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The Experience of Creating and Using Learning Contracts in a Higher Education Blended Course: Analysis of Student Voices in an On-line Discussion

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Discussions regarding knowledge, skill, and attitudes needed for twenty-first century learning have been incubating for decades in the adult learning community both as an area of study and practice. It is now becoming increasingly apparent to a broader audience, however, that in order to both survive and thrive in the 21st century one must move beyond knowing how to be taught to embrace learning how to learn for a lifetime. Learning contracts are one such format that can be of benefit even in higher education settings to cultivate learners who are both resourceful and reflective in their pursuit of taking responsibility for their progress, knowing when to reach out for help and how and where to find and interface with both material and human resources. Andragogically oriented learning contracts (Knowles, 1975; 1986) are particularly designed to establish an adult-adult relationship so crucial not just to the learning process *per se* but to the greater human development process. Such was the framework embraced in this study.

The experience, carried out through the use of a Learning Contract in a Master of Science Degree at the University of Padua (Fedeli, *et al.*, 2013), allowed us to identify its perceived positive and negative characteristics as a tool for enhancing the student's personalized learning. Among the positive aspects that the students developed by using the Learning Contract were the ability to activate reflective and organizational strategies, the capacity to enable self-monitoring strategies, the opportunity to become aware of what had been learned and to feel a sense of personal growth, to develop clarity about what has been learned, and to have the chance to focus more clearly on the content of the subject. The use of this tool, not recently conceived, but certainly innovative in the Italian academic system, has resulted in several misunderstandings regarding the use of the instrument and purportedly negative feelings among students. One of the distinc-

tive features of this experience was the implementation of the Learning Contract experience, which is usually practiced in the classroom by students and facilitators, into an online learning content management system (LCMS) platform: the Moodle platform. The Learning Contract experience implemented in this online learning space used different technologies allowing the access to the contents delivered. Students had video and textual resources, stored on the on-line LCMS, permitting students to understand the Learning Contract's aim and how to use the tool. Students learned the theoretical concepts and methods of completing a Learning Contract through two video lessons, an original document of Knowles' guidelines, and a completed Learning Contract example. In the first video, the instructor explained the most important topics of a Learning Contract and how to create one in the Learning Content Management System. In the second video, the instructor provided practical information by creating a Learning Contract example. The Moodle platform allowed us to create a wiki in which students had a personal space to create their own Learning Contract. We experienced two major problems in the use of wiki. First, the lack of a table format led to difficulty organizing the contract's formatting and text on the page. Second, the wiki did not have a user-friendly text editor, so students had to format words, titles, and subtitles, which followed difficult syntax rules. Nevertheless, the data showed a high level of participation especially during the creation phase. The wikis were visited and modified more than 7,900 times. This number includes students' visits to other learners' Learning Contracts, which means that each participant was engaging with and updating Learning Contracts an average of 213 times over the three-month period. Another important result was the high level of interaction among peers and facilitators in the LCMS. We created a forum, which every student could access for questions and comments regarding the creation and the continued use of the Learning Contract. Students have engaged in the forum passively (viewed) and actively (asked questions and responded) more than 2,100 times. These data showed a great engagement of the students in the creation of their Learning Contract. The previous work of Fedeli (2013), which illustrated the analysis of the quantitative and qualitative data of this learning experience, has not taken into account the content posted in the discussion forum. Such an analysis would have helped to understand the reflections on the Learning Contract that the students have had. It is also important to note that in the literature there are few cases that have reported an integration of the Learning Contract with social technologies (Põldoja, Väljataga, 2010) and especially with the discussion forum. Another aim of the work of Fedeli (2013) was to investigate the dynamics

of collaboration among students and with the instructor in an attempt to understand the effects of the use of the Learning Contract in a group.

Learning Contracts as a Format for Learning: A brief overview

The practice of the Learning Contract originates from the theory and practice of independent study. This particular type of learning is defined as "student self-directed pursuit of academic competence in as autonomous a manner as he is able to exercise at any particular time" (Dressel, Thompson, 1973, p. 2). The concept of independent study has been strengthened in the literature thanks to a large production of works on self-directed learning (Houle, 1961; Knowles, 1975; Tough, 1967). It is possible to find a strong presence of the methodology of the Learning Contract within a theoretical framework originated in Europe in the 19th century by the German teacher Alexander Kapp. This theoretical framework, however, has seen its highest recognition in the work of Malcolm Shepard Knowles: Andragogy, the art and science of helping adults to learn.

Learning Contracts are agreements negotiated between students and staff regarding the type and the amount of study to be undertaken and the type and amount of assessment or credit resulting from this study (Stephenson, Laycock, 1993, p. 17).

A Learning Contract identifies, through an initial assessment, knowledge, understanding, skills, attitudes and values that a student possesses. It explicates learning objectives to be pursued to improve the competencies already possessed, specifies the resources that the student will use during learning process, allows the learner to decide which artifacts will be produced by the student to testify that learning is achieved, and establishes the criteria to evaluate these artifacts.

The learning contract is an alternative way of structuring a learning experience: It replaces a content plan with a process plan. It specifies how a body of content will be acquired by the learner (Knowles, 1986, p. 39).

An important component of the Learning Contract is a new type of relationship created between the student and the instructor. The learner can no longer be considered as a passive container of knowledge but becomes an active creator of his or her own learning process. The teaching tradition in the Italian universities is otherwise characterized by passive learning and students are not encouraged to have a direct experience of their learning (Di Nubila, 2005). This tradition and the needs of the institution forced instructors to bear the responsibility for deciding what it is important to study, how, where, when to study and how to evaluate the student. The use of the

Learning Contract during the students' learning process allows them to become responsible and to negotiate the learning path with the instructor. The role of the instructor becomes that of an expert and a resource that facilitates learning. "The role of instructor shifts from that of a didactic transmitter of content and controller of learners to that of facilitator of self-directed learning and content resource" (Knowles, 1986, p. 43). The relationship between student and instructor and between student and institution is not the only one affected by the methodology of the Learning Contract. "This tool provide the means by which the student, the institution and employers can negotiate, approve and assess the outcomes of study whilst both institution and employer act as a resource for learning" (Stephenson, Laycock, 1993, p. 24).

Learning via Online Interaction

"Online discussions are an important component of both blended and online courses" (Armstrong, 2010, p. 217). The forum discussion is an online tool that allow students and instructors to continue their conversations also in an on line environment. Discussions in an online environment can be synchronous, when students have conversation in real time or asynchronous when students post at different times. As Kolb (1984) says, discussion is a critical dimension of the learning process and it is important to understand the characteristics of asynchronous on line discussions because they are the equivalent of face-to-face discussions in the traditional classroom (Andresen, 2009). One of the most disseminated conceptual frameworks in the process of developing interaction among participants in on line discussion in Salmon's Model of Teaching and Learning Online (2000). In stage one and two, "Access and Motivation" and "Online socialization" participants become familiar with technology and start to make connections with others participants. They start to develop technical skills and to send and receive messages. In the third stage the "Information exchange" participants develop skills in searching information and in personalizing the environment continuing the exchange information process. In the fourth and fifth stages of the model "Knowledge construction" and "Development" participants construct personal knowledge and understanding and are ready to develop new content. Armstrong (2010) explains the challenges that students and instructor have to face working with online forum discussion. The lack of non-verbal cues in the communication process, especially if participants have never met each other, is the major challenge in online communication. Eye contact, intonation, tone, and use of humor, for exam-

ple, are non-verbal cues really important in face-to-face communication that are missed in an online forum discussion. Furthermore, the lack of visual cues makes it more difficult to understand effective student participation and presence in the online discussion. Another problem is the difficulty associated with hardware in general, like crashes and unexpected problems to the server, and the skills needed to respect the navigation of the screen. Last, but not least, in the online forum discussion and in the online environments in general, students and instructors can experience a sense of lack of privacy also because in a discussion environment every thought shared is recorded and archived. Andresen (2009) identifies as a success factor of an online asynchronous discussion the role of the instructor. Using forum discussion changes the relationship between the instructor and the learner. The loss of visual cues forces the instructor to find new ways to express their feelings and to communicate ideas necessitating him/her to become more cognitively involved in the learning materials, paying more attention to details of the course and more precision and formality in setting assignment expectation. In order to stimulate good discussion the instructor has to consider the learners' personality, the time they need to prepare their participation in the discussion, and the time to develop on line relationships. Another important issue reported by Mazzolini and Maddison (as cited in Andresen, 2009)is the level of intervention taken on by the instructor that has to vary depending on what the instructor wishes to accomplish with his learners. There are many positions in the literature questioning if an instructor has to be present in an online discussion or not, but it is always better to support learner-learner interaction, which really engages participants, and allows the sharing of ideas, which really improves the learning process. The purpose of this research was to describe the students' reflections about the use of learning contracts. The work focuses on the analysis of an online discussion forum used by students, who were involved in a learning experience using the Learning Contract format. The analysis, starting from the conclusions of the work of Fedeli Giampaolo and Coryell (2013), explores the students' reflections in the use of Learning Contracts. The research questions that guided our analysis have been: What is the content of the online conversations about a learning process developed through the use of a Learning Contract? Which are the key elements that students highlight in a Learning Contract?

Method

The group involved in this work, which has seen the implementation of a Learning Contract in an educational practice in the classroom and in a Learning Content Management System, is comprised of students attending the second year of the Master of Science Degree in Continuing Education, and it has been realized at University of Padua in collaboration with the University Ca'Foscari of Venice. Students who have made a contract with learning facilitators were 17out of 19 (14 F, 3 M), with an age range between 23 and 48 years and an average of 36.5. It is reasonable to assume that all members of this group were proficient in the use of the discussion forum on the platform Moodle. As students enrolled in the second year of a Master Degree course, every one of them has used in past courses the same communication tool. No specific training in the use of the forum discussion was requested.

The Experience of L.C. in Class

Organization Behavior, the course where we used L.C., lasted 42 hours 6 hours credits, distributed over three months. After a short presentation on the content and bibliography for the course, creation and use of the L.C. as a tool was introduced with clarification on the way we intended to develop some content with learning contract. We tried to create a confidential climate giving them some information about our career and its development, as well as our scientific interests and some personal anecdotes. Each student introduced his/herself in the same way so that we all had the opportunity to know something more about their desires and interests of study and work. After this first step we continued to deal with L.C. in the class in a very colloquial way, sustaining the effectiveness of the tool for programming the study, becoming autonomous in searching resources and encouraging group work in classroom and also outside. It was very important to create the right conditions in order to foster the sharing of their learning experiences. They were not used to this kind of work. In the beginning most of them were surprised, and in some sense also confused with this new tool that encouraged them to self-reflection and at the same time to create their own contract and to explore different possibilities to study, to learn, and mainly to be assessed for the process they realized and for the results they obtained.

After the first lesson we opened a forum, created a repository with some useful articles and documents to let them reflect and to give them the possi-

bility to study alone the subject of learning contracts to better understand how to create their own, having continuous feedback from the facilitator answering and sharing their doubts and questions with the whole group. The beginning phase proceeded very slowly and, with an intensive exchange of messages, more time was dedicated to class discussion, asking for facilitators' opinions, discovering the new way to go on.

At the end of this first step called "familiarization" phase, all contracts were created even in a draft form and, as works in progress, each student received his/her personal feedback at least one or more times by facilitators, and changed the L.C. several times.

The second phase called "sharing" was dedicated to work as a group in class and to discuss in the forum online. They were divided into groups of 4-5 students and each of them presented her/his own contract and received suggestions from classmates by giving hints to them, learning and becoming more aware of the process and the subjects they were developing and studying.

At the end of this phase they all had a more structured L.C., enriched and changed according the new ideas and advice received.

The third phase, called creation, was dedicated to the creation of the final version of L.C. and the products foreseen in it. They really mapped their learning process and formalized it in a final version, taking into account the different outcomes and the development of their learning process. During this phase all of them again received feedback from facilitators in order to explain and organize their next and final step.

The fourth phase called " presentation and assessment" took place in class with the support of facilitators. Each student prepared a presentation of his/her learning process and product, and presented it in front of their colleagues, having at his/her disposal 12-15 minutes time. Each of them decided how to prepare the presentation; at this phase also an assessment process took place. A self-assessment, an evaluation from the group and an evaluation from the facilitator were adopted. The results of the evaluation were indicated with a 10/30 score. Items reported in the evaluation template included the following areas:

- Level of preparation (knowledge of the topics)
- Conceptual clarity
- Use of appropriate lexicon
- Richness of theoretical references
- Critical thinking
- Commitment
- Group participation and contribution

- Working method
- Product realized (output)

In this case, during our last lesson, we and our students also had the possibility to receive very effective feedback from our colleagues from the U.S.A., Lindenwood University in Missouri, Prof. John Henschke and his group; we held our last lesson together in video conference, discussing what we had learnt during the process and how we had changed our personal perception on learning and how to learn. This was a great learning experience for all of us. The analysis phase of the discussions in the forum was conducted by the instructor and one of his collaborators, who had followed the group during all the stages of the experience. The process of text analysis was performed using Dedoose, a user friendly web based software developed for qualitative and mixed method analysis. The coders started with a definition of the principles by which the analysis of the discussion forum would have been realized. They settled the research questions, identified the unit of analysis in a syntactic unit such as the single sentence (Fahy *et al.,* 2000; Hillman, 1999) with the possibility to use multiple codes for the single unit. The two coders independently conducted a first general reading of the text and agreed about the codes that would have been used for the coding phase. The emerging codes from the first reading of the texts were 11, "reflection on the learning process", "reflection on the effectiveness of the instrument", "negative feelings on the learning process", "awareness of the learning process", "awareness of the effectiveness of the Learning Contract", "difficulty in using the Learning Contract", "transfer of the Learning Contract in other contexts", "research for other resources", "production of artifacts", "collaboration with the facilitator" and "collaboration with pairs". The encoding phase took place in two successive stages. In the first a coder or "trainers" identified the sentences that were considered important and had coded using one or more codes up to a maximum of four. Then the second coder or "trainee" performed the coding analysis independently on the sentences identified by the trainer. The software completed a first reliability analysis between the codes assigned by the two coders. The value of the Pooled Cohen's Kappa coefficient, which shows the overall result for the reliability tests that include more than one code (de Vries *et al.,* 2008), was of .48 a value that does not reflect a good agreement between the coders. The syntactic units were examined again and the differences in the understanding of the codes initially established by the coders were clarified (Haney, *et al.,* 1998). The second reliability test run produced a good Cohen pool Kappa coefficient of 0,68 (Fleiss, 1971; Landis Koch, 1977) (Table 1).

Overall Test Result – Pooled Cohen's Kappa	0.68		
Code	Agree	Disagree	Kappa
Research for other resources	6	4	0.59
Reflection on the effectiveness of the instrument	15	4	0.75
Awareness of the effectiveness of the Learning Contract	8	4	0.66
Reflection on the learning process	13	5	0.65
Collaboration with pairs	17	4	0.81
Awareness of the learning process	7	2	0.73
Transfer of the Learning Contract in other contexts	8	8	0.49
Collaboration with the facilitator	11	3	0.74
Negative feelings on the learning process	2	2	0.33

Table 1 *Reliability Analysis Between Coders*

Results. Understanding Learning Contracts

The research questions "What is the content of the online conversations in a learning process developed through the use of a Learning Contract?" and "Which are the key elements that students highlight in a Learning Contract?" are broad questions asked in the attempt to understand, through a forum discussion, the complexity of the situation that students lived. To afford a better understanding of the Learning Contract experience we started reporting the theme related to the code "negative feelings in the learning process" that does not support the use of Learning Contract during the learning process. These are reflections expressed by the students related to the initial experience of disorientation during the Learning Contract presentation and first moments in which students started to use it.

> After a first sensation of disorientation, during the first presentation lecture on the use of Learning Contract, I think that it's a useful tool (Student)

> The Learning Contract it's a useful tool and you can discover its full value slowly, as slowly we understood what is a Learning Contract.

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There are also other opinions about uncertainty during the creation of their own contract.

> I think that LC is useful only after having understood how to fill the template. I found difficulty especially distinguishing resources and evidences.

> I had problem to plan my steps.

These opinions, reported from the list of sentences coded, underline the importance of explaining in a clear way, not only how to use a Learning Contract, but also that it is not just a simple tool, a table to fill in.

Reflecting on the developed themes

Our analysis, as illustrated in the beginning of this paper, examines three different themes, we will recall them to the attention of the readers in order to underline the voices and opinion of the students before presenting our conclusions and final reflections.

The Learning Contract and the Learning Process

The Learning Contract offers the ability to activate reflective strategies (Fedeli, *et al.,* 2013). Starting from this assumption we will report the sentences that authors relate to students' reflection that involves the development of their learning process through the Learning Contract. This theme (Figure 1) is related to the codes labeled as "reflection on the learning contract efficacy", "reflection on the learning process", "awareness on the learning contract efficacy" and "awareness on the learning process". One of the most important subthemes we found was "reflection on the learning objectives".

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2 Layers                 Learning Contract and
                         the Learning Process




1 Layer        Reflection on the          Reflection on the other phases of
               learning objectives        Learning Contract
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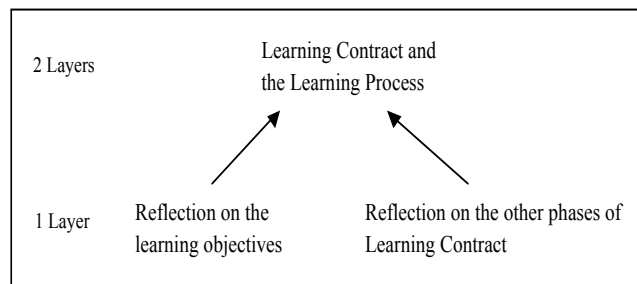
Figure 1.   Layers for the theme Learning Contract and Learning Process

Through the Learning Contract students reflect on their learning objectives. For this reason it is important, during the presentation of the Learning Contract, to spend time explaining in depth what an objective is and how it can be specified. The following sentences show different aspects of the reflection that emerged from the text analyzed.

My objective is to understand if the supervisors apply, consciously or unconsciously, the andragogical model.

I realized that this methodology helps me to focalize the starting point and the result that I want to achieve through a continuous learning process.

My aim is to understand the strength and the weakness of integration process in my organization […] for this reason the Learning contract is useful to focalize my lacks related to the final objective

It's possible to define Learning Contract as a good tool to design a research objective...

I want to create a questionnaire and administer it in an organization

I thought to understand in depth an argument related to my thesis about the Law N° 231 on the management responsibility in a non-profit organization.

The other important subtheme of "The Learning Contract and the Learning Process" is the reflection on the other phases of Learning Contract that

can be thought of as reflections on the learning process itself. For example these sentences, in the data analyzed, explain the issue:

> I'm discovering my emotional cycle of learning, I have the motivation and tension toward something that I want to analyze...

> The learning contract helped me to divide the process into four components: what I want to learn, often the arguments are so extended and I risk losing my direction if I have an unclear objective. How to organize my resources to optimize my work. How to understand that the objective is reached, often I think to learn I just read a text but that does not develop reflection. How to explain to others what I have learned was the most important dimension for my personal growth. Personally I found my project is coming up very naturally […].

> My learning style has always been linear. Thanks to this tool I have planned rigorously, I have taken into account the deadline to present my evidence and the process as a whole.

> The possibility to define anchorages in a path, clarifying the sub objectives, how to reach them, resources and evidences it's important to allow responsibility and awareness.

> Creating my Learning Contract I had the possibility to understand again what I'm learning in practice and reflecting on what I'm learning. I understood that the importance of what we are doing is the learning process and not only the content we are elaborating.

Characteristics of the Learning Contract

It is possible to answer to the second research question "Which characteristics do they recognize in a Learning Contract?" identifying two sub-themes that refer to the codes "search for new resources" and "transfer in other context" (Figure 2).
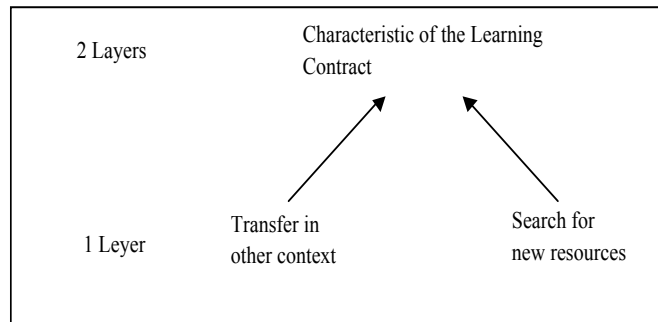
Figure 2.   Layers for the theme Characteristic of the Learning Contract

Students report their engagement to find other resources to develop and create their evidences. This self-directed research allows students to be active without waiting for facilitator's instruction. Is it also important to note the variety in the nature of the resources.

> I attached the first section of my presentation, in the next days I tried to add other question following suggestion of the Zammuner's book...

> I have also found other resources on internet like this one http://www.studiculturali […]. As resources I found a movie that I would like to show during my presentation". I found a John Rachal's article on future prospective of the Knowles' andragogical model […] I have also the possibilities to find an Adult Education expert at the University of Trieste. My references list need[s] to be expanded and I'm trying to do this. I used the methodology suggested by the book Being Steve Jobs...

Another subtheme individuated in on line discussion is how students are starting to use Learning Contracts in other different contexts. This characteristic allows us to understand how easy it is to adapt Learning Contracts to different situations.

> Now, in my work, during the preparation of each didactic module I ask myself which are my objectives? Which resources I can use?

Which criteria to validate the evidences I will use? […]. This tool
has to be used in the future in our work and during our training.
I think it can be applied to other personal and work context, not only
during the study.

I note that each one of us is using in his own life this tool […] this is
the real added value. This tool helps me in writing my thesis index,
it helps me to clarify the objectives and the resources for each chap-
ter. I already proposed to a group of students in the last year of sec-
ondary school to use the Learning Contracts to prepare their presen-
tation for the final exam.

Dynamics of Collaboration

As reported in the introduction, a wish of Fedeli, Giampaolo and
Coryell (2013) was to investigate the dynamics of collaboration among stu-
dents and with the instructor in an attempt to understand the effects of the
use of the Learning Contract in a group (Figure 3).

2 Layers   Dynamics of Collaboration

1 Layer   Collaboration   Collaboration   Share with
               between students   with the   pair
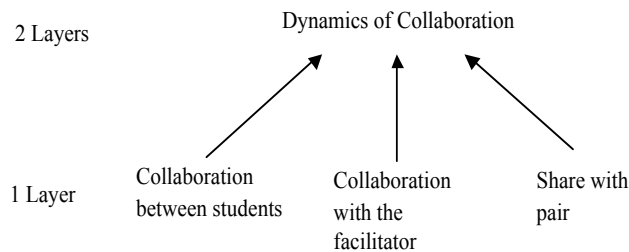   facilitator

Figure 3   Layers for the theme Dynamics of Collaboration

In this Learning Contract experience the facilitators suggested collabo-
ration between students during the course and creation of groups in which
each member was a resources for the others. Students expressed reflection
on the importance of collaboration and it is possible to identify three sub-

themes: "Collaboration among students", "Collaboration with the facilitator" and "Sharing among students". The collaboration between students is obviously a virtuous and beneficial practice

> It was a moment of real cooperative reflection, it allowed us to calibrate our learning path. Thanks for suggestion. I modified my Learning Contract, it is still a draft and I have to define better some instrument […].

> The suggestions from the other members of the team group have clarified what I had to make more explicit, especially to myself. Following the suggestion given to me from the other members of the group, I decided to utilize the methods […].

> I want to thanks Gaia that precisely synthesized the work done in the team group. Today I reorganized the notes taken during the team group work. They open my mind. Thanks to the group's work I clarified some aspects of my work […]. I think, it was really meaningful to share opinions on our Learning Contract in a small group, giving and receiving operational feedback.

The Learning Contract provides a vehicle for making the planning of learning experiences a mutual undertaking between a learner and his/her helper (Knowles, 1986, p.27).

Starting from this point we are interested in understanding if the process of negotiation is expressed and reported by the students. It is difficult to report in a discussion forum this process; that certainly happened in the face-to-face relationship with the support of facilitator. Nevertheless there are a lot of posts that report a good level of collaboration with the facilitator.

> Thanks to the facilitator for clarifying the sequence for next activities. The facilitator clarified our doubts, specifying to not only focalize our attention on the delivery date, but on the active participation and on the process we are producing like essential elements of our Learning contract.

> Thanks to the initial help of the facilitator and of some colleagues I understood some difficult issues that now I have corrected and clarified. These are the two interviews created with the help of facilitator.

Another important thing for students, who have to collaborate with others, is sharing not only the final evidence they realized but the different phases of whole process of learning to receive suggestions.

I read the works of my colleagues, they do not have particular criticisms and they are functional to the objectives […]. Hello Gaia I read the questions for your interview, I think they are very functional to the objectives and that with this data you will obtain a clear frame. Today I talked with the facilitator to have some suggestion and I want to post here my idea to share with everybody, I read your interview and I agree with Nicoletta, they are really deepening? and engaging. They are very clear and I think that realizing this graphic you can really describe in detail the innovative competencies. I read the map you posted, a suggestion I can give to you is to verify the correct use of terminology, Now I see the post-it method suggested by Chiara and appreciated her availability to use her experience as a resource for the other […].

Discussion and implications

In consideration of how LCs can be integrated into the Italian university system, one of the most interesting findings in our qualitative analysis is, according to us, the fact that all students at the end were very enthusiastic regarding the use of the tool and felt themselves surprised about the results; they could not imagine to reach their aims and we are sure they could not have reached the same success in a course with a standard didactic design.

We changed the standard practices and were all involved and committed to start with a new process, finding in the lesson the opportunity to discuss, to participate and to learn together in a less formal and more direct way, being more student and less subject-centered.

The findings help us understand the complexity of the change process inherent in transforming the dialogue processes between facilitators and students; LCs can facilitate this process of changing by developing the necessary dialogic interactions. We also recognize the process of introducing LCs into university teaching needs to be improved in order to reduce the complexity, involving other colleagues in the process, so that students can become more familiar with the tool and live the change in an easier way.

Coming back to our main research questions we can affirm that (a) *Understanding Learning Contracts* is a process that requires a lot of attention; the facilitator has to find direct colloquial ways to introduce it and be very supportive in the beginning phase, considering that the tool is very useful to personalize the didactic, but this means that each student has to design his/her personal project of learning regarding the topics presented. It is a totally new way of attending a course for the Italian university setting; this creates some confusion at the beginning and generates insecurity; (b)

Learning Contracts and the learning process, this tool, as demonstrated by the answers of the students, can stimulate an in depth reflection process on learning and how to learn, to reinforce and develop the awareness of the students regarding the importance of learning for their life and not only for the exam score; (c) *Characteristics of the Learning Contract* , first of all we can affirm that after the first phase of disorientation, students found this tool very useful to self-direct their learning process and to apply it to other personal situations as for example other topics or other research work. This is a very important result according to our experience; because we tried to give them a way of developing interests and research strategies they can use in their life a dimension of continuing learning; (d) *Dynamics of collaboration,* this is a dimension that has to be explored more, because we realize that it is fundamental to cultivate a confidential climate with the students and to create the right condition to personalize the study and the learning process. In these cases the facilitators were very directive with deadlines and tasks, but very flexible in accepting the proposals of students and in building with them a large framework to give them freedom and possibility of taking decision according to their needs and learning desires.

In conclusion we sustain that learning contracts are a very effective tool to personalize the didactics and to develop a personal learning process. We have to consider and sure reconsider for the future of our research two other dimensions more in depth, (a) the size of the class, we had the possibility to test learning contracts with a small group; in this case we had 17 students. We have to explore more and understand if it works with large size class too, and (b) we have to pay much attention to relationships and climate. This is a fundamental condition to personalize learning; we have to reinforce communication and relationships also outside the classroom, students and facilitator(s) need to interact in order to create collaborative learning experiences, but at the same time facilitators have to be very cautious in order to avoid direct involvement and favoritism, losing his/her credibility as instructor.

These two last implications can be considered a new starting point for our next step in the research: First point could be the importance of the facilitator and his/her role in designing personalized learning processes, secondly the relationship between instructor and student, and last but not least the importance of being flexible with course requirements to create different pathways in order to satisfy students' desires of knowledge and to improve university attractiveness and credibility.

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