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## Agency online: trends in a university learning course

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### ABSTRACT

This article aims to investigate how university students perform agency in an online course and whether the collaborative nature of the course affects such expression. A total of 11 online web forums involving 18 students ( $N = 745$  posts in total) were qualitatively analysed through the use of a codebook composed of five categories (individual, interpersonal, epistemic, transformative and collective) and several sub-categories purposely developed for the sake of this research. The results show that each category follows a specific path, although two events – the re-mixing of the groups and the assumption of the peer-tutor role – particularly affected the evolution of trends. Although this study needs further development, the authors believe that an in-depth understanding of the nature of agency, including how to analyse it as well as empower it when implementing blended educational activities, engages relevant theoretical and pedagogical issues.

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### KEYWORDS

Agency; e-learning;  
collaborative learning; jigsaw  
effect

## Introduction

Agency is a concept extensively studied in social sciences to examine how individuals and groups act as transformative agents within their environment (Ahearn, 2001; Billett, 2006). In education, this concept has been used to analyse the learning process through sociocultural lenses. Nevertheless, how agency emerges when most (or all) of the learning activities are taking place online, has never been adequately studied. This is relevant for at least two reasons. First of all, the increasing use of online educational courses requires an understanding of how students act and perceive their own action online. Secondly, a better understanding of the online dynamics of students' interactions will offer both theoretical insights for a finer definition of agency and practical suggestions for educators introducing online activities in their courses. In this article, we will explore how agency emerges from university students' utterances and to what extent an online course, based on socio-constructivist principles and incorporating collaborative learning techniques, may function as a context able to affect agency.

## Agency as an operational concept

The term *agency* appears very often in academic contemporary writing, but the way in which scholars interpret it can be very different. As recommended by Archer (2000), when considering agency, it is necessary to clarify the definition used. In the following, we discuss a few definitions of agency according to social theories and a constructivist perspective.

Within social cognitive theory, agency is closely related to personal efficacy, defined as the ability to produce autonomous actions and take initiatives oriented to a goal, bringing into play notions of self-will, autonomy and freedom of choice. This definition encompasses the transformative dimension that is inherent to the concept of agency. Bandura (2006) proposed a thorough analysis of individual agency, identifying four main components:

- a) intentionality, which includes plans and strategies;
- b) forethought, involving the temporal extension of agency (i.e. representing and viewing future outcomes guiding and motivating efforts in the present);
- c) self-reactiveness, as the ability to construct appropriate courses of action and to motivate and regulate their execution;
- d) self-reflectiveness, understood as the most distinctive component of agency.

Based on these elements, three possible types of agency can characterise daily activities:

- (i) individual agency, triggered by acting directly in the environment;
- (ii) proxy agency, which indicates a socially mediated agency, exerted on others in the absence of direct control over events; and
- (iii) collective agency, when there is an interdependent effort in sharing knowledge and expertise among members of a group to achieve complex goals. This type of agency is conceived as a feature of the group rather than the sum of individual activities.

Within sociocultural studies, human agency is a basic premise (Wertsch, Tulviste, & Hagstrom, 1993). According to this approach, individual action should be examined in connection to social and cultural contexts. Bruner (1996) considered agency as an antecedent of identity, related to self-esteem, understood as the capacity to carry out activities feeding autobiographical memories, establishing the narrative basis of the plots of possible selves. Stories, even the simplest, are built around an agent actor and the possible plots are culturally based (Bruner, 1990). This view has been lately strengthened by Gillespie (2010), who conceptualised individual agency as being culturally constituted, underlining that people always act through culture.

Individual agency is a strong prerequisite for the development of social practices. The social dimension of agency is particularly evident in the notion of so-called relational agency (Edwards & Protheroe, 2005), defined as 'a capacity to align one's thoughts and actions with those of others to interpret aspects of one's world and to act on and respond to those interpretations' (p. 294) and involving the capacity to offer and ask support from others. This is a capacity that can be learnt both in formal and informal settings, relying on the individuals and, at the same time, on the contextual affordances available for action.

Gillespie (2010) defined agency as 'the degree to which an agent can act independently of the immediate situation' (p. 32), emphasising the capacity to go outside and beyond the immediate situation. From this perspective, the person becomes an actor and a reflexive agent, developing an increasing autonomy (Valsiner, 2000).

We believe that all these forms of agency could be supported and made possible by engaging a community in collaborative and shared practices. Therefore, in the next section we examine the concept of agency in collaborative learning processes and the specific role technology can play.

## Agency in collaborative learning processes

To develop and promote agency in learning processes means to help learners to imagine themselves as future practitioners and active citizens in the world (Bruner, 1990). Agency through learning is promoted by giving access to various activities and allows learners to move from initial passive participation at the periphery towards the centre of the practices (Lave & Wenger, 1991). In this sense, agency is a key factor in recognising when learning becomes a source of identity re-definition within a community (Glaser, 1996). Empowering agency within educational contexts implies going beyond the simple acquisition

of knowledge; rather, it means sustaining learners' sense of being able to change the community, the context and the practices through which they learn.

Collaborative learning may impact agency in many ways. For example, in a knowledge-building community (Scardamalia & Bereiter, 1991), the community itself gradually becomes capable of learning. A community agency is then promoted, seeking the right balance between freedom and guidance (Matusov, 2001). Many steps are needed to sustain the evolution of a community from independent individual actions into collective sustained transformation efforts (Virkkunen, 2006). Agency may be developed and supported by engaging learners through active involvement in communities and by the practices of meaning-making in joint activities; this is what Stahl (2005) called 'group cognition'. In this process, technology can play an important role.

Our interest in agency in education is based on the assumption that we need to understand learning as genuine interdependence between human agency, socially organised activities and technologies (Ludvigsen, Rasmussen, Krange, Moen, & Middleton, 2010). Of course, technology by itself does not create forms of engaged learning, neither does it promote forms of agency. However, the design of specific online activities may be such as to promote and foster processes of agency. It is crucial to create interactional spaces wherein participants can take initiatives, transform their positions, change the course of activities (De Froy, 2002) and be involved in productive interactions in object-oriented collaboration (Damşa, 2014).

Collaborative learning can function as a platform for relational agency, understood as support and a mutual resource for the community. Kumpulainen and Lipponen (2013) explored how agency is promoted through the creation of a dialogic space, as a dynamic and dialogical process that is constructed and continuously modified in interaction within the social and cultural context. The development of individual agency facilitates the transformation of the community by active learning. This is possible when the educational context is part of a wider activity system that influences agency and, at the same time, is influenced by joint actions and shared responsibility toward learning goals.

A focus on individual internal resources is needed when considering online educational environments, wherein participation needs to be supported and students are required to understand the connection between what they do, how they interact and what they learn. There is an important distinction between learning contexts that focus on academic knowledge and skills, and learning contexts that simulate the professional learning that occurs in the workplace.

Learning online in a collaborative situation implies an overemphasis on the subjective dimension. This is justified by the nature of the virtual space within which participants interact. Those are usually spaces initially empty and populated by the participants during the course. Therefore, even 'objects' and 'spaces' built online represent some sort of offshoots of agency. This means that agency in such contexts needs finer lenses through which to be explored. In this study, we developed a coding schema able to encompass the complexity of agency, to illustrate the connections and the interrelations between the many nuances agency can have and how they relate to each other. Finally, understanding how these forms of agency emerge will give insights into how to manage and empower students' agency.

## Methodology

### *Aims and research questions*

The specific course analysed here presents students with a series of collaborative activities. Our specific research questions are the following:

- What type of agency emerges in online learning environments structured for university students to discuss learning material and to take part in various collaborative activities?
- How does agency change in such a course?
- What events may affect the way in which agency emerges?

### **The context: a blended university course**

The course analysed was labelled 'Educational Psychology and E-learning' and it was offered to students at MA level (in Work Psychology) at the University of Bari (Italy). The course was delivered in a blended learning mode (Bersin, 2004); that is to say, online and face-to-face activities were mixed. The platform used was called Synergeia<sup>1</sup> (Ligorio & Veermans, 2005). It allows both synchronous (chat) and asynchronous (web forum) communication, and contains tools for the construction of concept maps (i.e. Map Tool) and spaces for uploading and sharing files. Both the chat and the web forum were text based. The chat was available only within the Map Tool, and was used therefore only during the construction of maps. The content of the course was divided into five modules, each of them covering a segment of the curricula (Module 1: Learning Models; Module 2: Technology Supporting Learning; Module 3: Organising the Content of E-learning; Module 4: Digital Identity; Module 5: New Trends). Each module, lasting more or less 10 days, was introduced by a teacher in a traditional *in situ* classroom setting, followed by a group discussion via web forum around the learning materials. Online, each module was symbolised by a folder containing the readings selected by the teacher (e.g. digital documents, slides, links to websites), and several web forums where students, organised into groups, discussed the materials.

Different modes of learning (e.g. individual, dyads, small group and plenary activities) and various educational methods (jigsaw, progressive inquiry, benchmark lesson, reciprocal teaching and role-play) were orchestrated. A variety of tasks were implemented and several artefacts were used and built by students (Ligorio & Cucchiara, 2011). Each student was required to be active in a group and to take responsibility for achieving common goals, interpreting one of the roles designed in reference to the tasks (e.g. tutor of the group discussion, responsible for a group product) and assigned in turn to one student by the teacher. The participants were divided randomly into two groups, each consisting of nine students. Each group was monitored by the teacher, an expert tutor and, from the second module onwards, also by a peer performing the role of tutor. Furthermore, using an adapted version of jigsaw (Aronson & Patnoe, 1997; Pozzi, 2010), the groups were reshuffled during the third module by mixing the participants, although the number of total students composing each group remained nine. In this way, students could test their social skills and the competences acquired during the first two modules within a new group. Following some of the indications coming from the progressive inquiry model (Hakkarainen, Lipponen, & Järvelä, 2002), the learning process within each module was prompted by a research question introduced by the teacher. Each group discussed the answers to such a question, both via web forum and face to face. Students also wrote individual reviews about the educational material and participated in the construction of a group product, namely a collaborative conceptual map.

To summarise, the activities featuring the course were the following: the modular organisation; the teacher lecture and the definition of a research question at each module; the students' individual reviews; the group discussions; the collaborative construction of a map that summarised the contents of the module and the answers found to the research question.

### **Participants and corpus of data**

Eighteen students (14 female, 4 male) attended the blended university course described above. Their average age was 25. The course was delivered at MA degree level. At the outset of the course, a survey was administrated to the students, revealing that none of them had ever participated in blended courses in their career and, therefore, none of them knew the platform used for the course. Indeed, such a modality is rather exceptional for the general university context. From the survey, we also learnt that students were in general sufficiently confident with technology, although they rarely used it for educational purposes.

During the course, 11 threads and 745 posts were produced in total. Only the notes posted into the web forum were considered as data. Chats and face-to-face discussions were excluded for the following reasons: as already stated, the chat box was available only within the Map Tool. The synchronous chat did not involve all the students but only those who could connect simultaneously, as though they

**Table 1.** Overview of the corpus of data (number of notes).

Groups	Module 1	Module 2	Module 3	Module 4	Module 5	TOTAL
Group 1	32	45	95	90	123	385
Group 2	19	52	70	89	130	360
TOTAL	51	97	165	179	253	745

were face to face. Therefore, the synchronous chat discussions were considered significantly different in nature to web forums. As such, a different type of analysis was needed, for example, to allow data from non-verbal interactions to be considered. Table 1 offers an overview of the number of data, posted by the groups, analysed across the modules.

This table already gives us interesting information: the number of notes for each discussion increased over the course (from 51 at the first module to 253 at the last module). This could be considered as a rough indicator of the increasing student participation over the duration of the course.

### **Analysis**

To analyse the data, we defined a procedure aimed at breaking down the posts into simple elements (called units of classification) to be categorised. These elements were considered informative of the type of agency expressed by the students via the text composing the notes. Each unit was provided by an autonomous meaning. To categorise such units, a codebook was developed based on the literature examined in the theoretical sections of this article.

#### **Building a codebook: types of agency**

A codebook was developed to identify the types of agency manifested in online discussions by university students and to monitor their patterns. The process of creating the codebook included the following four steps:

- 1) *An exploratory phase* aimed at obtaining a first version of the codebook. During this step, all notes were first read by two researchers in order to familiarise themselves with the corpus of data and subsequently re-read to retrieve the emergence of agency. This was a circular process between data and literature.
- 2) *Testing the codebook*. During this phase, the initial version of the codebook was tested on the thread discussion of the first group during module 1 (32 posts). This step helped to define the sub-categories of each dimension.
- 3) *Using the codebook*. During this last phase, the codebook was applied to the whole set of data.

During all these three phases two researchers worked first independently and later compared their outcomes and discussed the controversial cases with a third researcher. During the first comparison, a divergence of about 30% of the cases was found; at the second step, the controversial cases were about 40% and, at the third phase, about 45%. For all steps, after the discussion with the third researcher, all the controversial cases were solved until a consistent agreement was reached (Cohen's kappa = .90;  $n = 10$ , value indicating the number of coding options that were taken into account for the sub-categories).

- 4) *Applying statistics*. Once all the data were coded, frequency and correlation analyses were applied. We considered the occurrence of each category and sub-category and compared them across the modules.

#### **The final codebook**

The final version of the codebook is composed of five categories (of which four include sub-categories) that are described as follows.

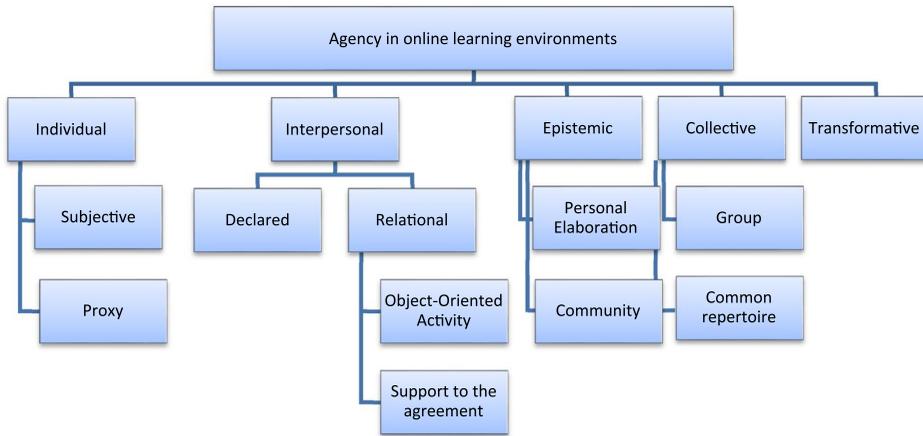


Figure 1. Codebook as tree-like structure.

1) *Individual agency*, referring to the intrinsically subjective nature of agency, is mainly expressed in the first person. This type of agency is inspired by Bandura (2006). We singled out two sub-categories:

- 1.a) *Subjective agency* is intended as having the control over one's own actions. In this case, the person emphasises the actions and clearly attributes them to her/himself. This sub-category is often associated with verbs in the active form, especially in the first person ('I am') and pronominal forms ('I', 'my', 'me'). The personal action is on the foreground (for instance, 'I have done that' or 'I have been reading it').
- 1.b) *Proxy agency* is a personal action with the emphasis on the intention to act and with an interest in seeing others' reactions. Again, the inspiration is the work of Bandura (2006) and, in particular, his reference to socially mediated agency, exerted upon others.

2) *Interpersonal agency* encompasses a relational attitude, involving the capacity to work with others. This category is built upon Matusov's (2001) and Marková's (2003) definitions of intersubjectivity, implying that participants have something in common and deliberately attempt to coordinate their contributions, although maintaining their own perspective. This category is organised into two sub-categories:

- 2.a) *Declared agency* includes the recognition of others' opinions, evaluations and statements 'offered' as pieces of talk to be used by others for generating a follow-up of a previous statement or request. Most of the time this is a rhetorical ploy to seek consensus or to engage the attention of the other. It is expressed through questions such as 'Has anyone else had this impression?' This is also a discourse that seeks consensus, when a statement is offered as an opinion to be discussed.
- 2.b) *Relational agency* implies the expansion of the 'object of activity' by recognising motives and resources brought by others and by aligning one's own responses to newly enhanced interpretations of the activity (Edwards, 2011). This type of agency allows the recognition of skills and sensitivity to collaborate with others on the same problem, to provide and receive help and to acknowledge the others' needs. It expresses sharing and supporting ('I agree') toward the goal of the discussion looking for a common position.

Following Edwards' (2011) recommendations, this category is further split as follows:

- 2.b.i) *Object-oriented activity*, when the reference is explicitly aimed toward the object of the activity under development (e.g. 'I'm glad we met the first deadline and now already some of you are expressing your thoughts on the research question').

2.b.ii) *Support to the agreement*, when a generic opinion is sought. Different from the declared agency, the intention here is not to gather consensus on actions or opinions; but, rather, the speaker is seeking to open a discussion, to see the reactions toward his/her own opinion (e.g. 'What do you guys think of this?').

3) *Epistemic agency* is expressed through actions attempting to attain epistemic goals and is aimed at forming beliefs (Elgin, 2013). In our case, this agency is closely related to the educational material. This type of agency conveys ideas involving an authoritative and responsible act, applying knowledge and skills. This category is further distinguished into two sub-categories:

3.a) *Common repertoire* as contributions referring to a common repertoire (scientific papers, text, link, documents) and inspired by one of the indicators proposed by Wenger (1998) as featuring a community of practice. We consider this as an indicator of a type of epistemic agency founded on the material students share and produce.

3.b) *Personal elaboration*: enhancement of reflections, contributions, forms of praise to the reflections and acts of others. Here, personal opinions and ideas, or specific interpretations of what is studied, are foregrounded.

4) *Collective agency* is conceived as a feature of the group rather than the sum of individual activities, building a distributed capacity to act as a group. A shared and common effort and the prospective to reach the collective aim can be retrieved. Here, the reference is again to Bandura (2006), in particular to his definition of the group's interdependent effort in sharing knowledge and expertise among the members to achieve complex goals. We introduced a further distinction between two sub-categories of collective agency:

4.a) *Group*: the members/students following the course, the participants involved in the educational activities.

4.b) *Community*: a larger community, the university and academic world, or the society in general ('As university students we should propose to..', 'In our society, technology covers an important role').

5) *Transformative agency* refers to the activity of breaking away from the standard and consolidated actions to initiate new perspectives and new practices (Haapasaari & Kerosuo, 2015). This agency is pivotal in moving a process of transformation forward. It is not associated with an individual, rather it is produced through the strategies of multiple actors, each of whom takes actions that help the system to progress through different stages of transformation.

The final version of the codebook, with the related sub-categories (10 in total), is displayed in Figure 1.

Each of the sub-categories is operationalised through specific linguistic indicators, reported in Appendix 1.

## Results

In this section, we present the results obtained by the application of the codebook. We first collapsed the data from the two groups and analysed the general trends of the categories and sub-categories. Secondly, we applied the codebook to the notes produced by each group. Finally, we analysed how the assignment of a specific responsibility, namely covering the role of the tutor for the group, shaped the expression of agency. We used Spearman's coefficients of correlation in order to assess the pertinent dependence among variables that are not necessarily linear.

### *Agency across the course*

To have an overview of the evolution of the agency along the course, we collapsed the two groups at each module. Therefore, we compared the frequencies of each category across the five modules (Figure 2).

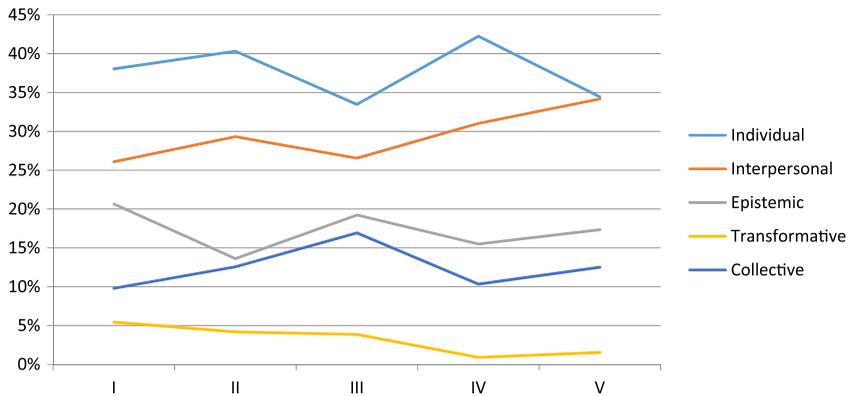


Figure 2. Agency across the five modules.

We will first comment on the trajectory of each category and later we will outline some general conclusions.

Individual agency consistently remains the most frequent category all along the course. It reaches the lowest level at module 3, when students enter the new group, and the highest right after, at module 4. Interpersonal agency initially increases, but it decreases at the transition from module 2 to module 3 and from module 3 on it steadily improves, ending with the same frequency as individual agency. Epistemic and collective agencies start at different initial levels (epistemic is higher), but across the modules they display similar irregular trends. They both reach a high percentage at module 3, which decreases at module 4 and rises up again during the last module. Their initial difference appears reduced at the end of the course. Finally, transformative agency is the least frequent type of agency already at the first module and it decreases throughout the duration of the course.

By looking at Figure 2, we can easily identify the role played by module 3, in particular for some types of agency. In the case of agency related to others or to material and content (interpersonal and epistemic), the trajectories started in the first two modules seem to be inverted in module 3 and restored in the subsequent modules. Although the dynamic is similar – interruption at module 3 and restart of the trend in the subsequent modules – the trends for these two types of agency are opposite. Interpersonal agency, during the first two modules, shows a growing trend. Whereas for epistemic agency, the trend is the opposite; during the first two modules, the frequency decreases, records a peak in module 3 and, right after, restarts decreasing.

As in other cases, the re-mixture of groups changes the direction of the trends. It seems that entering a new group calls for new resources. In particular, collective agency is temporarily mobilised and dropped in the subsequent module. On the contrary, individual and interpersonal agency are less needed to face the new group setting.

Transformative agency remains low all the time and the remix of the groups seems even to have accelerated this trend. Indeed, both interpersonal and transformative agencies are significantly correlated with the modules, but with opposite signs. Interpersonal agency is positively correlated ( $r = 0.900$ ,  $p < 0.05$ ), whilst transformative agency reports a negative correlation ( $r = -0.900$ ,  $p < 0.05$ ).

In conclusion, mixing groups seems to bring all the various types of agency toward a close frequency (between 16% and 34%). Whereas, before mixing groups, the range of frequencies covered by the various types of agency is larger, except for the transformative agency, which remains very low all through the course.

### Sub-categories of agency across the course

To better understand how agency evolves, we analysed trends of each sub-category by comparing the five modules of the course.

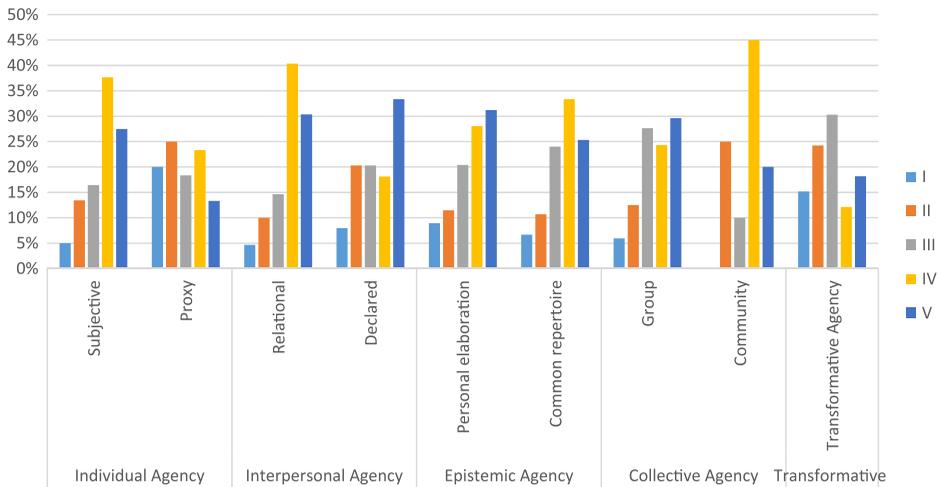


Figure 3. Sub-categories of agency across the five modules.

Figure 3 confirms that the frequency of almost all the sub-categories is sensitive to the mixing of groups taking place at the third module. Subjective, proxy, relational, personal elaboration, common repertoire and community agency are characterised by a jump in frequencies comparing modules 3 and 4, probably because students felt the need to reinforce these types of agency after entering a new group. Declared and group agency slightly decrease at the shift from module 3 to module 4 and transformative agency dramatically drops its frequency at module 4. Interestingly, at the first module there are no references to the community agency, which already appears quite high in percentage at module 2, reaching the highest peak at module 4.

The percentage of sub-categories relational, personal elaboration, group and community significantly increases across modules: Spearman correlations between these types of agency and the modules are respectively  $r = 0.900$ ,  $r = 0.900$ ,  $r = 1$ ,  $r = 0.900$ ,  $r = 0.900$ , with  $p < 0.05$ . Concerning the other sub-categories, there are no significant correlations.

### Groups across the course

In this section, we analyse the paths of each category by comparing the two groups across the modules. This step aims at understanding if and how the groups differ in terms of expressed agency. By looking at Figures 4 and 5, some similarities and differences can be highlighted.

Although the individual agency was slightly higher in Group 1 than in Group 2 (the difference is not significant), a similar path can be recognised in the two groups, although with different breadth. In both cases, this category drops in module 3 (when the group is re-mixed), goes up at module 4 and decreases again at the last module. Interpersonal agency has an irregular trend in Group 1, but ends up with an increased percentage at the end of the course, compared with the outset. Group 2 displays a steady increase all through the modules. Epistemic agency has a very irregular trend in Group 1, reaching its peak at module 3; whereas in Group 2 it seems to follow a constant decreasing trend. Collective agency grows in Group 1 in the transition from module 1 to 2, while from module 2 to 4 it slightly decreases, going up again in module 4. In Group 2, this type of agency increases from module 1 to 3, while it massively decreases in the last two modules.

Finally, in Group 1, transformative agency remains consistently low; in Group 2, it follows a 'U' path with the highest percentage in the first and last modules. This result shows that for both groups the re-mixing had an impact on individual agency. In fact, in module 3, both groups decrease this type of agency, although it was a fluctuating trend in the subsequent modules. In Group 1, the second part of

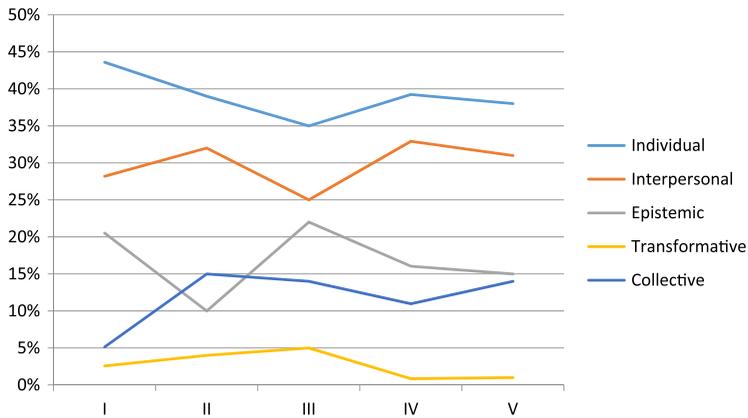


Figure 4. Trends of Group 1.

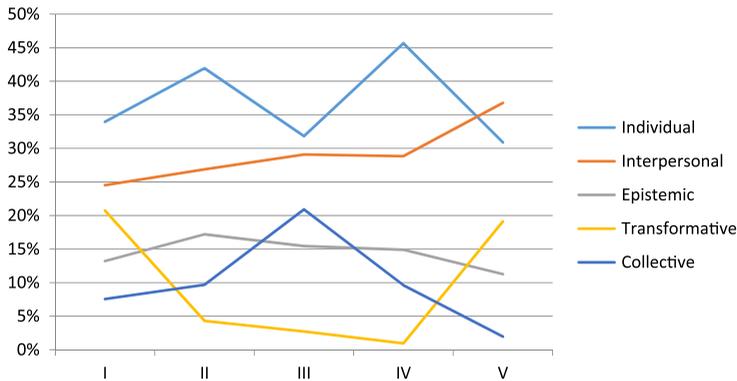


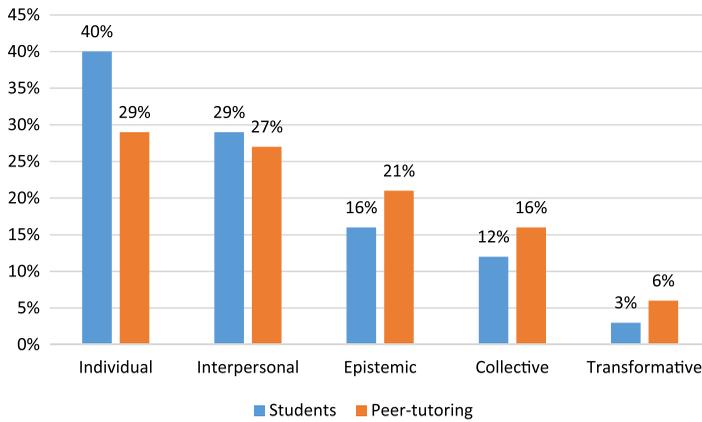
Figure 5. Trends of Group 2.

the course is featured by an empowerment of interpersonal agency. At the end of the course, epistemic and transformative agencies are less frequent than they were at the beginning. On the contrary, at the end of the course, interpersonal and transformative agencies increased within Group 2, whilst individual and collective agencies decreased. These results seem to suggest that Group 1 better sustained both individual and collective agencies, while Group 2 focused on transformative and interpersonal agencies. In Group 2, the increase of interpersonal agency across the modules was significant ( $r = 0.900, p < 0.05$ ), as well as for the transformative agency ( $r = -.900, p < 0.05$ ).

Finally, groups show specific trends, although module 3 maintains a crucial role. Nevertheless, effects seem to be temporary, because, at the subsequent module, almost all the trends change. This shows that students are able to quickly 'recover' from the re-mixing of the groups, by adjusting the expression of agency to the new setting.

### The role of peer tutoring

To understand what affects the trends of agency in our context, we analysed all the posts produced by the students while covering the role of peer tutors and we compared them with those produced when acting as simply students. Figure 6 reports trends of the percentages for each type of agency, contrasting the notes produced by students when playing the peer-tutor role or not.



**Figure 6.** Percentages of agency of peer tutors versus simply students.

When acting as peer tutors, students more frequently expressed epistemic, transformative and collective agencies. Whereas, when acting as students, individual and interpersonal agencies remain the most frequent. By a percentage comparison test, we noticed that assigning a role as a peer tutor produces a significant decrease in individual agency ( $p < 0.05$ ) and, conversely, a significant increase in epistemic ( $p < 0.05$ ) and transformative agencies ( $p < 0.05$ ). Interpersonal and collective agencies do not change significantly.

## Discussion

By applying the codebook, the main result is the crucial role played by re-mixing the groups. By looking separately at the two groups within our course, we found that, despite the specificity of each of them, the effect of re-mixing is confirmed. Re-mixing was introduced as a pedagogical tool, although we found its relevant effect on determining the trend of agency expression. We also inquired as to the effects on the expression of agency produced by taking the responsibility for being a tutor. This role caused the increase in content-related (epistemic and transformative) and collective agencies and, at the same time, a decrease in individual agency. The shift away from an individual to interpersonal and collective agencies was not as relevant as expected. The collaborative nature of the course, during which students could compare their perspectives on the learning material, exchange information and build group products, leads us to assume that agency would follow the trajectory from an individual to a collective level. Indeed, individual agency decreased and collective and interpersonal agencies increased in terms of frequencies during the course. However, these changes are not particularly relevant. The group variability could be one of the reasons for such a result. In addition, collective and individual agencies may support each other. Even in a collaborative situation, the individual agency plays a relevant role, in particular when entering a new group. Similarly, the collective agency seems to be sensitive to the group stability and new group settings. Indeed, the collective agency, after steadily raising its frequency during the first part of the course, drops down when new groups were formed. As argued by Damşa (2014), time is a relevant dimension affecting the expression of agency, but it is not the only one. The multilayered nature of collaborative learning should be considered: the specificity of each activity, the nature of each group, the idiosyncratic reactions to specific content, are elements that influence the way agency may be expressed.

## Conclusions

In this article, we looked at how agency is expressed in a university course with the intention of understanding the impact of collaborative online activities and the complexity of how agency can be

expressed in such contexts. Of course, we acknowledge the many limitations of our study. The sample under consideration is limited: it is necessary to apply the codebook to a large number of students and to other blended courses in order to verify its stability. Furthermore, it could be useful to undertake new research by analysing courses where groups are not re-mixed. We consider the architecture of our course as supporting collaborative learning and knowledge-building; therefore, it would be interesting to compare blended courses with a structure based on traditional learning. Finally, other types of data could be gathered and considered as sources to understand the agency's development. For instance, embedding synchronous communication tools more extensively throughout the course could generate additional data and provide greater insight into the way agency is expressed.

Nevertheless, we believe this study could be useful for teachers, tutors and trainers in many ways. In fact, understanding the relevance of agency is a crucial pedagogical aspect. Indeed, agency can be considered as a measure of positive perception of a learning situation and can encourage intense engagement (Zimmerman, 2001). Through this study, we contribute to making educators aware of the multifaceted and dynamic nature of agency. Understanding that agency can have many nuances and can develop and change over the course would help in grasping the complexity of learning, especially in rich and complex situations such as those delineated wherein both online and face-to-face activities are proposed and combined. To know the effect of re-mixing groups could help educators to reflect upon the strengths and the weaknesses of this strategy. Concerning the collaborative techniques, the question of how to organise the groups remains open: re-mixing the groups exonerates students from the feeling of being 'trapped' in a certain group and triggers the curiosity as to how it would be to work with other peers. For educators, it is important to acknowledge the risks and the advantages of resorting to this strategy. They should know that a temporary deviance of the paths should be expected, followed by a quick recovery and even a reinforcement of the previous paths. Similarly, the results on peer tutoring provide other interesting practical and pedagogical suggestions: educators have to know that if they want to reinforce social and interpersonal types of agency, they can adopt this technique. Furthermore, online education needs to support motivation and personal engagement. Empowering agency and promoting various forms of expression could play a crucial role in supporting active and meaningful online learning. This could play a more general role – also in face-to-face learning situations – enabling students to share meaning and acquire values and competence, as well as become active agents of their social and learning processes.

We are aware that further research is needed for a deeper understanding of the causes determining the specific ways in which agency is expressed. New directions of inquiry will open a space to consider how to support agency, its impact, and how to use this knowledge in the design of more effective learning environments.

## Note

1. This platform is no longer available but similar suites, such as Knowledge Forum (<https://www.knowledgeforum.com/>) or Forum Community (<https://www.forumcommunity.net/>), could be used for the same purposes.

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No potential conflict of interest was reported by the authors.

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**Appendix 1. The codebook**

Categories	Sub-categories	Definition	Indicators	Example
Individual agency	Subjective	Understood as control over one's own actions	Use of verbs in the active form, especially in the first person ( <i>I am</i> ) and the use of pronominal forms ( <i>I, my, me</i> etc.)	Now I'm re-reading the article that was assigned to me, and I'm considering other material that may serve in the discussion. ...
	Proxy	Indicates a socially mediated agency, or the influence that is exerted on others in the absence of a direct control over events	Verbs in the imperative form	Come on, give your contribution!
	Declared	Search for consensus; attribution of opinions and assessments to the other	Questions to engage the attention of the other is through one's own actions and opinions	Has anyone else had this impression?
Interpersonal	Relational	Skill and sensitivity to collaborate with others on the same problem, provide and receive help from others and recognition of the needs of others, for support and mutual support	Expressions of sharing, support ( <i>I agree etc.</i> ) toward the goal of the discussion or aimed at finding a common position	OBJECT-ORIENTED ACTIVITY: <i>I'm glad we met the first deadline (review) and now some of you are already expressing your thoughts on research question...</i> SUPPORT TO THE AGREEMENT: <i>What you think CL?</i>
	Common repertoire	Idea of participation that involves an authoritative and responsible act, transferring knowledge and skills in contexts and situations	Enhancement of contributions in reference to the common repertoire (scientific papers, text, link, documents...)	<i>As you will see from my review ...</i>
	Personal elaboration		Enhancement of reflections, contributions and acts of the other	<i>Silvia, your insights are very interesting. It would be useful to have also scientific references. Have you read some author? The link that you propose seems to me useful. Have you read it?</i>
Collective agency	Group	Understood as a commitment to building a shared reality and made visible to others.	Use of collective term ( <i>we, us, our ...</i> ) or verb in the plural form in reference to the group or the wider community	<i>Guys, today ends the discussion around the research question, how about to summarise what we have said? In our discussion we argued that...</i>
	Community	We make the distinction between if it is referring to the group or the wider community of the course		
Transformative agency	Transformative agency	It refers to an element of transformation, pushing new practice or activities	Expression of invitations (try... ) or suggesting actions to be carried out in a new way	<i>Boys, try to always start from the articles you read. Feel experts of that topic and bring in the group what you have read. You are a group of experts!</i>