Group work at the University: Solutions or Constraints for French Novice Teachers?

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Abstract

Today, university lecturers are confronted with new requirements before diverse and massive audiences. Research in the field of university teaching showed that traditional educational model, especially frontal courses, was unsuitable for these audiences. So, small group learning allows students to consolidate their knowledge through playing a more active role in the conventional lectures. Our objective was to understand how this pedagogical practice was used at the university, by novice teachers belonging to different disciplines. The present research tried to analyze the challenges of using this pedagogic practice in terms of solutions and constraints among 80 French teachers surveyed through a semi-open multiple-choice questionnaire. This exploratory study made it possible to understand the reasons behind the resistance of a large number of teachers towards the use of this pedagogical practice, as well as those which motivate them to use it despite organizational and management constraints.

Keywords: Group work management, teacher practice, university teaching, socio-constructivism, novice lecturers.

Introduction

Today, there is ever more room for new teaching methods in the universities. We witness the development of a variety of pedagogical practices, notably through an explosion of experiments, most often aimed at interaction, in particular small group interactivity (Clan, 2001). This phenomenon is explained first of all because the

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transmissive model is no longer adapted to current training needs. Advanced research on learning has shown that the so-called transmissive model primarily focused on teaching and not learning, on situations in which the learner is passive (Bazan, 2008). Because of this the transmissive model became less and less valued and appreciated. According to Labédie and Amossé (2001), this "magistral" or "frontal" pedagogical approach was inspired by the work of John Locke (1637-1704). It corresponded to the empirical conception of teaching and was based on two presuppositions. First there is the learner's neutrality. The learner was considered as having no pre-existing knowledge. It is thanks to the teacher's intervention, seen as the scholar, that the learner could acquire knowledge. The fact that transmitted knowledge should not be deformed or changed was also central. The learner had to imitate and reproduce to assimilate the message as was transmitted. The teacher's role was then to communicate knowledge as clearly as possible. In this model, learning was taken as a process consisting of continuously acquiring new knowledge, the teacher's role being to transmit knowledge, as s/he had the monopoly on knowledge. Research has shown that this model does not promote either the path towards autonomy or the ability to self-evaluate.

In this context, and contrary to John Locke's school of thought, the use of group practices is a phenomenon that developed at the university, notably thanks to the rise of new pedagogical approaches in which students interact in order to achieve an educational goal (De Lisi and Golbeck, 1999). The principle of group work involving several students exists since many decennia. Socrates was one of the precursors who wished to discover and lay bare the truths of his students hidden in themselves. This is called maieutics. Later, constructivist psychologists, but also cognitivists, showed that interactive work is a powerful means of learning; that the "socio-cognitive conflicts" which take place during group work are effective motors for true learning. Widely studied, also in its cooperative learning form, group work is mainly part of socio-constructivism. This method proposes the achievement of a common objective in a place of exchange and confrontation of personal knowledge representations.

According to Baudrit (2005, p. 5) cooperative learning is "an educational method fairly close to group work/pedagogies but which, from one country to the other, from one culture to the next, even from one author to the other, can take different orientations or be thought of in a more or less particular way".

The founding principle of cooperative group learning is the work based on Vygotski's theses and their extensions. This work makes it possible to affirm that interactions between peers can promote both the development of local knowledge and general tools of thought. Its approach is based on a socio-constructivist model. Similar to the constructivist model whose contributions come mainly from Piaget according to whom acquiring knowledge supposes the learners' activity, i.e. they are active in their

learning, cooperative group learning adds an additional dimension: social interactions. Learning is seen as the acquisition of knowledge through teacher-learner exchanges or exchanges between learners themselves. Students learn not only through the transmission of knowledge by the teacher but also through interactions. For Vygotsky (1986), the role of language in the development of knowledge is essential since it allows social interactions.

Ellis and Rogoff (1982) also contributed to socio-constructivist theory by explaining that the transmissive model places the teacher in a monopoly situation which prevents the acquisition of student autonomy. For him, the teacher must make the task more pleasant while avoiding that the student becomes dependent on him/her. This can be seen as the socio-emotional aspect of his theory.

Johnson and Johnson (1990) cited by Lepinoux and Lafond (2014, p. 41) describe cooperative learning as "working in small groups, with a common goal, that optimizes learning for everyone (...); collective activity oriented in the same direction, towards a goal shared by all, can benefit all group members".

Group work happens in a socio-cognitive environment which can generate individual progress. It is now well established that problem-solving in an interactive context can trigger inter- and intra-individual processes able to foster the development of individual knowledge and cognitive skills (Olry-Louis and Soidet, 2008; Seuba and Castellò, 2015).

On the one hand, cooperative group learning leads to social interactions between students, pushing them to verbalize and reformulate their ideas to confront them. It stimulates the exchange of resources held by different group members, thus facilitating cognitive processing and knowledge co-construction. Indeed, for Ross and Di Vesta (1976) orally summarizing information for transmission to a group member is an effective way of organizing and gathering information through deeper encoding. The verbalization of reasoning is an important element for cognitive progress. Cooperative group learning is based on the idea that knowledge is actively built by students. Group work thus gives way to positive interdependence between students by assigning them a common pedagogical goal. For Bargh and Schul (2008) or Moust and Schmidt (1994), teaching someone else is also an effective way to improve understanding as it facilitates the storage of information in memory through knowledge exchange.

On the other hand, we know today that interactive work is very frequently at the origin of socio-cognitive dynamics, such as "compliant" collaboration, co-construction, and confrontations, with or without argued disagreements (Stegmann *et al*., 1984). Exchanges and debates lead to cognitive conflict that promotes cognitive progress. Differences in student conceptions and assumptions produce a state of imbalance called cognitive conflict. When interactive exchanges bring about cognitive

conflict because of the subjects' differing points of view on how to solve a problem, a joint double cognitive conflict arises. It is first of all intra-individual. In group work, subjects become aware of answers other than their own. Cognitive conflict is also inter-individual because answers are different. Confrontations destabilize the individual procedures of the subjects involved in group work, which requires them to reorganize their cognitive system, which is often done in a constructive manner. When students are faced with data that requires them to rectify their initial representations, they must adjust their conceptions to arrive at an accommodation (Piaget). Individual progress can then be explained through the "internalization of inter-individual coordination" (Carugati and Mugny, 1985; Dalzon, 1990; Doise and Mugny, 1981).

Thanks to research conducted over more than thirty years, we can "consider social and conflict interaction as structuring and generating new knowledge" (Carugati and Mugny, 1985, p. 59). These empirical studies have clearly shown that social interactions, which are "symmetrical" such as co-resolution between peers (Mugny, 1985) or "asymmetrical" in the teacher-learner or expert-novice type (Baudrit, 2000; 2003) are intrinsically involved in the implementation of resolution-seeking cognitive activities in the genesis of intra-individual skills' development processes.

Group work is thus based on the idea that knowledge is actively constructed by students. The idea that group work can constitute a socio-cognitive "environment" able to generate individual progress is no longer in doubt. It is now well established that, under certain conditions, problem-solving in an interactive context can trigger inter- and intra-individual processes that can foster individual knowledge and cognitive skills' development.

Group work is therefore an educational tool particularly geared at enabling students to build their knowledge through a common activity or project. It promotes quality relationships between individuals, student motivation, and quality academic learning (Johnson and Johnson, 1990).

Learning Theories and Teaching Styles: What Place for the Learner?

According to teaching and learning theories, the place of the learner has undergone transformations and readjustments. The best known theories (Engel, 1991) clearly show this difference:

—For behaviorists, the learner is a person who has to listen, assimilate, repeat and carry out the instructions of the teacher who stimulates learning and encourages program evolution.

—For cognitivists, the learner analyzes and processes information while learning. Indeed, the learner (analogy with a computer) receives information, analyzes it against

predefined registers, stores it, and reacts. The learner transforms knowledge (social dimension) into know-how and expertise (individual dimension).

—For constructivists, who base their approach on the Piagetian approach, the learner is a person who builds and organizes knowledge through action.

—For socio-constructivists, who refer to the Vygotskian approach, the learner is a person who constructs and organizes individual knowledge by interacting with the material and social environment.

The place of the learner in the teaching-learning process follows two approaches: one that conceives of the learner as a receiver of the knowledge provided by the teacher and one that considers the learner as an actor in the appropriation of the knowledge proposed by the teacher. Teaching practice depends on one or the other of these two approaches.

Blake and Mouton (1964) define the transmissive style as more subject-centered, the incentive style as both subject- and learner-centered, the associative style as more learner-centered, and the permissive style, which is neither learner- nor subject-centered.

For the learner, the learning style is structured according to a learning cycle which, according to Kolb (1984), has four phases:

—Phase (1): where the learner accomplishes as task, in a concrete situation, without thinking too much about it.

—Phase (2): called reflective observation, where the learner is attentive and reflects on his/her action.

—Phase (3): known as abstract conceptualization, where the learner reflects on and conceptualizes what he/she is going to do.

—Phase (4): this is the active experimentation phase in which the learner performs the task in the light of reflection and past experience.

These phases differ from one learner to another. An individual's learning style depends on the importance and preference given by the learner to any of these four phases. If the learner has his or her own style of learning, the teacher has his or her own style of teaching. Classifications of teaching styles are numerous and are based on the work of Therer and Willemart (1984). These authors define four teaching styles based on the teacher's interest in the learner or subject:

1. Transmissive, more subject-centered style;
2. Incentive style, both subject- and learner-centered;
3. Associative style, more learner-centered;
4. Permissive style, very little learner- or subject-centered.

To reduce the gaps between what is learned and what is taught, it is possible to focus more on teaching practices than on learning styles. The triangle model of teaching

as proposed by Houssaye (1988) clearly shows the relationship between learner, knowledge and teacher. Focusing on one over the other has repercussions on the teaching-learning process. This clearly shows that any teaching practice can shift to one of the following relationships: teacher-knowledge or teacher-learner.

Place of the Learner in a Group Work Teaching-Learning Process

The sustained discourse of a learner-centered pedagogy, particularly in the form of group work, only makes sense if it is translated into a situational pedagogy where the learner builds knowledge by acting on knowledge. In group work, the teacher must propose various activities aimed at developing the learner. These are:

a) Cognitive strategies enabling the learner to proceed to a more coherent organization of previous conceptions.
b) Social-emotional strategies through instructions that encourage cooperation, verification, acceptance of others and control of emotions.
c) Metacognitive strategies allowing the learner to become aware of his or her cognitive process and "adopt a reflexive attitude with respect to intellectual conduct" (Dias, 2001).

Group work that involves problem-solving activities where the learner anticipates, controls and regulates in relation to the objective of the proposed task lends itself well to this. Each type of strategy complements the other by making it easier for the learner to process information and translate it into the production desired by the teacher.

Group Work Organization

Group work consists of grouping students in small units, so that they do the same activity linked to a teacher-stated objective. Students are then involved in a common task and participate in its completion by comparing their ideas with those of others. According to Richard Faerber (2004, p. 3), "a group learning situation is one in which people communicate, organize and share through forms of interactions that can lead to learning mechanisms".

Numerous studies highlight the positive aspects of these student learning systems. These methods promote quality relationships between individuals, student motivation, and quality academic learning (Johnson and Johnson, 1990). Drawing on the work of Johnson and Johnson (1990) we propose the following 5 characteristics of group pedagogy:

- Group work encourages cohesion among students
- Collaboration has a motivating effect and accelerates the learning process
- In a group, each member must assume his or her share of responsibility and contribute to the achievement of the objectives

- Group work fosters social skills such as team communication, trust, decision-making, and conflict management
- Group work encourages reflection on group dynamic processes

Nevertheless, from the moment the teacher decides to conduct a group activity, many questions arise at the organizational level: how to make it work? How many groups do I have to constitute? How many students per group? How to choose the members of each group: by level, gender, affinity? Should I assign a role to each student? Should I put students directly into the group activity, or give them individual time to reflect on the task before starting the group work?

Other concerns are related to group work management: managing chatter, noise, students working while others watch or do something else, a student refusing to get involved with one group or another learner who is rejected from the group, a leader imposing him/herself on others, weak students, groups not moving at the same pace, simultaneous requests from different groups.... It appears that there is no definitive answer to all these questions but only proposals for solutions which all depend on the activity's objectives.

According to Brody and Davidson (1998), there are 5 elements to consider: the presence of a common task to perform; the group should be small enough to allow for interaction among all members; the task to be performed must allow positive interdependence between students through a common goal whose outcome is affected by the actions of others; cooperative behavior and constructive interactions should be focused on.

According to Merieu (1992), the activity's objective (learning, interaction, production) is a determinant in group work organization. The number of groups may depend, on the one hand, on the total number of students in the group-class and, on the other hand, on the number of expected productions or positions, if the objective is not limited to learning but extends to production or confrontation between different positions. As far as the number of individuals per group is concerned, this depends on the total student number but also on the objective and nature of the task. If, for example, for a weak student, the goal is learning, tutoring will be preferred (two students). If the main objective is collaboration or interaction, a group of four or five students will be privileged. As the number of individuals per group increases, interaction will be facilitated, but management will be more difficult. As far as the choice of group members is concerned, this is more difficult to decide. Heterogeneous groups are often preferred to foster collaboration and learning (Storsh, 2005). The assignment of roles to each group member would allow the involvement of all individuals, except that the teacher has an interest in rotating these roles to allow all students to acquire new skills.

In addition, setting up an individual reflection phase before group work would allow the appropriation of the task or problem to be solved by all the group members and thus their easier involvement in the proposed activity. Note that spatial and temporal organization is decisive. Thus, time for individual reflection, group work, presentation or responses is important to attain the proposed activity's objectives. Generally speaking, spatial organization of furniture (tables, etc.) is not always easy to modify.

Group Work Management

Many teachers "flee" group work because of implementation management difficulties. As with organization, there are no definitive solutions but only proposals for solutions. If the organization is dependent on the activity's objective, group work management is dependent on the didactic contract. Instructions relating to the solving of the problem must be explicit and precise, but also in relation to the progress of the activity, expected outcomes, time allotted for work, the role of each individual and even the behavior of individuals during the activity (speaking in a low voice, raising your hand when you wish to speak or ask a question). This limits chatter and noise and ensures the involvement of all individuals in the group. Refusal to work with one of the groups or rejection of an individual by one of the groups may occur. To remedy this, we must understand the reasons behind the refusal or rejection. The teacher may approach the student who refuses to participate, and can explain the value of working with that particular group. S/he could also approach the whole group to show the usefulness of this particular individual for group work advancement. In almost all classes, there is what we call the "social/cognitive" leader who knows or claims to know more than others and who imposes through his/her personality thus limiting the participation of the other group members. It is interesting to assign a management role to this type of student, for example. From a managerial point of view, very often certain groups work faster than others. As a possible solution, the teacher may assign an additional task to the fast group or ask them to ensure that the activity is completed. For slow groups, they can be reminded of time and duration required for each stage of the activity.

While most research on cooperative learning attests to its efficiency with regards to learner outcomes, it is also shown that the teacher plays a crucial and even necessary role in the success of cooperation. However, as we have just seen, cooperative group work implementation by teachers is not simple, even for experienced teachers. The question then arises: how easy is it for novice teachers?

In our study, we questioned the practices of beginning university teachers when it came group work. Does the implementation of this pedagogy, recommended by their more experienced peers, represent a solution or a constraint to teaching?

Our study examined the representations and practices described by beginning university teachers about group work. In other words, how did novice teachers see cooperation between students and what mechanisms did they use to establish cooperation? Our research results then enabled us to identify the needs in terms of initial and/or in-service training for beginning university teachers.

Our hypothesis led to the following question: in what ways are beginning university teachers implementing cooperative practices, adapted to students' characteristics? We tried to answer this question by addressing the representation of cooperative learning teachers, on the particularities of establishing small groups during practical's or tutorials, as well as on the adaptations and techniques used to promote cooperative learning.

We hypothesized that beginning teachers see the use of cooperative learning as a source of disadvantage in their teaching practice but are also aware of the benefits for students. Nevertheless, it seems obvious that the lack of training for university teachers means that the dimensions which, according to Howden (1996), come into play in cooperation, namely objectification, a thoughtful constitution of groups, interdependence allowing mutual help and exchange between students in the group, are not mastered and bring about unresolved difficulties for novice teachers. The hypothesis of a "beginner's" type (Saujat, 2002), recurrent among all those entering the profession, and of a "teacher profession's" type (Clot and Faïta, 2000) made us think that the virtual absence of means to help young teacher-researchers forces them to sort out their problems alone, in order to organize their work.

In order to verify our hypotheses, our research is presented in the following sections: participants, research tools, data processing and study results.

Methodology

In order to meet our research objective of understanding the extent to which beginning university teachers use group work as a pedagogical tool, as well as the challenges of using this tool in terms of solutions and constraints, we adopted the following data collection methodology: a semi-open questionnaire was sent to 247 beginning teachers at the University of Aix-Marseille who taught different disciplines. 80 teachers filled in this questionnaire, which gave us a response rate of 32.4%. This is why we consider our study to be exploratory and feel it has to be accompanied by follow-up research later on. The 80 teachers who took part in the survey answered all the 21 questions asked. A statistical analysis on the basis of the 80 participants allowed us to calculate the percentages of answers represented in the results section of this article. We point out that some questions were multiple-choice questions and respondents could choose several answers.

The questionnaire mainly concerned the following items, as represented in the table below.

Table.1 General Organization of the questionnaire

Item		Related question(s)
Disciplines and levels where there is more group work		Q3- Q9- Q10- Q11- Q12- Q23
Group work objectives		Q6- Q7- Q8
Group work management		Q13
Link to group work practice	For teachers	Q15- Q16- Q17- Q19- Q20
	For students	Q14- Q18- Q21

Results

Disciplinary Constraints to University Group Work

We noted that most of the beginning teacher-researchers who responded to the survey are science teachers (Biology, Physics, etc.). They represented 51.25% of the survey participants. The other fields such as Health, Law, Economics, Sports-related and Social Sciences were represented by staff ranging from 3.75% of those interviewed for Sports-related Sciences to 10% for Social Sciences (SHS). 68% of the interviewees had a degree, but only 8% a Master's degree. These beginner teachers mainly worked in the field of practicals and/or tutorials (63%); only 20% of the respondents worked as full-time lecturers. The survey results showed that 77.08% of the teachers considered their subjects suitable for group work. Some attributed this to the fact that this practice promotes interaction, confrontation, collaboration for experimental manipulation, while others felt it helped when working on language issues. Those who considered that their disciplines did not lend themselves to group work attributed this either to the high number of students (Teacher 16-64-83), or to the fact that students were still at lower levels (Bachelor's degree level) and had to appropriate elements individually before working in a group (46), or to the fact that the work required skills that were difficult to mobilize through group work (42).

Although most of the surveyed found that their subjects lent themselves to group work, only 37.5% actually set up group work. The rest (26.25%) never tested group work in their teaching. Among those who had already set up group work, 70% regularly did so against 30% who used this pedagogical tool rarely or occasionally.

Reasons for Using Group Work as a Pedagogical Tool

63.7% of the teachers surveyed believed that group work could be seen as an environment able to generate individual progress for students. According to all the interviewed teachers, the tasks that lent themselves more to group work are those of

problem-solving and subsequently producing research outcome traces (presentation, file, poster, etc.). Among the objectives that made teachers organize their teaching in the form of group work, collaboration between students was one of the main ones (57.5%). Second was the objective of student idea exchange (47.5%). What should be stressed in the teachers' responses is that the objective of learning a new concept and the objective of tutoring, which in turn implies learning, were poorly represented (17.5% for each objective) in the list of reasons given by novice teachers for establishing group work activities.

Group Work Methods

Most teachers who had already used group work in their teaching say they did not choose the members of each group. They let students position themselves by affinity. Only 3 (i.e. 3.75%) of them took into account the degree of student involvement in the activities when forming a working group. Only one teacher took student skills into account and another placed them according to gender. We noted that none of the survey participants took into account the level of the students when forming groups.

Relationship to Group Work Practices

Teachers

Beginning teachers who used group work in the classroom report difficulties related mainly to the fact that their students were not receptive enough to this type of teaching-learning practice. The spatial and material organization of the classroom also did not seem to favor this type of practice, and even less in the face of an often high number of students in the tutorial and practical sessions. 22.5% of the teachers considered that group work was more or less easy to manage and 12% said that it required preparation. It is noteworthy that 10% did not encounter any management difficulty and that 17.5% did not think it required heavy preparation. In terms of the effectiveness of this pedagogical tool, 20% of the teachers found the practice effective in terms of student learning and achieving objectives, compared to 15% who found it more or less effective in terms of learning.

Teachers who stated that they had never used group work as a form of teaching practice justified this posture mainly for reasons related to the often high number of students in the class and the spatial and temporal organization (37.5%) of their course. Other beginning teachers (25%) attributed the non-use of group work to the fact that the content and organization of their teaching was imposed by the lecturers responsible for the course and their status as beginners did not allow them to modify this content or organization. On the contrary, they were invited to follow the requirements to the letter in order to reach the same stages of course progress in the different class groups in order to ensure equitable assessment and evaluation. What was remarkable in the

justifications of teachers who did not use group work was that some of them (12.5%) found it ineffective since, according to them, it was often only a few students who got involved and did all the work while others merely observed or did something else. Finally, it should be noted that 25% of respondents who had never used group work said that the opportunity to do so had not arisen.

Students

83.33% of teachers received positive feedback from their students regarding group work. Students were rather enthusiastic, interested, motivated, involved and/or reassured. 10% of the teachers noted that students had different reactions to this type of practice. Only 6% of teachers found that their students were disinterested, "all over the place" and were chatting more than focusing on their activity. 55.17% of teachers found that their students were involved in group activities, compared to 34.48% who found they were not.

Discussion

Based on the main results of our research, we noted that the use of group work in university teaching did not depend on discipline or level, since most respondents found that their subject lent itself to group work. Beyond discipline and content, it was the organizational side that seemed decisive in the (non-)use of this pedagogical tool. The result that seemed interesting to discuss further was related to the objective of setting up group work in class. Most of the surveyed teachers, who admitted to doing group work, considered that this pedagogical tool encourages interaction, collaboration (Storsh, 2005) and idea sharing, but none of them mentioned the objective of learning a new concept. This aspect was similar to previous work on the role of classroom group work with regard to social interaction and confrontation, but did not fully agree with that research (Merieu, 1992; Faerber, 2004) which considered that these forms of interaction were at the service of a more effective learning mechanism. The main objective of teaching, which is disciplinary or notional learning, seemed to be complemented by the acquisition of transversal skills such as collaboration and argumentation (Stegmann *et al*., 2012) through the sharing of ideas, while the acquisition of new knowledge will remain the main challenge of any teaching method. This challenge was promoted by the language practices encouraged by certain practices such as group work, since teaching *knowledge means revealing it through words* (Pantanella, 2004, p. 41). The same teachers stated that they organized their groups according to affinities between members and not according to their skills or levels, which would sometimes influence the quality of work in one direction or the other. The fact that lecturers did not know their students well is often seen as the root of the problem in universities.

Teachers who never used this pedagogical tool justified their reluctance by the fact that course content and organization were imposed on them, and that they had no freedom to organize their teaching. This question brings us to a broader reflection which needs to be undertaken by the university community, namely the support for novice teacher-researchers entering the profession. Is group work considered as an instrument to replace the tenured lecturers who can no longer teach all courses because of the increasing student numbers? Is it the work of the PhD student whose main objective is to find results for his/her thesis and to publish, and for whom teaching is a source of funding for his/her studies and more an exercise? Imposing content and course organization to beginner teachers is that a form of protection or does it reflect a lack of confidence in the novice beginning in the world of university teaching?

Further research with experienced teachers and heads of teaching units in various disciplines could enrich the debate. Our results show that the reluctance of teachers to set up group work is often due to the high number of students and the spatial organization of classrooms. In line with the work that is rethinking university teaching in a more interactive framework, it will also be necessary to rethink the spatial and temporal organization of universities' learning spaces in order to make them more suitable for the implementation of teaching systems that encourage interaction, such as group work.

Some novice teachers who had never used group work in their teaching consider it ineffective; they referred to the discrepancies between students getting involved in the task and those taking advantage not to work. This is partly in line with Jaillet's (2004, p. 37) view that it is “a disarming pedagogical ideal to believe that it is enough to request students to work in groups for them to do so”. Mentioned by some teachers, this problem seems to be due to a lack of anticipation and preparation before the group work and especially appropriate management (Demougeot-Lebel and Perret, 2011). Group management training at university would likely address these needs. Group work remains a means that should enable teachers to achieve their objectives in certain circumstances. In this regard, we agree with Medioni (2004, p. 24) who considers that “a group is not an end in itself, but a means to carry out work that could not be carried out in any other way”.

Conclusion

There have been major changes in teaching practices over the past decade: the introduction of active methods (project pedagogy and problem-based learning), the creation of "competency"-oriented professional Bachelor programs, and the rise of digital technologies (Trow, 1974; Annoot and Fave Bonnet, 2004; Romainville and Colet, 2006). In this context, group work becomes a preferred educational tool to enable

students to build their knowledge, especially since research agrees that group work constitutes a socio-cognitive "environment" likely to generate individual progress.

Our study was interested in Novice University teachers' representations of group work, of the specificities of setting up cooperative work in practical's or tutorials and of the techniques and adaptations used. Our results showed that beginning teachers see the use of cooperative learning as a disadvantage in their teaching practice but were also aware of the beneficial contributions of this pedagogical organization for students. These disadvantages further hindered the implementation of new pedagogical practices, since beginning teachers continued to receive very little support when entering the university teaching profession (Colet and Berthiaume, 2009).

Most of the studies conducted on group work focused on the effects of this system on learning, but very little on the difficulties and constraints encountered by teachers in preparing and managing this type of system. Our study opened research perspectives on these various aspects which are determining when it comes to the effectiveness of the proposed educational system. Another research result concerned the organizational aspect of group work, which seemed to depend, among other things, on class space and student numbers. These two parameters were not often taken into account in research that showed the effectiveness of grouping students.

We noted that, in this exploratory study, based on participants' statements, we did not really question closely the methods of group work evaluation used by the teachers surveyed.

Complementary research to this survey, based mainly on professional didactics, whose field of practice is professional education and continuing training, would be interesting for further insights. In particular, it could examine how professional skills are acquired and developed, and, in line with the work by Grangeat and Gray (2007), what can be done to teach or transmit these skills more effectively. This seems to us to be essential for further research into this educational system in order to identify the parameters that influence its effectiveness. In this future work, we would like to identify the study results for teacher training.

In this context, it seems necessary to think about the support and development of professional skills adapted to beginning university teachers. In France, various reports have emphasized the establishment of university teacher training (Dejean, 2002; Esper, 2001; Fréville, 2002; Romainville, 2004; Faure *et al*., 2005), in an institutionalized way beyond informal peer learning. The evolution of professional practices, responding to needs induced by university teaching situations, cannot exist without giving support to novice teachers. To address this, we propose to continue our work through an analysis of beginning university teachers' activities and to discover

the inherent difficulties of temporary non mastery of the teaching practices, which characterize the work of experienced teachers (Saujat, 2002; Condamines, 2008).

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