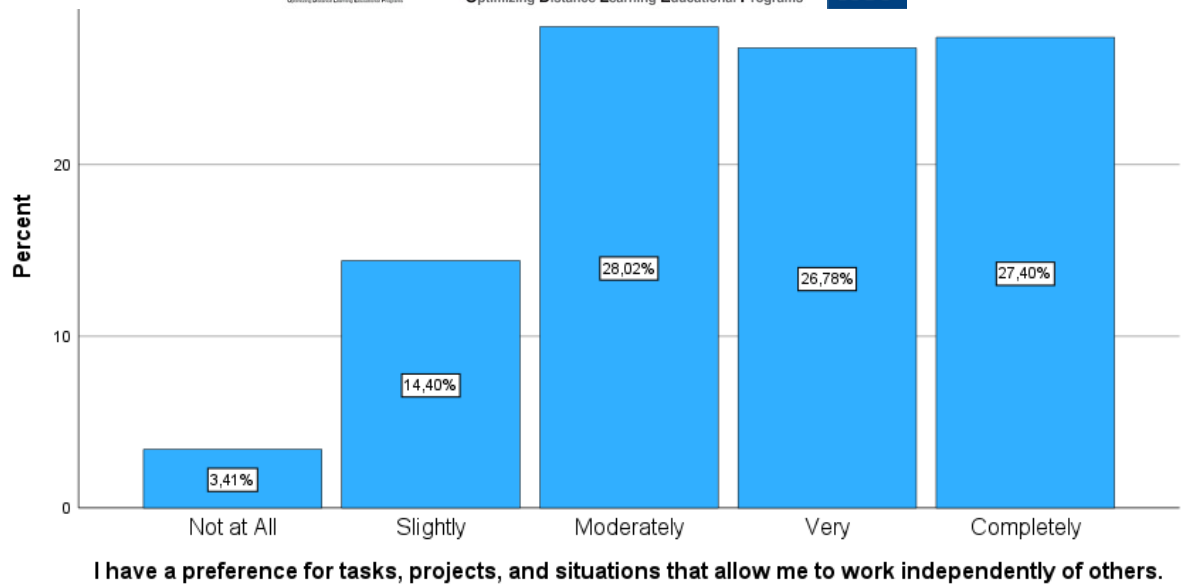

Figure 68 I have a preference for tasks, projects, and situations that allow me to work independently of others

Regarding the learning style, students considering the learning style "I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone" regard it as slightly or moderately preferrable.

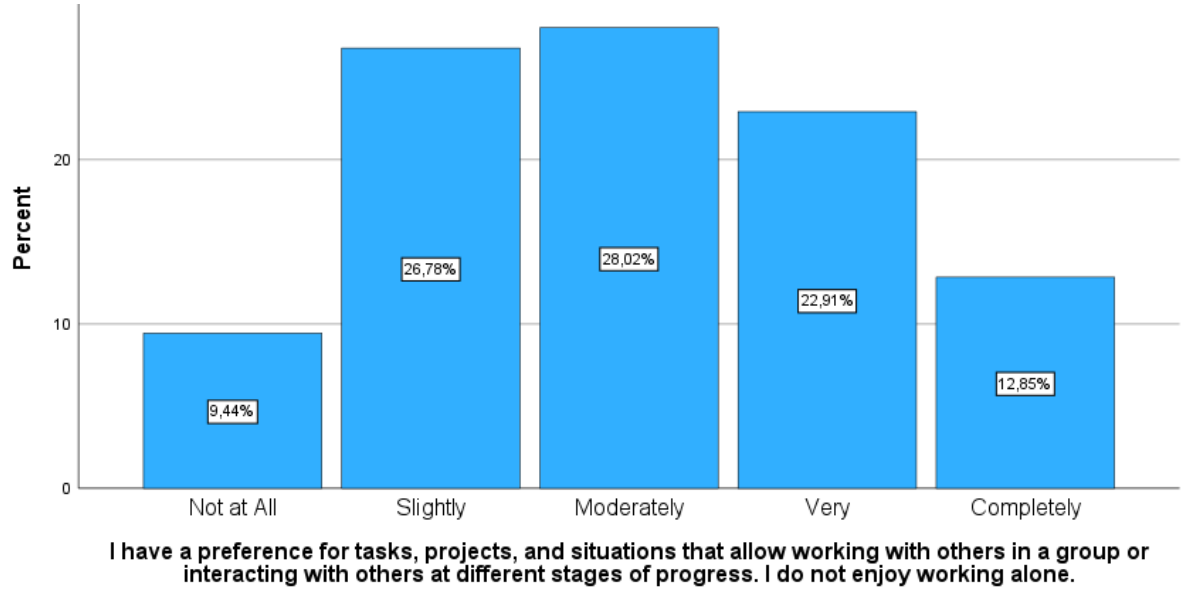

Figure 69 I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone

In the next Figure, students considering the learning style "I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity" regard it as moderately preferrable.

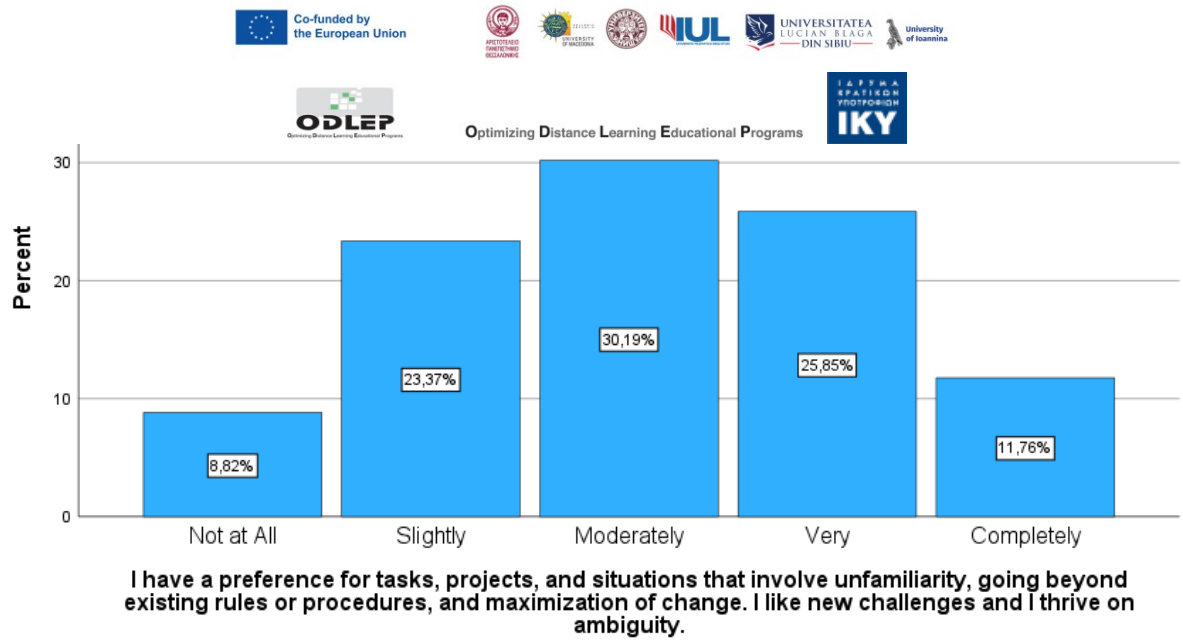

Figure 70 I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity

In the next Figure, students considering the learning style "I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity" regard it as moderately preferrable.

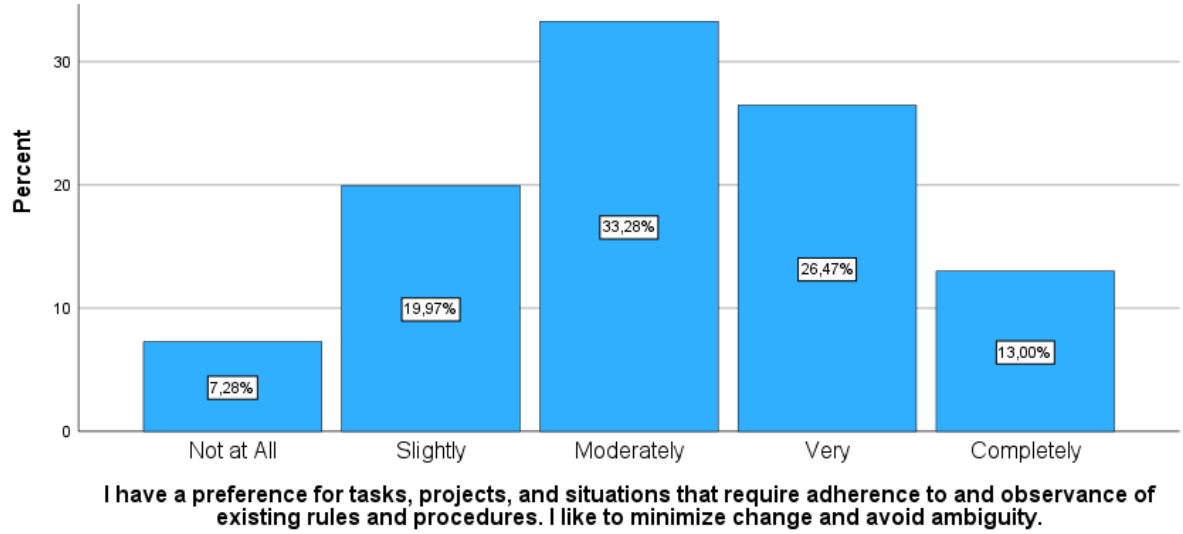

Figure 71 I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. I like to minimize change and avoid ambiguity

The next table summarizes the findings:

Table 54 Dominant Preferences of Participants' Learning Styles

Learning Style	Response	Percentage
I can better discern the material through watching a demonstrative presentation of the information	Very	34,67%
I can understand the material better through listening and oral teaching	Very	30,96%

methods		
I can better learn the teaching materials through taking notes and reading the written contexts and texts	Very	32,51%
I can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)	Completely	43,19%
I have a preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. I like to decide what to do and how to do it, rather than to be told	Moderately / Very	27,71% / 27,71%
I have a preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. I often prefer to be told what to do, and will then give it their best shot at doing it well	Moderately / Very	31,89% / 31,58%
I have a preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. I tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses	Moderately	33,44%
I have a preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete	Moderately	33,28%
I have a preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists	Moderately	29,26%
I have a preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important	Moderately	35,29%
I have a preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic)	Moderately	33,28%
I have a preference for tasks, projects, and situations that require engagement with specific, concrete details. I tend to enjoy tasks that require keeping track of details and to focus on concrete specifics of a situation	Moderately	34,06%
I have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. I like to deal with big ideas, but sometimes they can lose touch with the details	Moderately	31,11%
I have a preference for tasks, projects, and situations that allow them to work independently of others	Moderately	28,02%
I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone	Moderately	28,02%
I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and thrive on ambiguity	Moderately	30,19%

I have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity	Moderately	33,28%

Next, the participating students introduce their preferences regarding the desired learning styles of **their fellow students**. The questionnaire study has recorded preference data as presented in the following Table:

Table 55 Dominant Preferences of Learning Styles for Fellow Students

Learning Style	**Response**	**Percentage**
Students that better discern the material through watching a demonstrative presentation of the information	Very	34,98%
Students that can understand the material better through listening and oral teaching methods	Moderately	33,28%
Students that can better learn the teaching materials through taking notes and reading the written contexts and texts	Moderately	35,14%
Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)	Very	31,42%
Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told	Moderately	35,91%
Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. These students often prefer to be told what to do, and will then give it their best shot at doing it well	Moderately	37,15%
Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses	Moderately	42,26%
Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete	Moderately	37,77%
Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists	Moderately	37,93%
Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important	Moderately	39,47%
Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic)	Moderately	40,40%

Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require keeping track of details and to focus on concrete specifics of a situation	Moderately	38,39%
Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students like to deal with big ideas, but sometimes they can lose touch with the details	Moderately	36,38%
Students that have a preference for tasks, projects, and situations that allow them to work independently of others	Moderately	35,14%
Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone	Moderately	38,70%
Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity	Moderately	36,69%
Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity	Moderately	35,60%

Two learning styles seem to be the most preferred ones, which are listed below:

- Students that better discern the material through watching a demonstrative presentation of the information
- Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)

Comparing the responses provided by the participants regarding their personal preferred learning styles and the learning styles of their fellow students it becomes evident that there is a complete agreement with a small deviation in three learning styles. The latter have the same tendency and only one likert scale degree distance. These three teaching styles are the following:

- Students that can understand the material better through listening and oral teaching methods
- Students that can better learn the teaching materials through taking notes and reading the written contexts and texts
- Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)

The following table provides a comparison:

Table 56 Comparison of Participants and Fellow Students Preferred Styles

Learning Style	**Participants' Opinion Regarding Fellow Students'**	**Participants' Response**
Students that better discern the material through watching a demonstrative presentation of the information	Very	Very
Students that can understand the material better through listening and oral teaching methods	Moderately	Very
Students that can better learn the teaching materials through taking notes and reading the written contexts and texts	Moderately	Very
Students that can better conceive the instructional material through performing the practical, experimental and object manipulation via something more of a physical process (simulated or real)	Very	Completely
Students that have preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies. These students like to decide what to do and how to do it, rather than to be told	Moderately	Moderately / Very
Students that have preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress. These students often prefer to be told what to do, and will then give it their best shot at doing it well	Moderately	Moderately / Very
Students that have preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies and projects. These students tend to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses	Moderately	Moderately
Students that have preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete	Moderately	Moderately
Students that have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. These students will often make lists, and sometimes even lists of lists	Moderately	Moderately
Students that have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important	Moderately	Moderately
Students that have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how they please (work asystematic or even antisystematic)	Moderately	Moderately
Students that have preference for tasks, projects, and situations that require engagement with specific, concrete details. These students tend to enjoy tasks that require keeping track of details and to focus on concrete specifics of a situation	Moderately	Moderately
Students that have a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas. These students	Moderately	Moderately

like to deal with big ideas, but sometimes they can lose touch with the details		
Students that have a preference for tasks, projects, and situations that allow them to work independently of others	Moderately	Moderately
Students that have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. These students do not enjoy working alone	Moderately	Moderately
Students that have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. These students like new challenges and thrive on ambiguity	Moderately	Moderately
Students that have a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures. These students like to minimize change and avoid ambiguity	Moderately	Moderately

In the following section of the questionnaire survey, students were called to describe the preferred teaching styles of their instructors. The results of the survey are summarized in the following Table:

Table 57 Teaching Styles and Their Dominant Preferences

Teaching Style	**Response**	**Percentage**
Instructor that has a preferred way of doing things and does not much like to do things in other ways	Moderately	32,66%
Instructor that carefully sets priorities and then sticks to them	Moderately / Very	32,20 % / 32,04 %
Instructor that does not easily allocate class time so that the most important things receive the most coverage	Moderately	33,75%
Instructor that is not so organized in the teaching style, but is very creative, and sparks creative ideas in his / her students	Moderately	32,04%
Instructor that tends to be very detail - oriented in lecturing	Moderately	37,15%
Instructor that tends to be very general in his teaching and concentrate on the big picture rather than the details	Moderately	37,15%
Instructor that is not so enthusiastic about team teaching and prefer to teach on his / her own	Moderately	30,80%
Instructor that welcomes team teaching or other opportunities to collaborate with fellow instructors	Moderately	33,44%
Instructor that likes to teach in new ways and to try new teaching techniques	Completely	32,20%
Instructor that likes to teach in traditional ways and is hesitant to try new ways of teaching	Not at All / Moderately	24,61%

Two teaching styles seem to be preferrable according to the survey, and are listed below:

- ✓ Instructor that carefully sets priorities and then sticks to them

✓ Instructor that likes to teach in new ways and to try new teaching techniques

CrossTab Analysis

The specific research managed to identify a number of interesting correlations among students' profile and their preferred learning styles. A crosstab analysis was selected with the aid of SPSS 29.

In order to identify the relevant correlation, two criteria were selected:

- Asymptotic significance was required to be less than 0.05
- Adjusted residual was required to be greater than 1.96.

What follows is the presentation of a number of the most interesting correlations that were recognized within the research, in the following Tables:

Table 58 Correlation among Students' gender and learning preferences – Part 1

Students' Gender	*I can understand the material better through listening and oral teaching methods*			*I have preference for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic).*		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	**AS**	**AR**	**Response**	**AS**	**AR**	**Response**
Female Students respond with	<,001	3,4 / 2,0	Slightly / Moderately	-	-	-
Male Students respond with	<,001	4,2	Very	0,051	2,0	Moderately

As shown in the above, students' gender is significantly correlated with the learning preference: "I can understand the material better through listening and oral teaching methods". More specifically, female students correlate with the response "Slightly / Moderately" to the preference of this learning style. Correspondingly, male students correlate with the response "Very" to the specific preference.

On the other hand, students' gender is correlated, but less significantly, with the learning preference "for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how I please (work asystematic or even antisystematic)", but only regarding male students, who correlate to some extent with the response "Moderately" to this preference.

Table 59 Correlation among Students' gender and learning preferences – Part 2.

Students' Gender	*I have a preference for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone*			*I have a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity*		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	**AS**	**AR**	**Response**	**AS**	**AR**	**Response**
Female Students respond with	0,042	2,2	Not at all	0,024	3,0	Slightly
Male Students respond with	0,042	2,2 / 2,1	Very / Completely	0,024	2,8	Very

As shown in Table 59, students' gender is also correlated with the learning preference "for tasks, projects, and situations that allow working with others in a group or interacting with others at different stages of progress. I do not enjoy working alone". Indeed, it is very interesting that female students correlate with the response "Not at all" to the preference of this learning style, in contrast to the male students who correlate with the response "Very / Completely" to the specific preference.

Another notable difference between the preferences of the two genders of students is related to their responses to the preference "for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. I like new challenges and I thrive on ambiguity". Regarding this, female students correlate with the response "Slightly", while male students correlate with the response "Very".

Table 60 Correlation among Students' marital status and learning preferences.

Students' Marital Status	*How efficient do you consider distance learning as a method of education*			*If you have attended at least one online course do you usually keep your camera on or off*		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	**AS**	**AR**	**Response**	**AS**	**AR**	**Response**
MARRIED	0,005	2,9	Most Efficient	0,002	3,8	Camera On
SINGLE	0,005	2,9	Inefficient to Average Efficient	0,002	4,0	Camera Off

Table 70 indicates that students' marital status is significantly correlated with the question:

"How efficient do you consider distance learning as a method of education". It is particularly interesting that married students correlate with the response "Most Efficient" to this question, while single students correlate with the response "Inefficient to Average Efficient".

Correspondingly, marital status is also significantly correlated with the question: "If you have attended at least one online course do you usually keep your camera on or off". More specifically, married students correlate with the response "Camera On", while single students, on the contrary, correlate with the response "Camera Off".

Table 61 Correlation among Students' Level of Education at present and learning preferences.

Students' Level of Education at present	*I have preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfill. I will often make lists, and sometimes even lists of lists.*			*I have preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important*		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	**AS**	**AR**	**Response**	**AS**	**AR**	**Response**
Post Doctoral Studies	0,024	2,6 / 2,5	Not at All / Slightly	0,003	3	Completely
PhD	0,024	1,9	Completely	0,003	3	Completely
Master of Science	0,024	2,0	Completely	-	-	-
Undergraduate	0,024	-	-	0,003	2,3	Slightly

Another interesting correlation extracted from the research is the one among students' level of education at present and two specific learning preferences, which are presented in Table 4. As regards the learning preference "for tasks, projects, and situations that allow creation of a hierarchy of goals to 165ulfil. I will often make lists, and sometimes even lists of lists", students with an education level of Post Doctoral Studies tend to correlate with the response "Not at All / Slightly", whereas students with an education level of PhD or Master of Science correlate with the response "Compeletely".

On the other hand, regarding the learning preference "for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important", students with an education level of Post Doctoral Studies and students with a level of PhD correlate significantly with the response "Completely". On the contrary, undergraduate students correlate significantly with the response "Slightly" to the preference of this learning style.

Table 62 Correlation among Students' Level of Education at present and learning preferences.

Students' Occupational Status	*I can better learn the teaching materials through taking notes and reading the written contexts and texts*		
AS (Asymptotic Significance), AR (Adjusted Residual), Response	**AS**	**AR**	**Response**
Student	-	-	-
Unemployed	0,034	3,0	Completely
Employed in Private Sector	-	-	-
Employed In Public Sector	0,034	1,9	Very

Additionally, according to Table 62, students' occupational status is correlated with the learning preference: "I can better learn the teaching materials through taking notes and reading the written contexts and texts". More specifically, unemployed students correlate with the response "Completely" to the preference of this learning style. Correspondingly, students employed in Public Sector correlate with the response "Very" to the specific learning preference.

Discussion

The aim of the present study was to investigate how the profile of students who participate in distance educational programs can influence their interaction with the specific learning environment. For this purpose, a questionnaire survey was carried out. Six hundred and forty-six students from four countries (Greece, Romania, Italy, Serbia), and from six universities in total, participated in this research. The survey was designed and implemented in 2023, through a structured questionnaire, with the aid of Google forms. More specifically, the participants provided sufficient information about their profile and their distance learning experience, while they responded to various specialized questions regarding their learning preferences in the context of distance educational programs.

The most important objective of the current research was to identify the correlations among students' profile and their precise learning preferences in distance education. In fact, through a Crosstab analysis that was conducted with the aid of SPSS 29, a large number of interesting correlations among students' profile and their preferred learning styles were identified. The most notable of them were the correlations among students' gender and some specific learning preferences of the students, regarding the type of the preferred teaching methods, as well as the type of the preferred tasks, projects, and situations within distance education. In particular, four

of these correlations concerning students' gender were presented in the context of this paper. There were also noteworthy correlations identified and presented in this study, among the students' learning preferences and other attributes of them such as their marital status, their level of education at present and their occupational status. Some interesting conclusions were drawn from these correlations, such as the fact that married students consider distance learning as a method of education which is most efficient, while single students consider distance learning as inefficient to average efficient. Another notable finding of the research is that single students tend to keep their camera closed, while the opposite seems to be true for married students.

The goal of this research is to capitalize on the findings regarding the identified correlations, so that distance education programs can be organized more efficiently, more targeted to the needs of the participants, and they can be more attractive to the users. These findings could be utilized and incorporated in the future by universities, institutions and organizations to better organize the distance educational process that they provide.

Personality Traits

Self-reported personality traits of instructors and students were measured on a scale assessing the Five Personality Factors of the Big Five Model and more specifically extraversion, conscientiousness, agreeableness, neuroticism and openness to experience. The Big Five Factor model is to date the most influential and well studied model of the personality.
Extraversion describes dimensions such as warmth/heartedness, sociability and assertiveness, activity, thrill-seeking and positive emotions. Neuroticism summarizes characteristics such as anxiety, hostility, depression, self-consciousness, and impulsivity and vulnerability. Openness to Experience includes characteristics such as imagination, aesthetics, actions, ideas and values. Agreeableness refers to Trust, Directness/sensitivity, Altruism, Conformity/conformity, Modesty and Sensitivity. Finally, conscientiousness describes Competence, Orderliness, Conscientiousness, Ambition, Self-Discipline and Thoughtfulness. The table below summarizes the characteristics of the participants. Values range from 0-5, and higher values indicate higher presence of the specific characteristic.

Table 63 Average score for personality Traits

	Students	**Instructors**
	Mean (SD)	**Mean (SD)**
Extraversion	3.28 (0.51)	3.57 (0.62)
Neuroticism	2.59 (0.68)	2.40(0.65)
Openness to experience	3.68 (0.52)	3.83 (0.50)
Agreeableness	3.40 (0.49)	3.54 (0.48)
Conscientiousness	3.79 (0.64)	3.98 (0.54)

Interview with Experts

A list of university professors and researchers were provided by the ODLEP project partners and of that list 13 persons were chosen to perform a series of interviews. The criteria for the final choice were: Age (to cover various cohorts), sex (all sexes are covered), position at the university, area of expertise (both theoretical and physical/engineering sciences).
Consequently, the following material/questions were prepared and each partner performed interviews either in person or online.

During the Interview

Introduction (5')

- The coordinator welcomes the participants, proceeds with a brief self-introduction and expresses gratitude for their presence and contribution to the project.
- The coordinator collects the consent forms/makes sure all the participants have sent the consent forms. It is the responsibility of each partner to provide them to participants in the FG and interviews, and preserve them. Brief explanation about why they are needed and how the data of the interview will be processed and kept.
- A brief description of the purpose of the discussion will take place, covering also how the results will be processed. Any potential questions or doubts regarding the project or the interview will be addressed before the beginning of the process.
- Explanation and ''house-keeping'' rules (duration etc.)

Main Part (20-25')

- Explain why participants' opinions and experiences on the topic matter.
- Address all the research questions to elicit responses and prompt participants to react and discuss engaging them all equally. Clarify that responses can be spontaneous or follow an order if the participation is not high.
- Be mindful when it comes to time: the complete duration and each participant having the chance to contribute.
- Not exclusively but especially when the conversations stalls, do not hesitate to ask clarifying questions (''Could you please elaborate?'' etc.).
- Do not rely only on questions and use narrative. Elaborate on something interesting participants shared and try to engage the others by explaining how the specific insight might reason with them or concern them too. Avoid 'Yes' or 'No' responses.

Conclusions (5')

- Make sure participants do not have any questions before leaving the focus group/interview.
- Confirm that participants have not reconsidered regarding the use of their data, following the interview.
- Share your contact details and a document with information about the project.
- Thank participants for their contribution. Explain what the next steps of the project are and which are the options for those who wish to get involved further.

Questions for the Interview

a) Background Information

Could you please share with us the following:

Age	
Position	Professor-Associate Professor-Assistant Professor-Researcher_other(please specify)
Institution currently employed	
Department	

b) Distance Education Expertise

	YES	NO
1. Have you taught through distance/online education		

2. If yes approximately how many semersters?	

3. On a scale from 1 (ppoor) to 5 (expert) how would you rate the following:
- Your level of computer expertise?
1. 2. 3. 4. 5.

	YES	NO
4. Are you certified for distance education programs		

5. If yes please indicate the	

certification agency	

6. Which platform(s) have you used for distance education in the past ?	

7. What functionalities do you believe that these platforms currently luck ?	

8. Please name at least 1 functionality that distance education/online platforms should have in order to make the lecture more productive	

9. What do you believe is the ideal number of students that should attend a distance/online class ?	

	YES	NO
10. Do you believe that students that attend distance/education classes should be homogeneous ? For example, all have the same characteristics (personality, learning rates etc.)		

11. Why yes or why no	

12. Based on your experience do you believe that students learn and perform better when they physically attend classes or when they follow lectures online ?	

13. Which types of courses do you believe require physical attendance and which types do you believe can be better absorbed with distance education ?Why ?	

Consent form for participation in an interview and permission to contact

I, _____,hereby declare that:

I consent to participate in the research carried out in the framework of the research project "ODLEP". The main objective of the research is to identify the main characteristics that drive the success or not of distance/online education. In addition, I consent to the use of my contact details to receive information on future project activities. I have taken note of the following:

- I understand that all information I provide for this research will be confidential.
- I understand that in any report on the results of this research my identity will remain anonymous.
- I understand that personal information, such as my name and contact information, will not be shared with non-members of the project team or with project team members who do not need to have access to this information.
- I understand that my personal information is considered strictly confidential
- I may contact any of the persons responsible for the investigation to request further clarification and information.

Signature:

_____

Place and Date: _____

Results

Demographic results

Figure 72 below illustrates that the interviewees covered major age cohorts, with the majority being between 36-40 and 46-50.

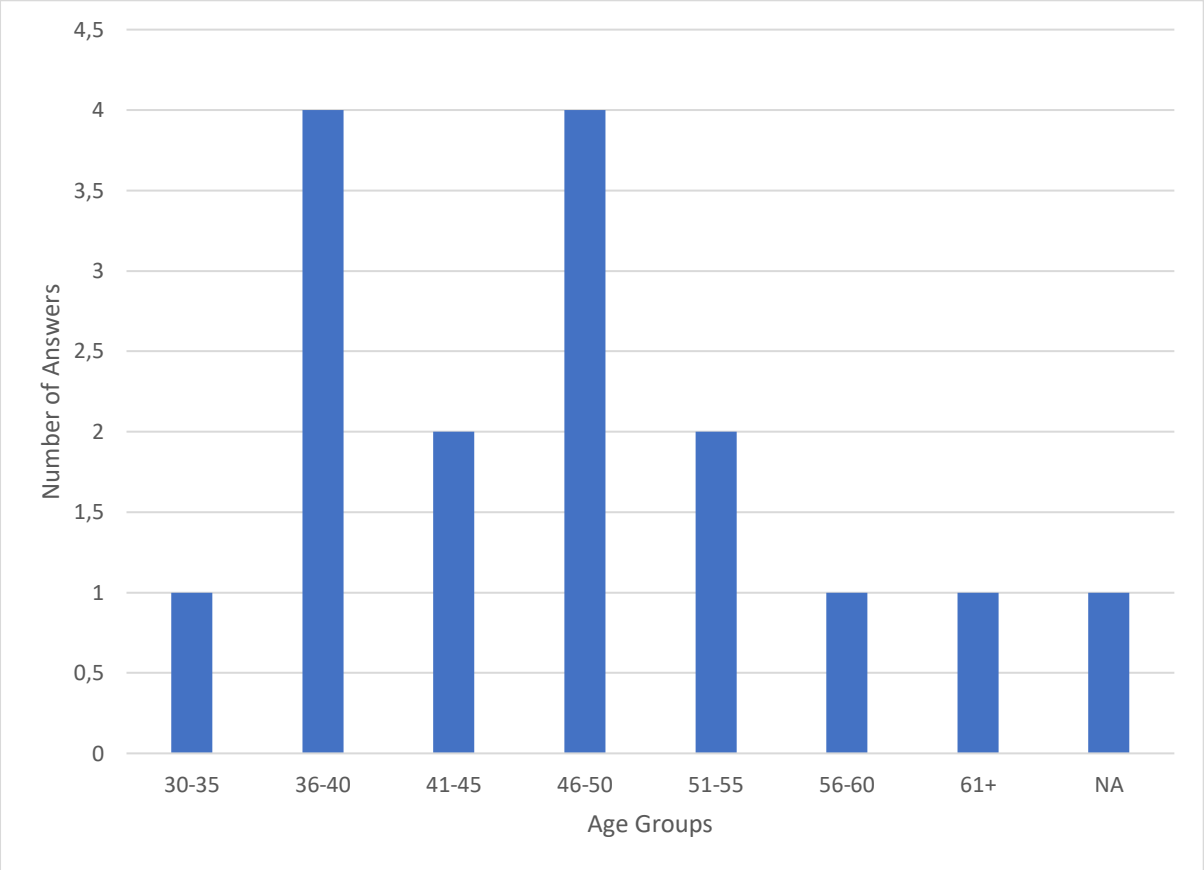

Figure 72 Age cohorts

As it was mentioned above, there was an effort by the ODLEP team to get the opinions of people on all levels of the academic institutions; Figure 73 shows that most participants were either assistant, associate or full professors, with fewer researchers and lecturers.

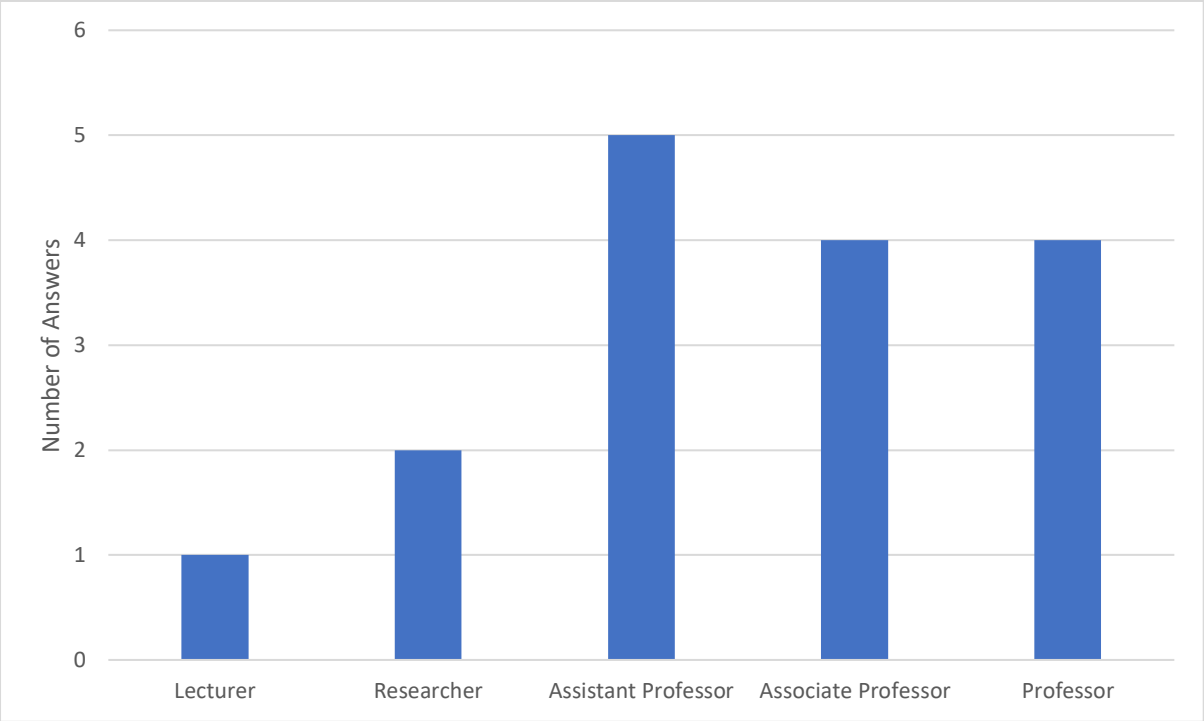

Figure 73 Position in academic institution of the participants

The next questions in the interview were focused on identifying the experience of the participants with online education and as it can be observed, the majority of them had 2 or more semesters of experience in teaching online, three participants declared that they had more than 8 semesters of experience, while finally also 3 participants declared that they had more than 10 semesters of experience.

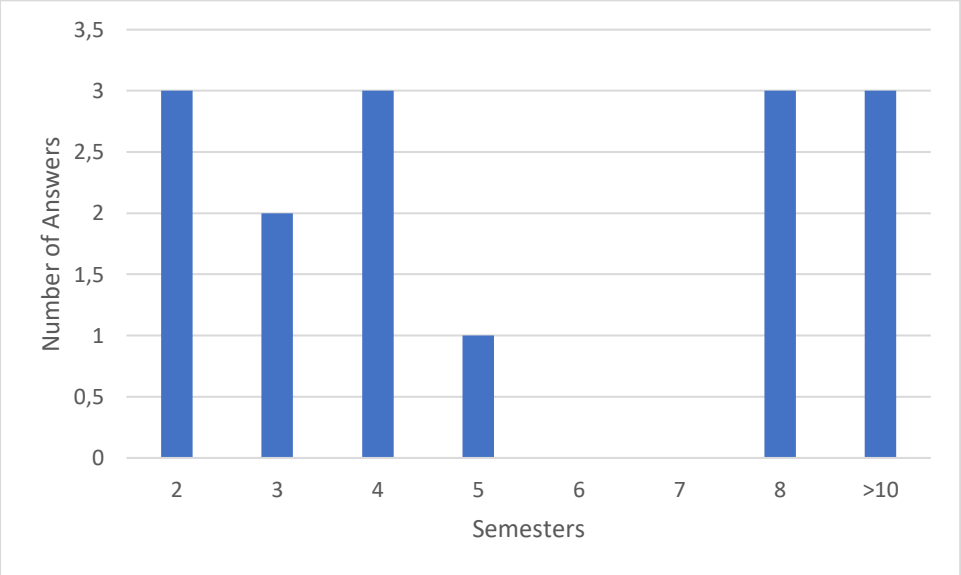

Figure 74 Semesters of experience in online education

In addition, 10 of the respondents declared that they assessed their computer expertise as 4 (on

a scale from 1 to 5, with 5 being an expert) and only 4 assessed themselves as experts. The first interesting result originated from the question of whether the participant had any official certification for distance education programs; of the 16 respondents, 10 answered affirmatively and of those 5 declared the certification agency to be Higher Education Academy UK or the Romanian Agency for Quality in Higher Education. It should also be noted that 2 respondents who had a certification also assessed themselves as being experts in computers and the rest had in addition the highest number of semesters as experience, while the last respondent who was self-assessed as a computer expert had the smallest age of the group.

Consequently, the first concrete conclusion from the interviews is that a certification for teachers and/or professors could assist them in using more easily any digital system with the purpose of doing courses online. Lacking that, experience increases computer expertise, thus academic institutions could provide training to teachers with the purpose of increasing their confidence with digital systems or attempt to hire younger people that have an advantage over the use of digital technologies.

On the question of the platform that they have used for online education, the participants listed the major companies and platforms that have gained popularity during and after the COVID-19 pandemic, and only 4 answered that they have used an own-institutional platform.

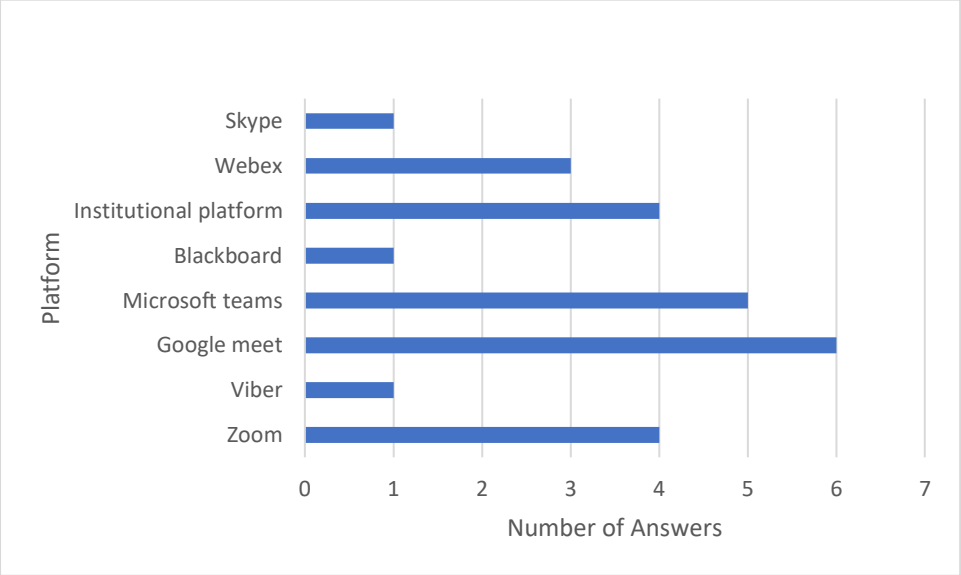

Figure 75 Platform that has been used for online education

Continuing with the platforms, on the questions regarding what functionalities they were mostly missing and what the participants would like to see more, the answers were almost unanimous: interactivity is a key educational elements that the respondents felt that was missing from most platforms. In more detail, the participants highlighted that with online education it is difficult "to see who is watching and who has left" and these platforms should make it easier to "see the presenter and the presentation". In addition, 2 participants answered that these platforms should have a forum for communication and some sort of blackboard for

note-taking. Moreover, the lack of any assessment tool was regarded as important by 2 respondents. Finally, one of the participants declared that sophisticated tools that assist with logistical support (like integrated scheduling of the meetings, sharing presentations to more than one groups etc.) should be more prevalent and only one mentioned that such educational platforms should incorporate virtual laboratories.

Consequently, this set of answers offered insights that could be targeted to companies that develop such digital tools or the policy makers of academic institutions who have to make a choice of educational platform. Any digital tool that would be used in online education should promote interactivity among teacher and students, while allowing different types of communication, such as a forum, a blackboard functionality etc. Finally, the virtual laboratory could be one of the features that future platforms could integrate.

The next set of questions focused on the students that participate in online education programs. The answers can be roughly grouped into four categories: up to 10 students, between 10 and 20 students, between 20 and 30 students, while 6 participants declared that online educational programs could host more than 30 students or that there should be no limit on the number of students that could attend. Interestingly, one participants further clarified that any number of students could be ideal for online education as long as they are divided into sub-groups of 5.

Moreover, on the question if the students should be homogeneous the opinions were in favour of heterogeneity.

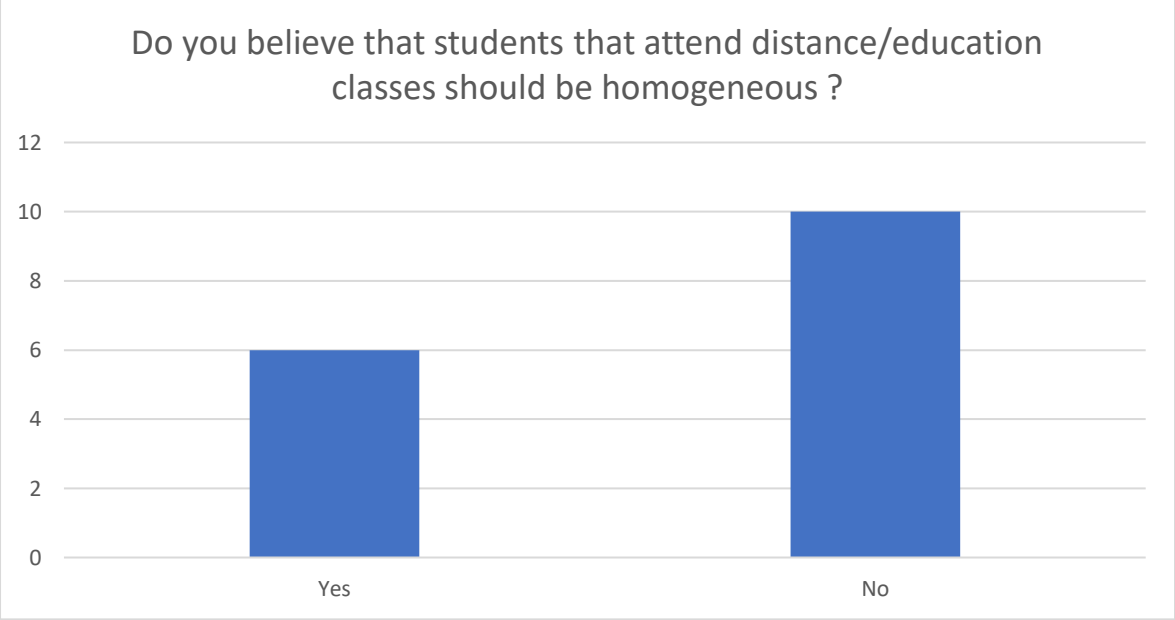

Figure 76 Need for homogeneity of students in online programs

Further clarifying the answers, they could be separated into four classes:

1) It is the job of the professor to engage the students thus, any homogeneity is not really necessary

a) "The outcome of the teaching process should be independent of the characteristics of

students."

b) "I believe that providing clear and well-organized content effectively accommodates diverse learners who can also incorporate and improve knowledge, drawing upon their own understanding and comparing it with that of their peers."
c) "in order to create a polyphonic group"

2) Homogeneity is very important

a) "It is already hard enough to maintain student engagement in the online mode"
b) "It is easier for the person who does the lecture to address audience with the same education level"
c) "f there are any difficulties among the attendees are more difficult to be identified by the instructor [if there is no homogeneity]"
d) "Due to easier monitoring and understanding"
e) To optimize learning outcomes"

3) Both physical and online education offer challenges

a) "[…]just as it would be the case if it were held in a classroom. If the specificity of the field of study itself requires something like that, than that is another story."
b) "Not necessarily since heterogeneous classes bring more teaching challenges but homogeneity could facilitate the flow of the course"

4) Diversity is beneficial

a) "This diversity can enrich discussions, fostering a more comprehensive understanding of topics"

On the question which type of education the participants believe that is "better" for the students 0 answers were unequivocally in favor of online education. 7 of the respondents declared physical classes as the most beneficial since "Physical attndnce has the advantage of getting the expressions of the students and to detect their reactions in real time. Distance learning cannot do that, so I think physical attendance is better for the person who performs the lecture". However 9 respondents declared that "it depends" which type of class is better with answers focusing on:

a) "It depends on the course, the year of study, the size of the cohort, the diversity of the cohort (e.g., international students usually have the language barrier on top of everything else)."
b) "It depends on the abilities and motivation of the teacher"
c) "Students improve their learning when they actively engage during lessons and also demonstrate better performance following integration with the provided lectures. Asynchronous content greatly aids in comprehending the material by solidifying the presented concepts."

d) “The answer can depend on various factors like the nature of the course, the teaching method, the student's learning style, and more.”
e) “I don't think that the effectiveness of learning is given by physical or online participation, but by the student's interest.”
f) “The motivation of the students is extremely important, as well as the professionalism of the teachers (the quality and topicality of the information, the emphasis is on competences, not on the volume of knowledge, passion and enthusiasm)”
g) “Clinical courses only with physical attendance more theoretical courses can be conducted online”
h) “Theoretical courses can be taught online, while practical courses are more difficult to be delivered online”

Finally, on the last question of what type of courses are better taught on face-2-face setting the answers were unanimous: practical courses require physical attendance, while theoretical or problem-solving exercises could be also accommodated in an online setting. One of the participants however, declared their optimism for online education by stating: “I think that in the future all courses can be held remotely if simulators and virtual laboratories are available.” Consequently, another important insight is that universities could promote online classes (even partially) for problem-solving, answering questions etc. while the rest of the courses could be held physically. This way teachers gain experience while students get accustomed to the online setting of courses. Finally, regarding the homogeneity of the student groups, while in principal it is considered beneficial for the educational process, any heterogeneity could- although introduce challenges- can also offer advantages to the students.

Conclusions

This report has examined various parameters and characteristics contributing to the success of online education, aiming to provide insights for educators, administrators, and policymakers.

Key Success Factors for Online Education:

- The involvement of stakeholders and local bodies enhances program success.
- Inter-institutional and interdisciplinary approaches foster effectiveness.
- Well-structured administrative organization and instructional material are crucial.
- Flexible scheduling and real-time course presentations meet diverse needs.
- Limited participant numbers and project-based learning support engagement.
- Effective communication between instructors and students is essential.
- Educators trained in distance learning programs facilitate quality education.
- Dedicated platforms and professional suitability improve outcomes.

Hindering Parameters:

- Challenges arise from asynchronous courses and platform malfunctions.
- Managing personal data, language proficiency, and tuition fees pose obstacles.
- Technical proficiency, subject specialization, and workload management are concerns.
- Larger participant numbers can hinder program management and module quality.

Insights from Literature Review and Expert Interviews:

- Certification and training can enhance educators' digital proficiency.
- Interactive tools and virtual laboratories improve engagement and learning outcomes.
- Hybrid approaches combining online and in-person classes can benefit both educators and students.
- Heterogeneous student groups present both challenges and opportunities for learning.

Relevant Correlations from Questionnaire Responses:

- Gender differences influence learning preferences and engagement levels.
- Marital status impacts perceived efficiency and camera usage during online classes.
- Level of education and occupational status also influence learning preferences and engagement.

These conclusions underscore the multifaceted nature of online education, highlighting the importance of addressing various factors to enhance its effectiveness and accessibility. Moving forward, further research and collaborative efforts are essential for optimizing online educational experiences for all stakeholders.