Community Building in Post Pandemic Era: Peer Tutoring in Digital Learning Contexts for Soft and Professional Skills Enhancement. A Post-graduate Experience

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Abstract. The aim of this paper is to present the results of a research aimed at analysing the use of community building and the effectiveness of peer-tutoring in a university environment, specifically among students attending post-graduate courses delivered online, to support soft and professional skills. The study examined the online tutoring service offered to students attending the post-graduate courses "Museum Education" and "Advanced Studies in Museum Education", promoted by the Centre for Museum Studies based at the Department of Education - University Roma Tre, during the academic year 2020–21. Both tutors and students were submitted questionnaires in order to monitor the level of usefulness of the service, its strengths, and weaknesses. The results of the peer tutoring experience show that peer tutoring created group bonds and increased the sense of "community", albeit virtual, as well as providing information and support to the students.

Keywords: Peer-tutoring · Tutor · Tutee · Post-graduate courses · Evaluation · Digital learning context

1 Introduction

Learning by imitation is intrinsic to human nature. Peer tutoring has been studied in Bandura's social learning theory [1], in which the term "modelling" was coined to indicate the learning process that is triggered when the behaviour of an individual, who acts as a model, influences the behaviour of the observer. Through this process, according to Wenger [2], individuals become integrated as group members into the community in which they live, work, study and collaborate.

Topping [3, 4] called *Peer Learning* or *Peer to Peer Learning* the interaction between peers that leads to learning and subject development. *Peer Learning* has taken on different names; in fact, Havnes, Christiansen, Bjørk and Hessevaagbakke [5] have associated the construct with a multitude of appellations including collaborative/cooperative learning;

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peer tutoring; group tutoring; additional education; peer-assisted learning; peer review; dialogic pedagogy; reciprocal teaching.

For many years now [6], specific literature has argued that peer interaction is qualitatively different from teacher-pupil interaction, and, like any educational strategy, it can have advantages and disadvantages [7]. Griffin B.W. and Griffin M.M. carried out two studies [8] to evaluate the effects of reciprocal peer tutoring on academic performance, anxiety associated with performance, and the perception of self-efficacy in students who had already graduated. Griffin B.W. and Griffin M.M. underline how, in the peer tutoring phase, both tutors and tutees acquire positive learning outcomes, and specifically they point out that the tutors benefit the most, as they are personally involved in the study of course contents, while they train to teach the tutees [9–12]. Starting from the benefits that tutors themselves draw from the position held, Fantuzzo and other colleagues in various analyses [13, 14] have tested a practice that allows all those involved in peer tutoring to act as tutors. The technique described above is called "Reciprocal Peer Tutoring" (RPT) and implies that students hold the position of both tutor and tutee. It has also been pointed out by the scholars who conducted these experiments that this dual role allows them to acquire deep knowledge, skills and abilities.

The literature in the field shows how peer tutoring contributes, making students co-leaders of the educational process by encouraging course attendance, the elaboration of an appropriate study method and the performance of the inherent educational activities [7].

2 The Research Context

The study and its results presented below are part of the post-graduate courses promoted by the Centre for Museum Studies (CDM) - Department of Education, University Roma Tre: the one-year post-graduate course in "Museum education" and the two-year post-graduate course in "Advanced Studies in Museum Education". The former is aimed at providing students with the theoretical foundations in the subject and at learning how to use tools to analyze museum visitors' characteristics and needs, the latter is addressed to those who are interested in deepening the museum education theoretical framework and wish to test educational research methods in the above context. Students are also trained in museum standards in education, according to the latest results of international research in the field. The course ensures an international dimension to all its activities through the participation of national and international lecturers, who are experts in museum education, new technologies applied to cultural heritage and its use, and innovative methodologies used in museum education.

Both the courses, organised in a blended mode, went through an emergency digital transformation process during the Covid-19 pandemic and they were completely reorganized: course contents were newly conceived and adapted to the current state of cultural heritage institutions, the e-learning platform was enhanced, specific OERs were designed and introduced and new modules and activities were realized in the e-learning mode [15], to overcome the restrictions imposed by the global health emergency.

In order to facilitate access to the course contents, an easier distribution of information, handing out frequent clarification messages on learning activities and classes,

was carried out, but above collaborative processes among students, starting from the academic year 2020/21, were enhanced and to this aim peer tutoring groups were set up. Six tutors were chosen among the students awarded scholarships and attending the second year of the biennial course. The choice of these type of students was twofold. First, according to the course regulations, under regular course conditions, they would have been asked to act as classroom tutors, and therefore assist the teachers and other students during the activities in the classroom and in the museum, a task that was not possible due to the health emergency. The second reason is related to the experience gained during their first year of attendance.

The above six tutors were trained at the beginning of the academic year, to ensure that they were fully prepared for the role assigned to them. They were, therefore, assigned subgroups made up of randomly selected students from the annual e and the biennial course. A mailing list drafted by the Tutors' Coordinator, supervised by a senior Tutor, put everyone in touch with the other. The Tutors' Coordinator had the task of managing any issue raised by the students, organizing monthly meetings for discussion and coordination, and forwarding to the Senior Tutor, the Scientific supervisor, and the Director of Courses those students' questions that tutors were unable to answer. The diagram below explains such an organization (Fig. 1).

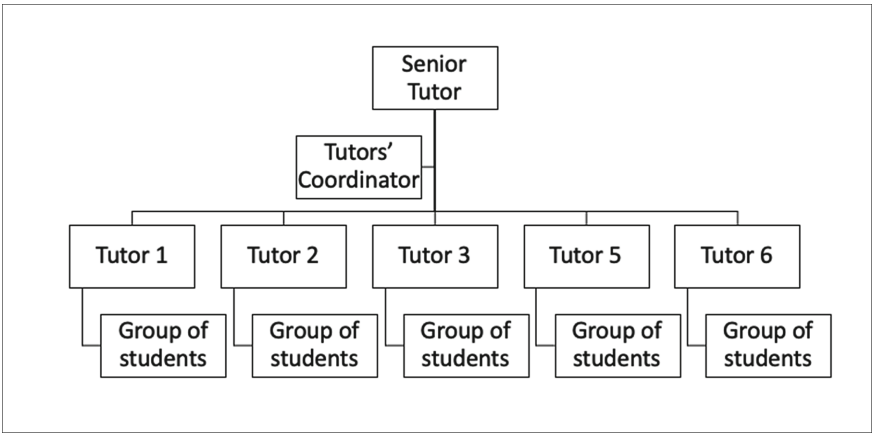

Fig. 1. Organization of peer tutoring activity in the post-graduate courses

3 Methods

Given the above framework, we decided to inquire the level of satisfaction perceived by the students with the peer tutoring they experienced, in a post pandemic dimension, and to highlight if and how self-assessment carried out by the tutors, regarding their role and the skills acquired during the course, played a role in community building and the development of soft and professional skills.

A pre- and post- self-assessment survey was filled in by the tutors at the beginning and at the end of the academic year 2020/21: the survey is composed by three main sections aimed at investigating tutors' initial and final perceptions regarding the fulfilment of specific tasks inherent to their role, together with the development of soft and professional skills. Moreover, a survey was submitted to the post-graduate students in order to investigate the real effectiveness of peer tutoring activity, giving them the opportunity to highlight strengths and weaknesses of the experience.

3.1 Participants

Six tutors, as mentioned above, attending the second year of the biennial post-graduate course took part in the activity; they are 36 years old on average and a background in Humanities, mainly in Arts, History and Archaeology.

As for the students, 27 participated both from the annual post-graduate course in "Museum education" and the biennial two-year post-graduate course in "Advanced studies in museum education", they are 34 years old on average, and with a background in Arts, History and Archeology.

4 Data Collection and Data Analysis

4.1 The Tutors' Self-assessment Questionnaire

The same self-assessment questionnaire was filled-in by the tutors at the beginning and at the end of the experience. After an initial part aimed at collecting general information on gender, age, education and geographical origin, the survey included three open-ended questions on motivations, expectations regarding the course and the role of the tutor.

- The first section, concerning the task-based self-assessment, collected the tutors' perception of their ability to assist the students on issues related to the theoretical teaching units, to the virtual platform where the teaching activities were held remotely, to the online lessons, to the procedures/information about the internship and the final post-graduate thesis.
- The second section was structured to investigate the level of perception regarding one's soft skills and competences, including communication, creativity, problem solving, collaboration and critical thinking, with the aim of monitoring any changes that occurred between the initial phase of the experience and the final one.
- The last section of the survey was devoted to the detection of the level of professional skills in the tutors' educational field. The questions concerned the ability to design educational modules to promote interculture skills, accessibility, and cultural heritage successful experiences; but also, to assess the above activities, workshops, research actions that put into practice the knowledge acquired during the course.

The questionnaire proposed to the tutors was entirely developed by the research group involved in the present study based on the specific tasks and skills being assessed.

The Students' Peer Tutoring Evaluation Survey

At the end of the post-graduate courses, the students evaluated the peer-tutoring experience by answering specific questions aimed at analysing the real impact of tutoring on

their learning path, together with the possibility of indicating strengths and weaknesses of the experience.

The students' peer tutoring evaluation survey is composed by 4 main sections:

- the first section presents questions aimed at finding out the personal, educational and background information of the students. It contains also three open-ended questions are aimed at recording the expectations in relation to the post-graduate's course attended and to tutoring in general.
- The second section is dedicated to the evaluation of peer-tutoring with multiple choice questions that could highlight the effectiveness of the technical and didactic support together with the rapidity and completeness of the answers received.
- The third section is devoted to students' self-assessment as far as study and learning methods are concerned, in order to link each student's style with tutoring opportunities.
- The questionnaire ends with two open-ended questions investigating the strengths and weaknesses of the experience and a space for suggestions for improvement.

The survey was based on a work by Paljug, B., & Lampe, L. [16] in which the authors focus on the analysis of university peer tutoring based on key measures of success: usage, satisfaction, effectiveness, and learning outcomes. In this study, Paljug B. & Lampe L. are interested in learning outcomes related to study skills and learning attitudes, specifically regarding deep versus surface learning. The tools they proposed were adapted to the characteristics of the post-graduate courses, to online tutoring, and to other peculiarities consistent with the proposed teaching activities. In particular, some indicators contained in the first section of Paljug B. & Lampe L.'s survey were readjusted according to the educational activities of post-graduate courses (Table1).

Table 1. Comparison of the Paljug B. & Lampe L. survey Part.1 with the Sect. 2 Students' peer tutoring evaluation survey.

Part 1. Usage, satisfaction, and effectiveness. Paljug, B., & Lampe, L. survey	Section 2. Students' peer tutoring evaluation survey
This semester, about how often have you used SEAS[1] tutoring?	This year, how many times have you used the tutoring programme?
My tutor(s) was /were skilled in the subject/course material	My tutor(s) was /were skilled in the subject/course material
My tutor(s) successfully answered my questions and helped me with my work 3	My tutor answered my questions in a satisfactory way and supported me appropriately
My tutor(s) improved my overall understanding of the subject/course material	My tutor improved my overall understanding of the course content

(*continued*)

[1] SEAS: School of Engineering and Applied Science.

Table 1. (*continued*)

Part 1. Usage, satisfaction, and effectiveness. Paljug, B., & Lampe, L. survey	Section 2. Students' peer tutoring evaluation survey
Tutoring sessions were convenient for my schedule. Strongly disagree (1); Disagree (2); No opinion (3); Agree (4); Strongly agree (5)	The use of new technologies and the platform used during the year facilitated communication with the tutor
In our sessions, I noticed that my tutor(s)…	Tutor support facilitated understanding and assistance with the *Fomonline* platform
My tutor(s) helped my study skills (e.g., test taking, time management, study habits)	The tutor's support helped me improving my ability to analyse and synthesise information, link and integrate information from different sources
It was easy to find information about SEAS tutoring	It was easy to get exhaustive answers from the tutor
The tutoring information I found was helpful	The information provided by the tutor was useful
Overall, how would you rate your experience with SEAS tutoring?	Overall, how would you rate your experience with the tutoring programme?

Part 2 of Paljug B. & Lampe L.'s survey "Deep versus surface learning approaches" was submitted to the students in the third section, except for questions (Table 2) as they were very specific to the course analysed in Paljug B. & Lampe L.'s study.

Table 2. Part 2 of Paljug B. & Lampe L.'s survey proposed in Sect. 3 of the student questionnaire.

Part. 2 Deep versus surface learning approaches questions All questions below used the response scale: Strongly disagree (1); Disagree (2); No opinion (3); Agree (4); Strongly Agree (5)
Any topic can be interesting once I get into it
My aim is to do well in class with minimal work
I test myself on important topics until I understand them
I focus my studying on what's in the course outline/syllabus
I seek out tutoring to help me understand important concepts and ideas
I come to classes with questions in mind that I want answered
I spend free time finding out more about interesting topics from class
I often discuss class material, concepts, and applications, with my tutors
I try to keep my time with tutors focused on my specific homework/assignments

5 The Tutors Self - Assessment Role

5.1 The Tutors' Self-assessment Survey

By comparing the results of the pre- and post- tutors' self-assessment survey and analysing the open-ended responses, motivations which prompted the tutors to undertake the post-graduate course appear to be the same at the beginning and at the end of the experience, driven by the desire to explore specific issues and to improve their professional skills.

Concerning the opinion on the tutor position linked to an incentive to a more active participation in the course activities, there is no significant increase between pre- and post- as, since the beginning of the second year, the tutors stated that the new position would encourage them to reach a more active participation and that it would represent a valid support for the course colleagues, an idea reconfirmed at the end of the experience where they expressed the same opinion.

Analysing the data from the self-evaluation based on the effectiveness of the support provided in relation to their tasks (Fig. 2), we note a slight decrease, excluding two items, in all activities falling within their role.

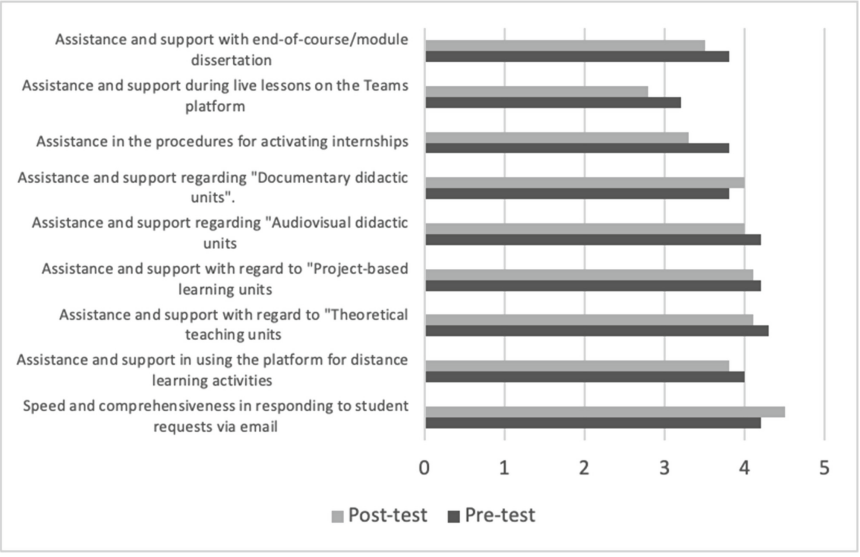

Fig. 2. Self-assessment based on tutors' tasks

The items that showed a slight increase between pre- and post-survey were the speed and thoroughness in answering emails and the assistance on the documentary teaching units. Of course, since the tutoring took place exclusively online and the communication between tutor and tutee took place only by e-mail or through groups on social networks, the increase seems entirely justified. The descriptor with the largest decrease, however, is that related to the procedures and activation of internships, motivated by the fact that

internship activation procedures require the mediation of expert tutors and other figures outside the course who act as intermediaries between the students, the university and the host institutions. Therefore, apart from reporting to the Tutors' Coordinator and to the Senior Tutor problems related to the platform on which accreditation for the internship is carried out, no other type of support fell within the tutor's remit; this could explain the decrease in internships.

Deepening the results related to the self-assessment of soft skills (Fig. 3), the overall trend does not seem to have undergone a significant variation between pre and post-test. It is possible to notice, however, some competences that were perceived to be more implemented than others. These include management skills, collaboration skills and problem-solving skills.

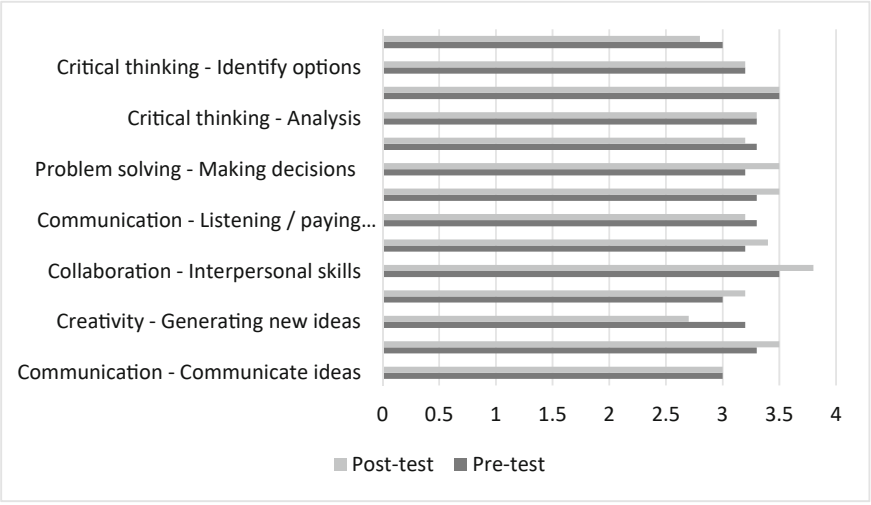

Fig. 3. Soft skills self-assessment

The creativity competence and the ability to generate new ideas, images or drawings and find innovative solutions to problems appears to be the least solicited, most probably because the tutors were asked to adhere to the instructions received during the training and in the course regulations.

The most encouraging and positive results are to be found in the increase of professional skills in the educational-didactical field recorded by the tutors. All the skills indicated showed an increase, as can be deduced from Fig. 4, except for the ability to create functional materials for educational interventions which remained constant.

The same promising results were found in the self-assessment of the level of competence perceived of the tutors contained in the last section of the survey that was devoted to the detection of the level of professional skills in the educational field. All the areas of activity including carrying out research and study activities for the purpose of heritage mediation, designing educational interventions, designing research and didactic activities in teams, identifying the theoretical framework, the objectives, the tools, and

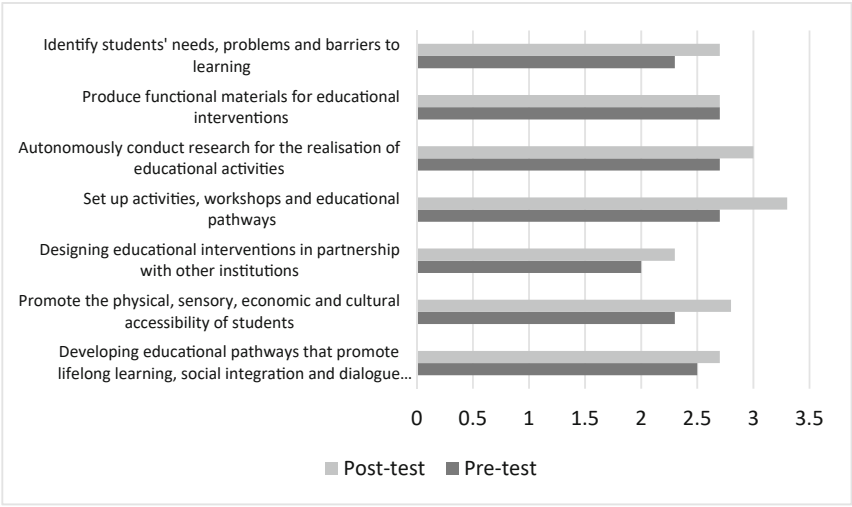

Fig. 4. Self-assessment of your own professional skills (educational field)

the methodology of a didactic pathway showed a good increase compared to the levels perceived at the start.

5.2 The Students' Peer Tutoring Evaluation Survey

27 students assessed online peer-tutoring that took place throughout the academic year. The motivation for most of the students to attend the post-graduate courses was to deepen their knowledge in museum education, education, and modern methodologies, and to enhance their professional skills. All respondents also stated that the course met their expectations, with only one student stating that the expectations were only partially met. 18 students rated the tutor's support positively, 3 students did not benefit from the support of colleagues, while 4 judged the peer-tutoring not to have met their expectations. Regarding the frequency (Fig. 5) with which the students relied on their tutor, 17 used the support less than once a month, 8 one to two times a month and 2 three to four times a month.

Concerning the preparation on the course subjects, the completeness of the answers provided and their usefulness, 19 students expressed a completely positive opinion, 3 were moderately satisfied and 5 were not fully satisfied with the tutoring. 18 students stated that the use of new technologies and the platform used during the year facilitated communication with the tutor, 6 expressed neither a positive nor a negative opinion, while 3 evaluated negatively the technological tool used as a communication medium. Analysing the answers related to the improvement of critical thinking skills thanks to their tutor's support, 12 students expressed a positive opinion, 10 were uncertain and 5 did not state any improvement (Fig. 6).

About the overall judgement on the tutoring, 21 participants evaluated the experience as positive overall, 3 expressed an uncertain opinion and 3 considered it as negative.

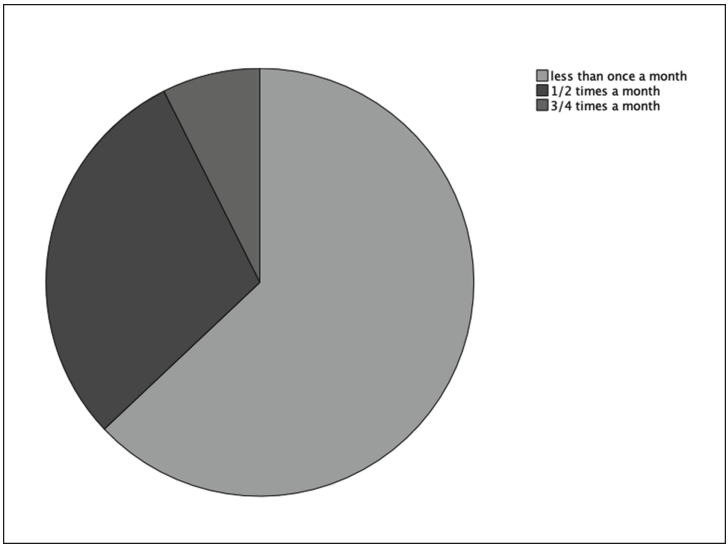

Fig. 5. This year, how many times have you used the tutoring programme?

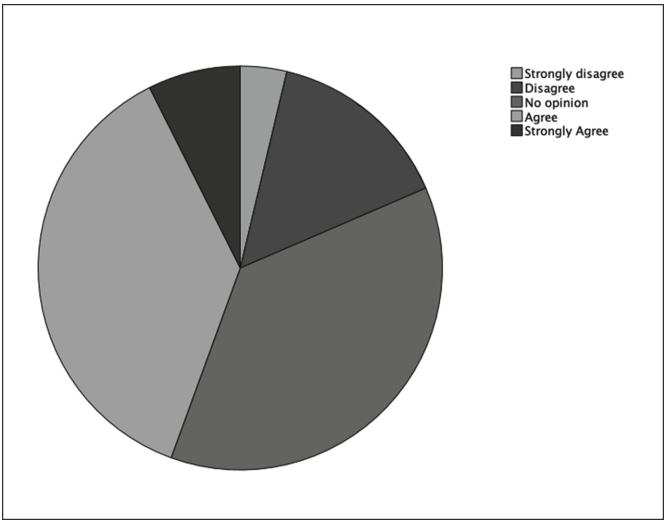

Fig. 6. The tutor's support helped you improve your ability to analyse and synthesise indications, link and integrate information from different sources.

Moving on to examine the self-assessments expressed regarding their own study and learning styles, 24 of respondents stated that all topics discussed during the course had engaged and interested them fully while 3 took an uncertain position in this regard.

In addition, most of the students stated that they spent time studying the topics covered during the course until they had completely understood them (21 out of 27 students).

8 students stated that they prepare before class by formulating some questions to ask the lecturer, while 11 did not use this method and 8 expressed uncertainties about it. From the questions concerning the correlation between study and the questioning-deepening of their understanding of the contents of the course and requesting clarifications from the tutor it emerges that 21 students prefer not to rely on the tutor and therefore study autonomously, 3 students did not express a decisive position, while 3 stated that they exchange opinions on certain course topics with their colleagues. 23 students stated that in their free time they look for further information on interesting topics discussed in the lessons, 3 stated an uncertain opinion, while 1 do not use their free time to study the contents in depth (Fig. 7).

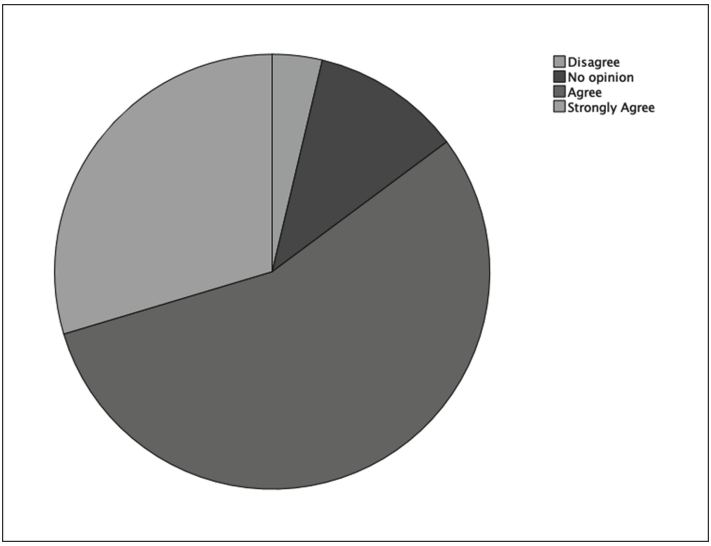

Fig. 7. In my free time, I look for more information on interesting topics covered in class.

The survey ends with two open-ended questions aimed at finding out the students' opinions on the strengths and weaknesses of their experience with the tutor and suggestions for improving the support offered. There are many positive aspects highlighted by the students compared to the negative ones. Among the positive ones, the following are to be mentioned: the speed and completeness of the answers, the use of social media groups to quickly compare notes, the constant presence, the availability, and the role of tutors as a link with the teachers and the other members of the course, the provision of positive suggestions on the articulation of the assignments and work assigned to them by the various teachers. The weaknesses detected, as above specified, were not many; those highlighted by some concern the lack of personal initiative in relation to the opportunities for group discussion or in-depth study of specific issues and the occasional lack of preparation on certain aspects concerning the rules and procedures (Fig. 8).

The suggestions made by the students certainly represent a valuable source of information to refer to in relation to the new academic year and the establishment of new

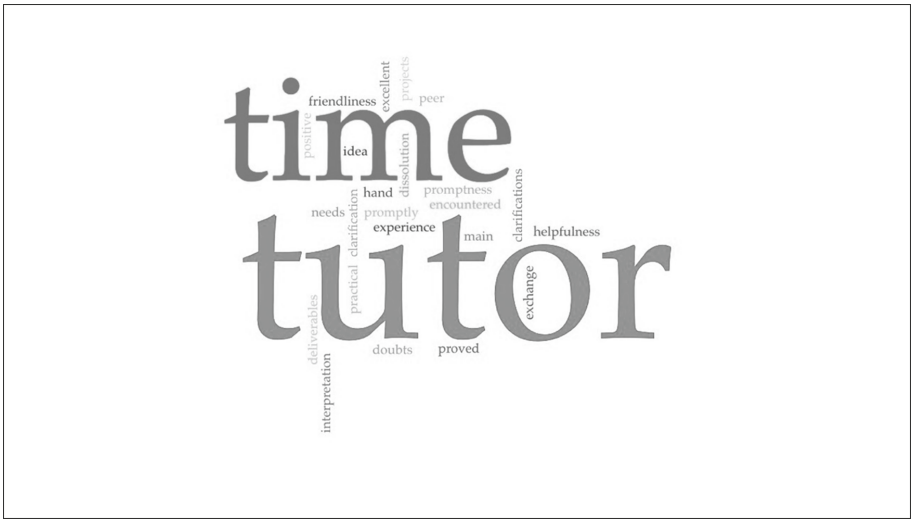

Fig. 8. Word-cloud of the given answers related to the strengths of peer tutoring experience

tutors; among the most frequent suggestions, there was a need for greater interaction between the tutor and the small group of students they are responsible for, the need for more opportunities for group tutoring, more discussion and in-depth study groups on issues addressed during lessons and teaching activities, a video presentation of the tutor to be shared on the platform used for online activities and a proposal to value ECTS for tutors to encourage them to perform their assigned role even better.

Among correlation analyses of the questionnaire results, "knowledge of contents" and "tutors' ability to give satisfying feedback and adequate support" seem to be statistically significant ($r = ,896$ $p = < 0,001$). This confirms that tutors training is pivotal for peer tutoring success. "Knowledge of contents" appears to be correlated also to perceived usefulness of feedback over the tutoring service ($r = ,848$ $p = < 0,001$). Last but not least, another meaningful piece of data seems to be that related to students' digital skills. They helped communication with the tutors facilitating general understanding of course contents ($r = ,538$ $p = 0,004$).

6 Conclusions

In their 2014 paper, Delahunty and colleagues [17] illustrate the dynamics that are triggered in a classroom, albeit a virtual one, between students who come together to learn through dialogic, often asynchronous, exchanges. This creates distinctive learning environments in which learning objectives, interpersonal relationships and emotions are no less important due to their 'virtuality', and to which traditional F2F methodologies are not easily superimposed. The above-mentioned research reveals consistent connections between interaction and sense of community, highlighting how the strong sense of identity and collectivity, which is also established during online courses, is little explored in studies in the sector.

The results of the peer tutoring analysed in this paper shows that the aspects considered most positive by the students included the idea that peer tutoring created group bonds and increased the sense of "community", albeit virtual, as well as providing information and support to the students. The data, which cannot be generalized, shows that peer tutoring, experienced for the first time in the context described above, was seen as a positive, profitable and useful experience for the achievement of the course objectives. The positive feedback is registered both in the self-assessments made by the tutors and in students who availed themselves of the support of their colleagues. Suggestions for improvement will certainly be taken into consideration in order to make improvements to the service offered, including more opportunities for group discussion, differentiated channels for exchanging ideas and in-depth analysis of topics covered in the lessons.

Certainly, the positive results illustrated demonstrate the usefulness of online peer-tutoring and encourage further study in the coming years, including the introduction of further tutoring methodologies to test their effectiveness in the specific context and, hopefully, also investigate aspects linked to the socio-emotional and relational sphere pertaining to both tutors and students.

Authors' Statement

The authors of the present paper contributed to the writing of this article as follows: A. Poce (1. Introduction, 2. Research Context and Conclusions), M. R. Re (3. Methods), M. Valente (4. The Tutors Self-Assessment Role).

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