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A Case Study of Peer Tutoring Implementation at University: Investigating the Students' Difficulties that Were Faced with the Method and the Tutors' Difficulties in Applying It*

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ABSTRACT

Peer tutoring has been implemented for two academic years (2017 - 18 and 2018 - 19) to a course and the internship of a postgraduate program of the Department of Education Sciences in Early Childhood of the Democritus University of Thrace. Until now fourteen students (eight students and six tutors) have been involved to the method. The purpose of this qualitative study is to research the students' difficulties that were faced with the peer tutoring method and the difficulties of the tutors in applying it, as well as the ways in which they were dealt with. Therefore, this research helps to highlight the importance of this method for the academic development of undergraduate and postgraduate students of the particular University Department and helps to collect data that could support the further development of the method itself in the Department.

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1. Introduction

In the contemporary literature 'peer tutoring' describes the teaching method where a more capable and experienced student in knowledge and skills teaches a less capable one (Ntoliou, Papatzikis & Pliogou, 2016) and also, more broadly, individuals from similar social groups -non professional teachers- who help each other learn and learn by teaching themselves (Topping, 1996; 2005). As for the University, it refers to students, undergraduate or postgraduate, who assist their colleagues in courses that they face difficulties. It is a widespread method in the higher education, compatible with the requirement of the improvement of teaching and learning quality in institutions with cost effective interventions (Stigmar, 2016). A basic benefit of implementing peer tutoring in University is that enables students to change study habits and improve (Pugatch & Wilson, 2018) but its importance can also be seen broadly in the field of complex social issues management, involving students at risk of drop out, integration of minorities, equal opportunities for learning and equal access to educational resources (Faroa, 2017). The above issues are relevant to higher education internationally. In the EU many students drop out of their studies (Ministry of (Greek) Education, Research and Religious Affairs, 2016) and a similar situation is also reflected in the United States literature (Pugatch & Wilson, 2018).

A large number of tutors in Universities usually come from postgraduate students with the major advantage of being close to their students' experience level, so that the latter share their difficulties more comfortably

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with them. On the other hand, the main disadvantage is they may not be fully capable of approaching the concepts and content they are negotiating in terms of teaching (Clarence, 2016).

Research on University peer tutoring comes mainly from the United States and the United Kingdom, although its spread worldwide is noticeable. Stigmar (2016) identified thirty studies from thirteen countries in a recent overview of research articles published between the years 2010-2013 on face to face tutoring among students. Nearly two-thirds of them come from the United States and the United Kingdom. Other countries represented are: New Zealand, South Africa, Australia, Thailand, Belgium, Sri Lanka, Turkey, Spain, Hong Kong, Mexico and India (Stigmar, 2016). This overview reveals benefits of peer tutoring in critical thinking development, self-regulation, time management, organizational skills and other related to generic skills and metacognition (Stigmar, 2016). Similar benefits are also recognized in earlier studies (Cohen, 1986). Finally, this method is proved to be effective in the academic performance of students (Arco-Tirado, Fernández-Martín, & Hervás-Torres, 2019), even more than professional tutoring (Russ, 2015).

In Greece, we identified only a study by Nikolarazi, Karagianni & Filippatou (2013) on the effect of a peer tutoring program on academic access of students with disabilities and a structure that offers support to students with disabilities through a peer tutoring method in the University from which the above research comes from (Nikolarazi, 2013). Another application of peer tutoring in Greece is in the Department of Education Sciences (DESEC) of the Democritus University of Thrace (DUTH) in the context of the course *Personalized Learning with Supervision: Theory and Research*, which is taught with theory and practical applications, both in the undergraduate and recently in the postgraduate program. In the postgraduate program peer tutoring is also eligible as an option for internship in the frame of the above course.

We can conclude from the above that the method of peer tutoring is not widespread in Greece in the Universities either as a research or as a means of supporting students' studies. However, the benefits of introducing and institutionalizing the method in higher education appear to be multifaceted and make it important to conduct empirical research and explore the field. The importance of the present case study is embedded in the above framework as it explores ways and procedures for the implementation of peer tutoring in the context of DESEC. Furthermore, this study will contribute to a deeper understanding of aspects and functions of the method. That is of general interest to academics who will be intrigued to implement it in other higher education institutions in Greece where students face similar problems.

2. The Research Framework

The research was conducted in the context of the course *Personalized Learning with Supervision: Theory and Research* which is taught in the 2nd semester of the postgraduate study program of the Department of Education Sciences (DESEC) of the Democritus University of Thrace (DUTH) during the Compulsory Course *Innovative Pedagogical Approaches and Alternative Types of Education* and also in the context of the internship of the same postgraduate program. The purpose of this course and the internship, in the field of peer tutoring, is for the post graduate students to acquire learning experiences as well as professional and/or social skills by providing assistance and support to undergraduate students in courses that they face problems.

The above course (first cycle of implementation) was taught during the spring semester of the academic year 2017-18 and the internship (second cycle of implementation) took place in the winter semester of the academic year 2018-19. In the first cycle, there were 5 theoretical and 6 laboratory lessons, while in the second cycle there were 3 theoretical and 7 laboratory lessons, all of which lasted for two hours each. Theoretical lessons were conducted using the method of lectures and the labs included practical application of theory. During the lessons, none of the participants noted more than one absence.

2.1. The Research Aim

The present research was carried out for the needs of the course improvement in DESEC with the aim of understanding the students' difficulties that were faced with peer tutoring and the difficulties of the tutors in applying the method, as well as the ways in which they were dealt with. Another purpose is to explore ways and procedures for the implementation of peer tutoring in the specific context of DESEC, as a tool to support students who encounter difficulties in specific courses.

2.2. The Research Methodology

This is a qualitative study. For the collection of the data we used semi-structured and participatory observation techniques and structured questionnaires with open-ended and closed-ended questions. Thematic analysis has followed. Students' answers in the questionnaires as well as the supervisor's notes from the observation during the laboratory lessons were studied in order to identify the basic subject patterns and formulate specific categories. According to Bryman (2017), a subject pattern is a category that the analyst identifies through his data, which is linked to the research focus. It is based on codes derived from field notes and it offers the researcher the basis for a theoretical understanding of his data. The content of the questionnaires and the notes was/were divided into four themes as follows:

1. The difficulties of undergraduate students that were faced with the peer tutoring.
2. The difficulties that the tutors faced during the peer tutoring implementation.
3. Tutors' practices to support students during peer tutoring.
4. Tutors' practices to deal with their difficulties during the peer tutoring.

These topics were chosen having the phrase as a unit of analysis, meaning the organized syntactic words or even a single word - if there was no phrase - with a single meaning, enclosed in two punctuation marks, often repeated clearly in the texts. These were divided into comparable units, categories were extracted and thematic analysis was based on specific meanings. The first reading of the texts and the choice of thematic patterns were the starting point for the formulation of the research questions of the present work, which constituted the guidelines for systematic qualitative analysis.

2.3. The Research Questions

1. What difficulties did the students face with the peer tutoring?
2. What difficulties did the tutors face during the peer tutoring implementation?
3. How were the students' difficulties faced by the tutors during the peer tutoring?
4. How did the tutors themselves deal with their difficulties during the peer tutoring?

2.4. Subjects

The study involved 14 students: six female tutors (code letters: An., Ath., D., E., M., Mat.), all native, aged 24-52 and eight tutees: four male and four female undergraduate students, 22-25 years of age (code letters: M., P., X., E., LM., Ath., G., MS.). Two men of the tutees were Albanian native speakers (MS and LM) and also two others, one male and one female, were Turkish native speakers (X and G, respectively), members of the Muslim minority of Greece. One native male student (P) had learning difficulties (dyslexia) and participated in both cycles on his own initiative. All six of the tutors implemented the method in the first cycle and four of them also in the internship. The tutees were selected by the supervisor of the process on specific criteria: they had failed the exams to the two courses that she teaches in the Department and had extremely low grades in repeated examinations. These courses are the *Evolution of Pedagogical Thinking* and *Introduction to Education Sciences*.

2.5. Data Collection and Tools

Data were collected during the implementation of the method at the laboratory lessons in the two cycles (course and internship) of the postgraduate programme. Tutors assisted their students in one course of the above two (*Evolution of Pedagogical Thinking* or *Introduction to Education Sciences*). Communication during tutoring was face-to-face and was recorded by the supervisor through semi-structured and participatory observation of the interactions and practices that were freely recorded on a structured observation sheet per pair of students. Specifically, the researcher was present during the course of all the meetings, wandered among the pair of students (the tutor and the undergraduate student), sat at a table next to each of the pair and recorded behaviors, mainly verbal, indicative of their tutoring practices and the reaction of the students. The duration of the observation was two hours for each tutoring session and the total time of observation was 26 hours (12 for the course and 14 for the internship).

Structured questionnaires with open-ended and closed-ended questions were additionally used to collect data from the subjects: three (3) questionnaires for tutors, one of which was administered before the peer tutoring implementation, after attending the lectures and two (2) after the peer tutoring implementation. Of the last two, the first included focused questions on the tutorial meetings in each lesson, while at the same

time asking the student to present particular facts, evaluative judgments and process assessments. The second required critical reflection in free form with the help of keywords such as: 'difficulties', 'experiences', 'attitudes', 'strategies', 'mistakes', 'role', 'solutions', 'communication', 'progress', 'emotions', 'awareness', 'use of time', 'discussion', 'help', etc. and it concerned both the subject and the social skills, attitudes and values acquired or enhanced by both the tutor and the student. More specifically, regarding the questionnaires of tutors, what was given before the implementation of the method, included thirteen (13) questions, six (6) of which suggested clarifying sub-questions. An illustrative example of a question asks the tutor to present as accurately as possible the student's cognitive profile and the way in which he obtained the information. As for the questionnaire that was given after the implementation of the method, it included fourteen (14) questions, eight (8) of which had sub-questions. A typical example is a question which asks the tutor to answer if the student has acquired the ability to express in writing the knowledge he has acquired and if so, to mention an element that states it.

Regarding the students' questionnaires, what was given before the implementation of the peer tutoring included seven (7) questions, two (2) of which had sub-questions. An indicative question is: What or which exactly is/are the difficulty/ies you have in relation to this course? With the written expression? [Choose] Yes or No. If so, what exactly? What was given after the implementation of the method included twelve (12) questions, six (6) of which had sub-questions. A typical question of this is: Were the needs you expected to meet through your meetings with the tutor met? [Choose] Yes or No. In any case, justify.

Usually, in the questionnaires given, there are first closed-ended questions (yes / no) and then open-ended questions that students were asked to answer according to the answer they gave before. At the same time, the questions of both the tutors and the students, invited them to think about the practices of the other partner (their peer) as well as their own and end up in an expression of self-evaluation or satisfaction of expectations and needs, without omitting the possibility of expressing a proposal to improve the procedure.

In general, the two questionnaires aimed at investigating the practices and skills of tutors before and after the implementation of support, in order to realize the aspects of the task they needed to complete, the possible difficulties in applying the theory in practice, their attitude towards each other and self-evaluation. The students' respective questionnaires were also intended to understand their difficulties, to determine if and how they overcame them, to express their needs and expectations and to self-assess. As far as their content is concerned, it was relied on existing theoretical and empirical international literature about peer tutoring in higher education, adapted to the Department's context and the students' cultural background (see: Bachelet, 2010; Centre étudiant de soutien à la réussite des Services aux étudiants, 2018; Danner, Kempf & Rousvoal, 1999; Fornasieri, Lafont, Poteaux & Seré, 2003; Moussay, Étienne & Jacques Méard, 2009).

In order to assure the internal validity and reliability in the research we triangulated the data from the students' questionnaires (tutors' and tutees') and the supervisor's observations.

3. Data Analysis - Results

3.1. Students Talk about Their Difficulties

The study of students' written data highlighted four main categories of difficulties that are related to language, the subject and the study of the subject and one of them made reference to his mental state (Table 1).

Table 1. Thematic analysis: tutees' reason for their difficulties

The numbers in parentheses refer to the frequency of the category in the tutees' speech.

Categories	Code letter of subject	Sub-categories	Topics
Language (16)	P;X;E;Ath;	Oral	Vocabulary, Expression, Grammar (syntax, spelling, expression, structure), Understanding, Etymology, Reading
	LM;M;G; MS	Written	
Subject/ Science (9)	X;Ath;LM;	Terminology	Wording, Understanding, Interpretation, Ignorance
	G;M;P	Content	

Course Study (8)	P;X;E;LM; MS;M	Organization	Time, Material, Thought, Schedule
Mental State (1)	X	Anxiety	

These are comprehensible and reasonable difficulties, especially for the students (tutees) with different mother tongue (Albanian and Turkish) and the one with learning difficulties (dyslexia), which impedes their progress in combination with demanding courses. These courses, as we have already mentioned, are "Introduction to Education Sciences" and "Evolution of Pedagogical Thinking" and they have a high level of complexity, not only for Greek non-native speakers, but also for natives, as the supervisor of the procedure who teaches them may assure.

Consequently, students need help to overcome language barriers which -in combination with the increased level of complexity of the courses- make them even more difficult to overcome, as it is not easy to understand and interpret terms and specialized concepts. In addition, students encounter difficulties in organizing their study, due to lack of time -as some work or have many courses left to obtain their degree- and due to the absence of a personal study and organization of their thinking. Furthermore many students of DESEC pass entrance exams with low marks, having poor basic knowledge, which makes adaption and progress in their studies even more strenuous. All those characteristics challenge their tutors to act in multiple levels as teachers, mentors and inspirators.

How do students articulate their difficulties? The student with learning difficulties (P) states from the beginning: "I have a problem with vocabulary, [...] spelling, syntax [...] terminology, dense text" (P/B2.1/before)². His tutor identifies his difficulties from the very first session, such as "He cannot say in his own words the meaning of a word [self-discipline]. He has difficulty in verb inflection and has difficulty in the meaning of the words: 'unconscious', 'predisposition'. He can't answer" (P/18-11-2018).

These are significant difficulties that fall into all three categories, as well as those mentioned by X, a language learner (Turkish native speaker, member of the Muslim minority of Greece): "Grammar, syntax, spelling [...], speaking, reading text, pronunciation [...], difficulty in understanding teacher requirements "(X/B1.2/C/D/before) and difficulty with "some concepts in the text, difficulty in interpreting scientific speech" (X/B.2.1/before). Difficulties that the supervisor also states: "He writes a sentence and encounters obstacles in spelling: words' behavior 'and' discipline" (X/25-11-2018). Their difficulties are clearly recorded, indicating the awareness of their problems and at the same time their willingness to solve them through tutoring. The student himself cites the reasons for the difficulties: "Losses caused by minority education, poor parenting," (X/C.1), and explains that he systematically followed and repeated courses and borrowed notes (X/E).

Other non-native students are also aware of their level of language and scientific terminology. Among them, G, (Turkish native speaker, member of the Muslim minority of Greece) who wrote her answers with the help of tutor, states: "What I find most difficult is the organization and formulation of a sentence with the correct syntax [...], the etymology of a compound word" (G/ B1.2/B2.1/before). Her statement is confirmed by the observation of her supervisor: "She reads the sentence and says that he has difficulty spelling it using the word 'Middle Ages'" (G/20-05-2018).

MS, an Albanian native speaker, says -before the tutoring begins- that he has difficulty in writing: "I find it difficult to put my thoughts into paper [...] to organize my reading and my time to read", while declaring 'no' to understanding scientific discourse (MS/B1/B1.2/B2/C/before). Finally, LM, also an Albanian native speaker, has difficulties in written expression, understanding of scientific discourse, especially with "the meaning of unknown words" and "limited time due to work" (LM/B1/B2/B2.1/D/before). He also states that he finds it difficult in "difficult vocabulary", justifying: "I repeatedly studied the lesson to understand it" (LM/B2.1/Z/E/before). Although his oral speech is extremely limited during the sessions, the supervisor's remarks probably reinforce his answers to the questionnaire: "He is not able to answer in written form, having read the notes first but not seeing them" (LM/27 -05-2018).

² The codes in the parenthesis indicate: the code letter of the student or the tutor, the code number of question or/and sub - question of the relevant tool, the research tool: questionnaires ('before' or 'after' the implementation of the method), critical reflection (cr. refl.), the date on which the data was collected through the observation sheet.

M encountered similar difficulties, even though she is neither non-native speaker nor a person with learning difficulties. "Written expression" is difficult for her, as well as the imprint of her knowledge in scientific terms, explaining: "In all my classes I find it difficult to write on paper what I mean with the appropriate scientific words", while there is no difficulty in understanding scientific discourse (M/B1/B1.2/B2/C/before), stating at the same time: "Through guidance I seek to identify my mistakes and better understand the lesson" (E/H/before). Indeed, **M** has difficulty understanding the terminology of the lesson recorded in her supervisor's notes: "She did not understand what "fetal life community" is. She is trying to say in her own words what 'social education' is and it is difficult. She asks what the "spirit of utility" is (M/18-05-2018).

Having Greek as a mother tongue, **Ath** connects her difficulties in writing with previous modes of expression: "The writing style was difficult for me because I had to change it, that is, not write high school reports as I wrote" (Ath./B.1.2). She also points out that she has difficulties in understanding the scientific discourse: "In some aspects it is quite scientific, some points are not explained" (Ath/B.2/B.2.1/before). So, she expects the tutor to guide her, find her mistakes and point them out, help her understand some things she has forgotten (Ath/H/before). From her point of view, the supervisor notes that in the tutor's question "how do you plan your reading?" she writes to her what she can't do and how she studies. She said: "I have difficulty concentrating and get easily distracted" (Ath/18-11-2018).

Students had also difficulties related to the study and its organization. These are transversal skills, essential for any subject, the absence of which impedes smooth study and success in studies. "I haven't learned how to read [...], understand what I'm reading," **P** admits (B.1.2/H), adding, after the end of the tutoring meetings: "My tutoring experience has helped me to correct my mistakes and find solutions in the way I study (cr. refl. A/after). That's why I made great progress in the way I learn". His awareness is also confirmed by the supervisor's observation: "He leaves any points he does not know and goes on (test). He doesn't follow the test instructions; he jumps from one to the other. He does not want to do the rest of the test" (P/01-12-2018).

From his point of view, **X**, who has "difficulty organizing the lesson" (X/C/before), argues that "during tutoring we discovered new ways of solving problems. I realized my mistakes and changed my strategy" (cr. refl.B/after). That states the knowledge of his obstacle, how he overcame it and that he acquired metacognitive skill through tutoring: "I find out that I better understand my thinking" (X/K.1/after).

He is not the only student to encounter such difficulties. **MS** also announces: "I find it difficult to organize my reading and my time to read", "I never had a specific schedule for my studying, so I don't have it now that I need it", "I have a hard time putting my thoughts in order and transfer them to paper "(MS/C/C1/B.1.2/before). As his other classmates, he has specific expectations from tutoring: "I expect it to help me with my expression and to create a program and a system with which I will be able to fix my weaknesses" (MS/H/before).

M's statements are similar and revealing: "I do not organize my notes properly so I get confused", "I made almost no effort to organize my notes before tutoring", "Tutoring seemed very useful, it helped me discover my difficulties and the mistakes I made in organizing my notes. The tutor helped me to discover and adopt a new way of studying" (M /C1/E/cr.refl. A/after).

3.2. Tutors Talk about the Difficulties of Their Students

What do tutors say about their students' difficulties? In this question there is a convergence of views (see Table 2). A more comprehensive picture of students from their tutors helps to better understand the project, as a result of their first meeting with them in order to better adapt their tutoring. Each student is a special case that needs a personalized approach, based on his/her needs and personality. For example, **Mat** mentions about **P** that "he has a brother student in Pedagogical Department. His need not to differ from him [...] leads him to try harder, "He does not aim to acquire scientific knowledge, but to pass the course" and that he considered her "a step to succeed" (Mat/D/Za/before/cr. refl. B). **P**'s motivation does not erase his learning difficulties, which make him very dependent on the tutor: "He has an obsessive behavior, has no confidence in anything related to the courses and he recognizes that he will always need help in this area and he does not hesitate to ask for it even for wrong things "(Mat/R/cr. refl.).

The tutor **E** says for **X**, a Turkish native speaker student that "he attended a minority elementary school at the beginning of his education [...], his parents do not live [...] and he is forced to work for a living. She

concludes that he "needs to believe in his abilities and dedicate himself to the study of his course" (E/D/Hb/ before). This picture is complemented by the tutor of the first cycle: "He is Turkish-speaking, raised in a family that was pressuring him to pursue Turkish education. He chose Greek education on his own. Many of the gaps in writing and spelling are due to this" (A/D/ before).

The socio-cultural profile of the Turkish native speaker student **G** is also presented by the tutor, highlighting particular aspects that would assist her in the supportive learning process: "She is a 22-year-old student [...], belongs to the Turkish-speaking population. [...]. Her family is extensive and they work at her grandfather's tobacco fields (D/D/before).

The range of difficulties and particular personal conditions students face is extremely wide and it is a challenge for postgraduate students who are committed to help them. All students have a specific goal, success in their studies, but not all have the same cognitive, social and cultural profile. With the help of the answers of tutors to the Questionnaires (before, after) and "Critical Reflection", Table 2 can be read fully as their understanding of the diversity of students' socio-cultural profile may offer another perspective and explain their difficulties. Tutors perceive "Subject/Science" as their major difficulty, with terminology and content hindering them, while ranking "Language" and "Course Study" in second and third place. Last is only one students' negative mental state.

Table 2. Thematic analysis: Tutors' speech on students' difficulties

The numbers in the brackets refer to the frequency of the category in the tutors' speech.

Categories	Sub-categories	Topics
Special learning needs (1)	Skills Strategies	Dyslexia, Moderate reading capacity Lack (resolving difficulties: unknown words, dictionary)
Subject/ Science (6)	Content Terminology	Ignorance, Lack of previous knowledge Confusion of concepts, Understanding, Timing of events
Language (5)	Oral Written	Limited Vocabulary Grammar (syntax, spelling, expression)
Student's mental state (1)	Negative	Bad mood, Fatigue
Course study (4)	Organization	Notes, Reading

P's difficulty in the subject also caused a difficulty in transmitting the knowledge to **Mat**, who had no specialized knowledge in Special Education: "I realized that he was completely ignorant of the subject and this made my work difficult, since all of it was unknown" [Mat/A/cr. refl.]. More specifically, **Mat** gives an accurate picture of **P**, saying that he has dyslexia - omitting or replacing letters in reading - moderate reading capacity, incomplete vocabulary for his age and no scientific terms. He has not developed problem-solving strategies [unknown words-dictionary], he correlates well-known concepts, he does not know the basics of the course, and he is not assisted by the use of computers [Mat/before].

An's answers to questions about the difficulties of her tutee **M** in the first tutoring cycle are limited to the lack of organization of her notes, "her studying for theoretical lessons" (An/A/ before), the expression, "using scientific speech" and generally not being "serious" (An/H/before). After completing the course, she notes that **M** "can now organize her own notes [...], has fully understood the content of the course [...]" and "she has acquired the skill [...] to express the knowledge she has acquired in writing" (An/B.1/C.1/after), an assessment showing effective support to her tutee.

For tutor **D**, the Turkish native speaker tutee **G** faces difficulties in "understanding certain concepts as well as in the temporal sequence of events", while she admits that "there are parts of the material she understands and manages and parts that are completely incomprehensible to her" [D/A/Hb/before]. In the second cycle, **D** supports the student **E** who "has enough knowledge and skills. Her questions are targeted, she is aware of her weaknesses" (D/A/before). Upon completing her tutoring, **D** estimates that her student understood the knowledge "she wished to understand, because in many aspects of cooperation she was self-correcting [...], while "she was initially able to verbally express the basic meaning of the question and express it in writing as well" (D/B.1/C.1).

Ath, **X's** tutor, says that his difficulties focus on the content of knowledge: "He has confused some concepts in the *Education Sciences* that he wants to simplify to fully understand them" and "he thought that the research methods were the *Education Sciences*" (Ath/Z/before/B1/after). Finally, **M** makes one reference to the students' personal speech for his mental state, which results in the partial reversal of the design of her teaching intervention: "The fatigue and the bad mood of the student resulted in him refusing to do the comprehension and recapitulation exercises, reversing the design" (M/Hb/after).

There seems to be some progress in the tutors' efforts to address the difficulties of their students. The tutors state that their students have difficulties in the subject (6/8), language (5/8) and the course study (4/5). During the first meeting and in the tutoring course, they identified the difficulties and attempted to work them out, as they point out in both the 'Critical Reflection' and the Questionnaire they completed after the meetings.

3.3. Analysis of the Supervisor and Tutors Talk about Dealing with Students' Difficulties

What did the supervisor notice about the students' difficulties handling and what did the tutors report? What categories of difficulties arise from analyzing the supervisor's notes? The notes from the supervisor's observations highlight two categories of difficulties that are related both to the teaching itself and the subject/science. In particular, the difficulties relate to the methodological support of the student, the way in which the tutor provides guidance, clarifies the meanings of the subject, suggests actions for material use, proposes focus points and explains scientific concepts difficult to understand. These difficulties mainly explain the supervisor's twenty-seven interventions in both the lesson and the internship.

Indeed, tutors did not have teaching experience and were not -as proven- the most proficient in the subject they had to teach. So they encountered obstacles and the supervisor took over the role of the tutor for the tutoring student and the student. She provided methodological guidance, solved cognitive content questions or redefined terms and concepts misunderstood by tutors. She also supervised the smooth flow of communication between the couples, while at the same time she pointed out their verbal and non-verbal behaviors. In other words, she was "the guarantor of learning [and had] the responsibility of the teaching use of the tutoring interaction" (Marchive, 2008, p. 92).

In general, there is convergence of the supervisor's observations with the responses of the tutors regarding the dealing of tutees' difficulties: using multiple subject study techniques, interactive support for the development of the subject, various written exercises and inspirational interventions aimed at rewarding the effort. At the same time, there are ways of coping with difficulties that are not common. For example, the use of technology by the supervisor or the joint determination of how difficulties are handled or the student's timetable (Table 3).

Table 3. Ways to deal with students' difficulties: supervisor's and tutor's speech
Categories of difficulties: T: teaching; M: method; S: subject/science

Supervisor's speech	Tutor's speech
Course study techniques (underlines, subheadings, colored markers, keywords, diagrams, spoken and written meaning "in your own words"). T-M	Questions / Answers, Examples, Discussion, Meaning processing, Repetitions, Reminders, Explanations of terms, Knowledge testing. S-T
Examples, Questions / Answers, Discussion, terms' explanations, Clarifications, Meaning processing, Incomplete answers, Reminders, Knowledge checking, Error correction, Repetitions. S-T	Target and evaluation of each session. T Course study techniques (highlights, subheadings, colored markers, keywords, diagrams). T-M
Methodological guidelines for the organization of study and personal time besides tutoring. M	Written exercises, Quiz, Multiple choice tests. T Adoption of study rules. M
Motivating, Encouraging, Validating and rewarding effort and progress. T	Encouraging, Rewarding effort and progress. T Preparation and study of the subject by the tutor. S
Allowing time for study and exercise. T	Adjusting help to students' needs and level. T

Written exercises, Quiz, Multiple choice tests. T	
Formative assessment practices. T	Determine jointly how to deal with difficulties and the timetable. M
Use of digital technology (dictionary, writing). T	

3.4. Tutors Talk about Their Own Difficulties and How They Dealt With Them

Not only tutees had difficulties, but also the tutors themselves. The 'Teaching' category was the majority and the 'Subject' followed. In both cases, two subcategories emerged: method and lack of experience. Specifically, tutors admit that they could not always balance between classical instruction and tutoring, more personalized and adapted to the needs and difficulties of the learner. They also note that they did not have prior teaching experience to manage their syllabus requirements.

Indicatively, **E** reports adaptation to his rhythm (E/X/cr. refl.), "lack of teaching experience", "stress response to tutoring requirements", and "confusion between tutoring and teaching" (E/MA/Ha./Hb). She dealt with these difficulties based on "[her] personal experience and theory of tutoring", "very good studying of the theory of tutoring", "very good preparation, studying the material", the "calm and lack of (seemingly) student's anxiety", that helped her "overcome any difficulties and [her] mistakes" (E/cr. refl. A).

Ath's colleague had no problem with teaching, but with limited time, stating: "The most important difficulty was handling time in terms of matter and the individual weaknesses that arose each time and that we had to deal with methodically and purposefully». How did she deal with them? She says in her "Critical Reflection": "I have prepared and studied the subject very well so that I can address any questions and difficulties. I had to inspire confidence and I would only do this through the best knowledge of the subject" (Ath/X/cr. refl. A). This tutor recognizes her deficiencies in the subject and covers them in order to respond effectively to the needs and difficulties of the student. So, she confirms her former colleague.

Indeed, the "subject" was demanding for tutors, as **M** admits: 'A lesson with difficulty in understanding, preventing me from conveying it in simple words' (M/LM/Mb/before). Finally, **An** states that: "Sometimes I did a lesson rather than tutoring". Also, she had a "personal difficulty, a teaching difficulty" (An/M/Ha/after), about which she states: "after a supervisor's remark, I understood the mistake and I corrected it" (An/MHc).

Table 4 shows the tutor-student pairs (T/S), the tutors' difficulties and how themselves and the supervisor coped with them.

'Teaching', 'methods' and the relative 'lack of experience' are the obstacles that the vast majority of tutors encounter. It is an expected result given the lack of such training. In general, in order to overcome it, they study the subject which they are committed to support the student, in order to compensate for the teaching gaps, make adjustments to it, so that it is accessible to him. At the same time, they make adjustments and settings regarding student's behavior, trying to balance the teaching relationship for the benefit of the student. There are also difficulties associated with the subject, as it sometimes includes theoretical concepts difficult to understand and its volume is largely compared to the limited time of meetings. Last but not least, the student himself caused difficulties to tutors, due to his very special cognitive and personal profile.

On the supervisor's side, her observations point out almost equally the weaknesses in the subject and the methodology. Specifically, scientific concepts were difficult for tutors to learn, sometimes giving incorrect explanations to students, while at the same time their methodological approaches tended to transmit rather than seek and build on knowledge through their mediation. There is a clear convergence in the speech of the tutors and the supervisor, without implying that the remaining recorded difficulties are being deleted.

Five of six tutors report various teaching-style difficulties that obstructed their work: lack of experience, method, pace of process. "Many times I found it difficult to simplify concepts and theories in order to understand them without misunderstanding them," admits **Mat** (cr. refl.), who supported a student with diagnosed learning difficulties, a situation that required more effort, attention, for an uncertain outcome. **E** also had similar difficulties saying: "I found it difficult to manage the volume of course material". She tried to overcome this difficulty by persuading "the student that he had to deal with his problems first, learn some general rules and methods of studying" (E/X/H.1.a/c). But it was not the only obstacle: "I had a hard time

adjusting to his rhythm" (E/X/ cr. refl.), setting one of the key aspects of tutoring: responding to the student's particularities and needs.

Table 4. Ways to deal with tutors' difficulties: tutor's and supervisor's speech
The numbers in parentheses refer to the frequency of the supervisor's interventions.

T/S	Tutors' difficulties	Tutor's dealing	Interventions of the supervisor to the tutor
Mat/P	Tutee's knowledge Teaching (methods) Subject Student specialties (Fatigue, lack of focus)	Course notes' study, Supervisor's reminder for tutoring Interpretation in the students' "language" Adapt the behavior to the needs of the student	Technical advice, Explanation (1) Explanations for a subject (2)
E/MS	Teaching (methods, experience) Tutor's Mental state	Theory / Material study, Lesson preparation	Suggestion on searching for an answer online
E/X (internship)	Teaching (experience, pace) Dealing with problems. Subject (volume) Overestimating student's competence.	Student's calmness and lack of anxiety Attempting to persuade the student to address his / her problems regarding study rules and methods Adaptation of lesson to student's level Enforcement of opinion (material non-completion)	Give an example (3) Methodological suggestions (2)
D/G	Teaching (methods)		Notes on: helping in understanding the concept (≠ answer), Methodological and technical support and related proposals (5) Suggestions for 'knowledge' and 'methodology' (5)
D/E (internship)	Teaching (experience, methods) Time management Subject (demanding)		
An/M	Teaching (methods), Subject	Labeling of the supervisor	Labeling for help in understanding (≠ answer) Methodological suggestion Explanation of not comprehended concepts (5) Highlights on subject (2)
An/Ath (internship)	Subject	Study of the subject	
Ath/X	Time (Existence) Questions + Student difficulties	Preparation + Study of the subject	
M/LM	Teaching (experience, doubts), student's mental state.	Relaxed teaching rates	Subject (explanation of not comprehended scientific concept) (2)

M in turn acknowledges "doubts and lack of self-esteem/confidence that the design met the student's needs" and adds: "I had several demands and expectations that did not meet the student's level and wishes". What did he do; He implemented the "course at a slower pace" and insisted on "clarifying terms" (M/LM/Z/H.a.H.c). These actions are generally confirmed by the supervisor's field observations.

What does **D** say about it? "Tutoring was an area I had never come across as a support method". "The difficulty was mainly in managing time". "Every time we encountered a difficult part, I sought to stop the process and focus on something else" (D/E/Z/H.a.H.c). From her side, the supervisor notes another type of difficulty for **D**, as she sometimes felt insecure about the subject before answering her student's question: "She consults her notes. She tells her that this is what she was told in the beginning", while" she always looks at her notes "(D/18-11-2018).

4. Discussion and Conclusions

The present study revealed many categories of difficulties of the undergraduate students (tutees) that were faced with the peer tutoring method in the context of DESEC and also the difficulties that the post graduate students (tutors) faced while implementing it. The most important difficulties for the former are the use and comprehension of the written and oral language, and consequently the scientific language used in the university textbooks, especially for those whose mother tongue is different from the course official language and the student with special needs. Their answers also highlighted the difficulty of organizing their study, without neglecting the obstacles that have to do with their mental state. So, the range of difficulties was extensive and complex; mostly in cognitive, linguistic and organizational level. The results of this study showed that the undergraduate students were benefited from the method on the above and support the relevant literature about peer tutoring in the University context, which indicates that the method improves organizational and other generic skills of the students', enhances skills in the cognitive domain (Stigmar, 2016) and affects positively their academic performance (Arco-Tirado, Fernández-Martín, & Hervás-Torres, 2019). Topping (2005) describes some basic elements that make peer assisted learning to be an effective strategy: a) the organizational or structural features of the learning interaction (e.g. increased time on task, elaboration of goals and plans, individualization of learning and immediacy of feedback), b) the fact that, cognitively, it involves conflict, challenge, support and scaffolding, c) the helper seeks to modulate the information processing demands upon the learner, d) it develops, through practice, communication skills because they are prerequisites, e) the affective component between the pair is very powerful and promotes accountability to each other. Similarly, Cohen (1986) describes the components of peer tutoring that make it work and promote learning for both the tutees and the tutors: a) the individualization which maximizes the active participation of the tutee and the tutor, b) the similarity of the model (tutor) to the viewer (tutee) and the latter's perception that the model has a relatively high status, two components that increase modeling effects, c) motivational factors that can be connected with the method (tangible, social, moral and academic reinforcements), d) the similarity – closeness of the peer as a teacher which offers great advantages (effective communication, appreciation of the tutees cognitive framework, same peer language and gesture repertoire).

At the same time, there were also personal and other difficulties for the postgraduate students - tutors themselves: teaching and related to the science/course difficulties, but also difficulties related to the learners, in terms of their abilities and their mental state and mood. In relation to the first two of the above, the possible weakness of tutors in teaching the subject's concepts is also acknowledged in literature as the main disadvantage of peer tutoring (Clarence, 2016). It is clear that they are experts neither in the subject nor in Didactics and being non expert tutors. However, the results showed that they came up with many different tools and techniques in order to manage the difficulties. They looked for ways, made mistakes, tried techniques, found the best for their students. As Baudrit indicates, the non expert tutors act "with successive adjustments, with trial and error, for the quality of assistance provided" (Baudrit, 1999, p. 28). On the other hand Topping (2000) argues that tutoring has its dangers because while the tutors may offer much more quantity of individual support than the professional teacher the quality is not guaranteed. For example they may reinforce mistakes, they might become impatient and tell the right answer to the tutee or tell something incorrect etc. (Topping, 2000). The supervisor's role was determinant in our case in order to handle such situations through the suitable interventions. Relevant literature indicates that teachers who supervise tutors can intervene in case of need, but without greatly limiting the autonomy of their students, because it is essential for the success of the tutoring activities (Centre étudiant de soutien à la réussite des Services aux étudiants - CÉSAR-, 2018).

Generally, despite the shortcomings at all levels, since the tutors were not selected on the basis of course performance or competence criteria, they showed a very positive disposition for help. They also devoted energy and time to preparation, adaptability and flexibility in their effort to meet the diverse needs of their fellow students, most of which were not at all easy to respond to. All responded to their task successfully, despite the difficulties of time, the lack of relevant experience and systematic training. Each supportive intervention was unique and no tutor was enclosed in standardized interaction patterns, as each case of assisted student was unique and special.

Not being experts, tutors have consistently guided and assisted their fellow students, in the narrow timeframe of the course, sometimes bypassing personalized forms of support for the benefit of classical teaching. These were unconscious and non-repetitive actions of the learners due to the supervision of the sessions by the supervisor. They gave students space and time for study, while in some cases cooperation was developed between them, especially in 'easy' cases. In all couples, the student's role was not minimized, as they took some of the responsibility for their learning, while in the 'difficult' cases – non-native speakers and the student with learning difficulties - the tutor's role seemed to be more directive. These are indications that need further analysis for future research, as there appear to be differences in the supportive interventions of the tutors depending on the student's cognitive profile.

The non-generic, but extremely encouraging results of the peer tutoring application in DESEC, give the hope that this method could complement and substantially enhance the classical academic teaching by educating students as tutors, "further personalizing teaching, facilitating the student's personal work, taking into account the difficulties of each other" (Baudrit, 2007, p. 146).

Without being considered a solution for everything, with the institutionalization of peer tutoring, the tutors will be able to help their fellow students who have difficulty in courses, both cognitively and methodologically. The University will approach the student's evaluation with socio-constructive logic, helping offsets in social, cultural or other deficits, limiting the failure and abandonment of their studies and offering quality education.

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