Group Work at the College Level: a Case Study

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ABSTRACT

Group Work at the College Level: a Case Study

Rachel Faust

Research problem: This study explores the use of group work across various academic disciplines at the college level in Quebec, with the intent of making recommendations on ways to improve its design and implementation.

Research Questions:

1. What practices do college teachers use in implementing group work?
2. What do college teachers perceive as the benefits of group work?
3. What challenges do college teachers face in implementing group work?
4. How do college teachers address the challenges they face in implementing group work? What additional mechanisms could college teachers put in place for an effective implementation of group work?

Literature Review: The literature review describes the small-group learning approaches most represented in the literature on postsecondary education, namely: cooperative learning, collaborative learning and problem-based learning. The benefits of group work for both students and instructors are presented, as well as the common problems that can arise from group work and possible solutions.

Method: This qualitative study uses the collective case study methodology. Six cases involving a total of nine instructors are presented. All participants teach at the same Quebec college and were recruited by snowball sampling at the research site. The participants were selected on the basis of their teaching discipline, as well as the type of group work they implement. The data

were obtained through semi-structured interviews and were analyzed using a thematic analysis approach.

Results and Conclusions: The participants implement group work in two distinct ways: in-class, active learning, activities; and graded projects. The following student benefits were identified: students learn effectively; they are engaged; group work sets a positive classroom environment; and simulates real-life situations. Benefits for teachers include: an enhanced monitoring of student's progress; a reduced grading workload; intrinsic rewards; and a dynamic classroom. Five main challenges were identified: friends tend to work with friends; social loafing; interpersonal difficulties; external pressures; and difficulties assessing individual contribution in group projects. To alleviate difficulties related to in-class activities, the participants can: change the groups frequently; assign specific roles; actively work on setting a positive classroom environment; clearly communicate the learning objectives; and build in an element of competitivity. For group projects, the participants can: discuss the relevance of teams in the workplace; dedicate class time to the group projects; include project milestones; minimize the value of group grades; and use peer-evaluations. The literature further suggests that for in-class activities, the level of difficulty, timing, and variety of the activities are key elements to consider, and that instructors can call on an individual student to present. For group projects, teachers can: favour criterion-based group formation; train students in developing teamwork skills; assign specific roles to students; and ask for progress reports.

The implications of this study are that faculty development initiatives on group work should not be discipline-specific, and can focus on: implementing strategies to reduce social loafing in group projects; training instructors to explicitly teach their students about teamwork skills; and designing activities so that they best reproduce real-life situations.

Because this research is exploratory in nature, there are too few participants to represent the larger population of Quebec college instructors. Another limitation of this study is the absence of representation of group work in technical programs.

Future research could examine group work from the perspective of college students, the barriers to implementing group work in the Quebec collegial system, the implementation of group work online in the context of the COVID-19 pandemic, as well as, post-pandemic, how the instructors' experiences implementing group work online will have influenced their approaches to group work upon their return in the physical classroom.

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CHAPTER ONE: INTRODUCTION

Young (1987) describes the college faculty member as a person divided between two roles: that of a scholar, or member of a particular discipline, and that of a teacher, a role for which most faculty are not formally prepared (Cox & Mayorga, 2010). In the province of Quebec, college teachers, like university faculty, are primarily hired on the basis of their disciplinary credentials. Teacher training is not an official hiring criterion, and faculty engage in ongoing professional development, or faculty development, on a voluntary basis (Conseil Supérieur de l'Éducation, 2000).

The term *faculty development* commonly describes activities and programs designed to improve instruction (Amundsen et al., 2005). In an extensive study of professional development in higher education, Beach, Sorcinelli, Austin and Rivard (2016) describe the field as entering a new "Age of Evidence" (p. 12), with an increased focus on measuring students' learning outcomes, and implementing evidence-based practices such as student-centered active learning techniques. There are strong calls from parents, students, legislatures and the general public for faculty to implement high-impact practices and, as such, there is an increased need for research on faculty development.

Small-group learning methods have been shown to be effective in improving students' academic achievement (Kalaian, Kasim, & Nims, 2018). When compared to traditional lecture or individualistic learning, students who engage in well-structured group work achieve better learning outcomes, develop more positive attitudes toward the subject matter, and are more likely to remain in college (Burke, 2011). Group work also represents an opportunity for students to develop teamwork skills, which are highly sought-after by employers (Hart, 2006).

Toseland and Rivas (2017) broadly define group work as a "goal-directed activity with small treatment and task groups aimed at meeting socio-emotional needs and accomplishing tasks" (p. 27). In the educational context, Ahern (2007) defines group work as two or more students working together to complete an assigned task, such as an in-class activity or a graded project (Ahern, 2007). The small-group, research-based, instructional methods most discussed in the literature are *cooperative learning*, *collaborative learning* and *problem-based learning* (PBL). Although these methods refer to distinct pedagogical approaches, they have more in common with each other than with traditional lectures in that they all support active engagement and encourage the development of teamwork skills (Davidson & Major, 2014).

While there is an extensive body of research on these ideal forms of small-group work, it is ultimately instructors who design the group work activities they implement in their courses. In doing so, they may base their designs on factors that are not necessarily pedagogical in nature. In fact, Hansen (2006) notes that most instructors who "place students into teams do nothing more than that, either because of time constraints or not being overly familiar (or comfortable) with the teamwork and team-building literature" (p. 15). To insure benefits to students, group work must be well-structured. Failing to do so may lead to students learning less than if they had worked on their own. Several problems such as dysfunctional groups and reduced learning outcomes can also arise in poorly-structured group assignments (Felder & Brent, 2016). As a consequence, group work has been recurrently identified as an area in which faculty would benefit from professional development (Ahern, 2007; Morgan, Williams, Bruce, & Wade, 2014; Roberts & McInnerney, 2007).

Because instructors have a direct impact on their students' learning experiences, they should have the competencies to make an effective use of student groups. At the university level,

instructor training in the theory and pedagogy in the use of teams has been shown to increase student teamwork knowledge, skills, and abilities (Burbach, Matkin, Gambrell, & Harding, 2010). To date, little research has been done on the implementation of group work at the college level in Quebec. It is important that teachers' experiences be recorded and analyzed so that faculty development initiatives can directly target the teachers' instructional needs.

This study will explore this gap by studying the use of small groups in various academic disciplines at the college level in Quebec. Quebec's collegial structure is unique in the North American educational landscape. College education comes after the elementary and secondary school levels, and precedes university education. Students can choose from pre-university or technical programs, which respectively prepare them for university studies or the job market (Ministère de l'Éducation et de l'Enseignement supérieur, 2019). Public institutions are referred to by the French acronym CEGEP (*Collège d'enseignement général et professionnel*), which means general and vocational college (Fédération des cégeps, 2019a). Private institutions are referred to as private colleges and not as CEGEPs (Fédération des cégeps, 2019b https://fedecegeps.ca/faq/). This study will use the term *college* without distinction between the public and private sectors.

To develop a better understanding of the use of group work in this particular context, this study will first describe the practices college teachers use in implementing group work. Second, it will consider the benefits that instructors perceive as being associated with group work, including benefits for the instructors themselves. The latter is an aspect that is often omitted from the literature on group work, which tends to focus on the benefits for students (Burbach et al., 2010; Fung, To, & Lung, 2016; Smith, Sheppard, Johnson, & Johnson, 2005; Springer, Stanne, & Donovan, 1999). Third, the main challenges that arise when implementing group work will be

discussed. Last, this study will describe how teachers go about addressing these challenges. It will also make recommendations based on the literature with regards to additional mechanisms teachers could put in place to ensure that group work is used effectively. While the literature says much about group work in its ideal forms, this research will aim to describe the "state of the actual," with the intent of making recommendations on improving the design and implementation of small-group work in Quebec colleges.

RESEARCH QUESTIONS

The research questions guiding this study are:

- What practices do college teachers use in implementing group work?
- What do college teachers perceive as the benefits of group work?
- What challenges do college teachers face in implementing group work?
- How do college teachers address the challenges they face in implementing group work? What additional mechanisms could they possibly put in place?

CHAPTER TWO: LITERATURE REVIEW

In the educational context, group work refers to the process of having two or more students working together to complete a task (Ahern, 2007). Although the term *teamwork* is often used as a synonym for *group work* in the literature in higher education, Paris, Salas and Cannon-Bowers (2000) explain that small groups do not automatically form a team. A team has characteristic features and is defined as a "distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have each been assigned specific roles or functions to perform, and who have a limited life-span membership" (Paris, et. al., p.1052). In referring to group work, this study will adopt the former definition from Ahern (2007).

The small-group learning approaches most represented in the literature are cooperative learning, collaborative learning and problem-based learning. Although these terms are frequently used interchangeably in the literature, they refer to distinct pedagogical approaches:

- Cooperative learning refers to a student-centered instructional approach in which students work and learn together to accomplish a common goal in a mutually helpful manner (Johnson, Johnson, & Smith, 2014).
- Collaborative learning means to work with each other to achieve a common goal, but not necessarily cooperatively, on the same tasks (Davidson & Major, 2014).
- Problem-based learning (PBL) requires students to work in small groups on complex, ill-structured, authentic problems (Marra, Jonassen, Palmer, & Luft, 2014).

This chapter will present the theoretical framework for these learning approaches, along with a description of each one. The benefits of group work for the learners and the instructors

will be discussed, as well as the common problems that can arise from group work and possible solutions.

THEORETICAL FRAMEWORK

Cooperative, collaborative and problem-based learning are learner-centered pedagogies which promote active engagement and small-group learning (Davidson & Major, 2014). In contrast with traditional lectures, the role of the instructor shifts from being a "sage on stage" to a learning facilitator (Murphy, Mahoney, Chen, Mendoza-Diaz, & Yang, 2005). These pedagogical approaches are all rooted in the constructivist theory. Constructivism can be traced back to the educational psychologist Jean Piaget who suggested that individuals produce new knowledge by engaging in learning experiences and incorporating new ideas into an existing framework (Harmon, 2017). The importance of social interactions to an effective learning process has also been stressed by psychologist Lev Vygotsky, whom theorized that

> an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. Once these processes are internalized, they become part of the child's independent developmental achievement (Vygotsky, 1978, p.90).

In describing the relationship between the constructivist learning theory and the constructivist pedagogy, Richardson (2003) identifies two lenses used to view constructivism: social constructivism and psychological constructivism. Social constructivism focuses on how the development of knowledge within groups of people is influenced by factors such as power, the economy, and political and social factors. Psychological constructivism, which is the approach that the constructivist pedagogy is largely based upon, centers on "the ways in which

meaning is created within the individual mind and, more recently, how shared meaning is developed within a group process" (Richardson, 2003, p. 1625). Five overarching characteristics describe the constructivist classroom: it is student-centered; it facilitates group dialogue; it permits direct instruction; it engages students in activities that challenge and add to their existing knowledge; and it develops students' self-awareness of their learning.

Because cooperative, collaborative and problem-based learning are approaches that have emerged separately, they have historically been adopted by distinct disciplines. Whereas cooperative learning has been mostly implemented in the sciences, mathematics, engineering, and the social sciences, collaborative learning has been used for the most part in the humanities. PBL in its pure forms has been largely been used in the health sciences (Davidson & Major, 2014) but different formulations of PBL, which Savin-Baden (2014) describe as a "series of constellations" (p. 198), have been adopted across a broad range of disciplines. While these formulations may differ in terms of the type of problem, the form of facilitation, or the focus of the assessment, they have in common that they all begin by focusing on a problem scenario (Savin-Baden, 2014).

Each of the three instructional approaches has been influenced by different leading figures. Cooperative learning was founded by David Johnson and Roger Johnson in the 1960's. Their approach is guided by the social interdependence theory, which considers groups as dynamic wholes in which the state of a given member can impact the state of any other member (Johnson et. al., 2014). The contribution of Kenneth Bruffee to the field of collaborative learning lead to its recognition as a unique approach to group work in higher education. In his view, students construct and maintain knowledge in continual conversation with their peers (Bruffee, 1999, xii). Collaborative learning is "a re-acculturative process that helps students become

members of knowledge communities whose common property is different from the common property of the knowledge communities they already belong to" (Bruffee, as cited in Love, Dietrich, Fitzgerald, & Gordon, 2014). Howard Barrows and Robyn Tamblyn developed PBL at McMaster University's medical school (Marra, et. al., 2014). Although PBL is also based on constructivist ideas, it is additionally rooted in the theory of situated learning. This theory emphasizes that learning is most effective when it takes place in an authentic context, meaning that it is as similar as possible to that in which the learning would be applied (Marra, et. al., 2014).

PEDAGOGICAL APPROACHES TO USING GROUP WORK

Davidson and Major (2014) report that students in groups are often doing a blend of cooperative, collaborative and problem-based learning; yet each approach is distinct (Davidson & Major, 2014). The characteristic features of each approach are presented next.

Cooperative Learning

Cooperative learning refers to a student-centered instructional approach in which students work and learn together to accomplish a common goal in a mutually helpful manner (Johnson, Johnson, & Smith, 2014). Cooperative learning activities must be intentionally structured so that students work together, and not just on the same project. The instructor actively engages with the groups and acts as a "guide on the side" who orients students, or as a "meddler in the middle" who provides new perspectives (Davidson & Major, 2014).

The effectiveness of cooperative learning in the college classroom has been validated by an extensive research record (Felder & Brent, 2016; Johnson, & Smith, 1991). There are three basic ways of implementing it: formal cooperative learning, informal (active) cooperative learning; and cooperative base groups (Johnson, et al., 2014; Smith, et al., 2005).

Formal Cooperative Learning

In formal cooperative learning groups, students work together on complex tasks or assignments for a duration of one class period to several weeks. According to a cooperative model developed by the Johnsons (Felder & Brent, 2016; Johnson, Johnson, & Smith, 1991; Johnson, et al., 2014; Smith, et al., 2005), cooperative learning has five key features:

1) Positive interdependence (cooperation). Students must rely on each other to complete a task. An individual cannot succeed unless others succeed, and vice-versa.
2) Individual accountability. The performance of each group member is assessed individually. Each group member is responsible for completing their share of the work and for mastering all of the material covered in the assignments.
3) Face-to-face promotive interaction. In their interactions, group members teach and encourage one another. Students engage in cognitive processes such as orally explaining how to solve problems, providing feedback to one another and challenging each others' conclusions.
4) Appropriate use of social skills. Students must be helped in developing interpersonal and small-group skills such as leadership, decision-making, trust-building, communication and conflict management. If cooperative groups are to be productive, these skills must be taught just as purposefully as academic skills.
5) Group processing. Students regularly reflect on how well the group is functioning. They identify what works well, and what can be changed to achieve the group's goals more effectively.

It is these features, as well as those presented in Table 1, that distinguish cooperative learning groups from a less-structured group type which Johnson et. al (1991) refer to as traditional

learning groups. Traditional learning groups are described as groups where students talk to each other but work individually (Johnson & Johnson, 1996). The assignments are poorly structured, and although students are required to work together, very little joint work is required (Johnson & Johnson, 1996; Johnson, et. al., 2014; Smith, et al., 2005). The result is a non-cooperative, individualistic, learning experience, where students may loaf and not try their best, where one student may do all the work, and where group members lack teamwork skills (Johnson & Johnson, 1996). Johnson and Johnson (1996) point out that study groups, project groups, lab groups, and reading groups are not automatically cooperative.

Table 1

Differences between formal cooperative learning groups and traditional learning groups (Johnson, et al., 1991, p. 25).

Cooperative Learning Groups	Traditional Learning Groups
Positive interdependence	No interdependence
Individual accountability	No individual accountability
Heterogeneous membership	Homogeneous membership
Shared leadership	One appointed leader
Responsible for each other	Responsible only for self
Task and maintenance emphasized	Only task emphasized
Social skills directly taught	Social skills assumed or ignored
Teacher observes and intervenes	Teacher ignores groups
Group processing occurs	No group processing

An example of a formal cooperative learning strategy is jigsaw (Aronson, 2000). This technique, presented in Figure 1, first separates a large task assigned to "home" groups into several smaller sub-tasks which are assigned to individual students. Students from the different home groups meet and learn in "expert" groups formed by students that were assigned the same sub-task. The home team then assembles the various pieces like a jigsaw puzzle.

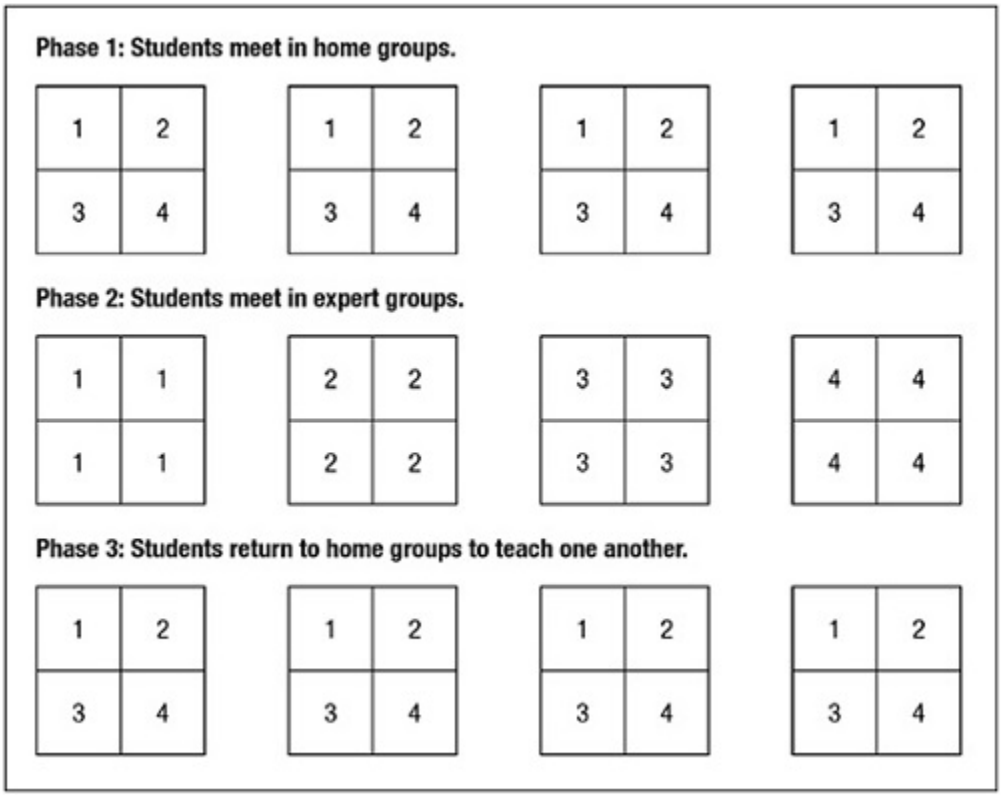

Figure 1. The steps involved in using the Jigsaw technique (Gey, 2014).

Informal Cooperative (Active) Learning

In informal cooperative learning groups, students work together to achieve a common learning goal in temporary, ad hoc, groups that can last from a few minutes to one class period. This approach offers students a personalized learning experience where their misconceptions and gaps in understanding can be identified and corrected (Smith, et al., 2005). The "think-pair-share" method is an example of an informal cooperative learning strategy, where students are

asked a question that they must first consider on their own before discussing it with their neighbour and settling on a final answer (Lyman, 1981). In a closely-related method called "timed-pair-share," students in pairs each share for a predetermined amount of time as a way of increasing their individual accountability (Kagan, 2014). Peer instruction is another related technique which was developed in undergraduate physics courses, and which makes use of polling systems such as clickers (Crouch & Mazur, 2001).

Cooperative Base Groups

Cooperative base groups can last for the entire duration of a course or longer. Students in these learning groups offer each other the support and encouragement needed for each one to succeed. Base groups personalize the students' learning experience and improve the quality of learning (Johnson, et al., 2014; Smith et al., 2005).

Collaborative Learning

Collaborative learning means to work with each other to achieve a common goal, but not necessarily cooperatively, on the same tasks (Davidson & Major, 2014). The main distinction between cooperative and collaborative learning is that cooperative learning activities emphasize interdependence and individual accountability, whereas collaborative learning activities do not (Smith, et al., 2005). Collaborative learning is less structured than cooperative learning and requires less teacher facilitation than cooperative learning. In collaborative learning, students could divide up the main task and assemble the individual components to achieve the common goal. A real-world example of a collaborative project would be to create an original play, where one person oversees one of several major tasks such as: creating the stage, designing costumes, lighting, etc. (Davidson & Major, 2014).

Kuh (2008a, as cited in Love, et al., 2014) describes the two main goals of collaborative learning as: "learning to work and solve problems in the company of others, and sharpening one's own understanding by listening seriously to the insights of others" (p.180). As a result, students must construct their knowledge through their interactions with each other, and away from the teacher, who acts as a facilitator. In collaborative learning, teachers do not influence the development of students by interacting with them directly. Rather, they do so in an indirect manner by intentionally planning the experiences that students will have with each other (Love, et al., 2014). An instructor must therefore design collaborative learning activities so that they actively engage students in working together towards explicit learning objectives. This can be achieved, for example, by designing loosely structured assignments with open-ended goals (Jones, 2014).

The research on collaborative learning is not as robust as that on cooperative learning (Davidson & Major, 2014). Davidson, Major and Michaelsen (2014) explain that although there are studies which support the approach, these have not established a causal relationship between the use of collaborative learning and a statistically significant increase in academic achievement. This could however be explained by the disciplinary divide which exists between the adopters of the two methods. While cooperative learning was studied by psychologists, collaborative learning was mainly explored by language and literature professors, who may not be as inclined as psychologists to perform experimental studies (Davidson & Major, 2014).

Problem-Based Learning

In PBL, students learn by working in small groups on complex, ill-structured, authentic problems (Marra, et al., 2014). The approach was developed at McMaster University's medical school in the 1960's. The rationale for its development was that medical students could not

solely rely on memorization to process the vast amount of information to which they were exposed in their curriculum. Rather, they needed to develop the skills needed to analyze and solve a problem (Davidson & Major, 2014). Major and Eck (2000) define PBL as:

> an approach to learning in which problems serve as the context and the stimulus for students to learn course concepts and metacognitive skills. PBL problems are compelling theoretical or practical problems, are based on real situations, and often have more than one right answer or more than one right way to get to an answer. (p. 1-2).

Students confront the problems without the prior information needed to solve them, and must work together to analyze the problem, gather the relevant information, and find a solution. The teacher takes on the role of a facilitator who guides students by asking inquisitive questions and monitoring the group interactions.

Since its beginnings in Canada, PBL has been adopted worldwide in a variety of disciplines beyond the health sciences. While Davidson et. al. (2014) write that research has established a causal relationship between the use of PBL and gains in learning outcomes, Albanese and Dast (2014) have a more nuanced perspective specifically on the use of PBL in the health professions. Because of their long history of PBL use, there is a large body of research on PBL in the health sciences. Drawing on the outcomes of more than 20 major reviews on the use of PBL in the health professions published since 1990, Albanese and Dast (2014) conclude that the evidence of the effectiveness of PBL on learning outcomes is not robust yet, partly because of the large variations in the formulations of PBL that are used. However, a salient fact from the reviews which were studied by Albanese and Dast (2014) is that PBL increases both student and faculty satisfaction, which may contribute to reducing student attrition. To authors argue that to

maintain this intrinsic benefit of PBL, but yet add further value, cooperative learning assessment methods could be integrated into PBL activities.

THE BENEFITS OF GROUP WORK

Benefits for Students

Wolfe (2010) states two reasons for using teamwork in schools: to improve students' learning effectiveness and educational experience; and to prepare students for future employment by providing opportunities to develop social and organizational skills required for effective teamwork.

Improving Students' Learning Effectiveness and Educational Experience

Group work allows students to learn more actively and effectively than in passive, teacher-centered learning environments (Murphy, et al., 2005). When students discuss problems with peers, they are freer to debate and think through the issues involved than when they discuss with their instructor whom they perceive as an expert (Wolfe, 2010). Brent and Felder (2016) summarize the benefits of group work described in thousands of studies as follows:

> (…) students working in groups on assignments and projects under certain conditions generally exhibit higher academic achievement, greater persistence through graduation, better high-level reasoning skills, lower levels of anxiety and stress, greater intrinsic motivation to learn and achieve, more positive and supportive relationships with peers, and higher self-esteem (p. 246-247).

Furthermore, small-group learning activities lead to increased course satisfaction (Davidson & Major, 2014; Wasley, 2006) and psychological health (Johnson, et al., 2014).

Preparing Students for Future Employment

Teamwork has become the norm in the majority of workplaces (Hansen, 2006). In a survey conducted on behalf of the Association of American Colleges and Universities, employers ranked teamwork skills and the ability to collaborate with others in a diverse group as the ability they most sought in new hires (Hart, 2006). The second and third most important skills were, respectively: critical thinking and analytical reasoning skills; and the ability to effectively communicate orally and in writing (Hart, 2006). Critical thinking, communication, teamwork and leadership have also been identified as some of the 21st century skills required for success in the workplace (Casner-Lotto, Barrington, & Partnership for 21st Century Skills, 2006). As such, it is important that students learn these skills by incorporating group work into the curriculum (Hansen, 2006).

Research on cooperative learning has shown that students who engage in it develop interpersonal and social skills such as: leadership, decision-making, trust-building, communication and conflict-management skills (Johnson, et al., 2014). Furthermore, group work effectively fosters students' critical thinking skills (Fung, et al., 2016) and can emulate the work environment by providing a realistic learning experience (Williams, Beard, & Rymer, 1991).

Benefits for Teachers

The literature on the benefits of group work is lop-sided in that it is highly focused on students as opposed to their instructors. Burbach, et al. (2010) note that the positive outcomes of group work for instructors can include an increased enjoyment of teaching, getting to know students better, and a greater sense of accomplishment. Instructors may perceive group work as an effective way to reduce the workload associated with grading without any loss in monitoring students and providing feedback (Williams, et al., 1991).

COMMON PROBLEMS AND SOLUTIONS FOR GROUP WORK

Simply putting students into groups does not, in itself, result in higher learning outcomes (Hansen, 2006). In fact, several problems can arise if the teams are not formed, managed, and guided properly (Felder & Brent, 2016). In a study of students' prior experience with group work and their attitudes towards it, Sorensen (1981) coined the term "group-hate" to describe certain students' aversion to it. The study identified four areas which caused some students to dislike group work: grades, interpersonal considerations, poor outcomes of group work, and group organization factors. As Felder and Brent (2016) explain, instructors may also show reticence in implementing group work because of negative prior experiences. Instructors whom have encountered difficulties when implementing group work in the past, or whom were themselves part of a dysfunctional group when they were a student, may have developed negative attitudes toward group work.

Roberts and McInnerney (2007) describe seven common problems associated with group work:

1) students' negative attitude towards group work, or students who prefer to work alone
2) the formation of the groups
3) a lack of teamwork skills
4) the free-rider, or social loafer
5) inequalities of student abilities
6) individuals dropping out of the group
7) the assessment of individuals within the groups

Burke (2011) identifies additional issues: attitude problems such as individuals who dominate discussions; and a pressure to conform to the majority opinion which results in the stifling of

individual creativity. Furthermore, group work involves transaction costs such as the time spent in scheduling and meeting with a group, and in negotiating differences in opinions (Yamane, 1996).

Several authors have made suggestions to improve the effectiveness of group work (Hansen, 2006; Felder & Brent, 2016; Roberts & McInnerney, 2007; Toseland & Rivas, 2017; Wolfe, 2010). On the basis of a review of the literature, Hansen (2006) makes ten general recommendations for instructors to improve group performance and student satisfaction:

1) discuss the importance of teamwork skills in the workplace
2) teach students about the stages of team development (forming, storming, norming) and emphasize the importance of communication
3) conduct team building exercises to increase team cohesion
4) form the groups yourself as opposed to letting students choose their own
5) assign a reasonable workload and be specific about the expected outcomes
6) require group members to have specific roles
7) dedicate some in-class time to the group work
8) request feedback at multiple points to monitor the team's performance
9) ask students to record their individual contributions to the group
10) use peer-evaluations to assess each member's contribution

CHAPTER THREE: METHOD

The research questions guiding this study are:

- What practices do college teachers use in implementing group work?
- What do college teachers perceive as the benefits of group work?
- What challenges do college teachers face in implementing group work?
- How do college teachers address the challenges they face in implementing group work? What additional mechanisms could they possibly put in place?

STUDY DESIGN

Because very little research has been done to describe the use of group work in Quebec colleges, this study is exploratory in nature. Since they are best suited for the purposes of "exploring, describing, or understanding a central phenomenon" (Plano Clark & Creswell, 2015, p. 285), qualitative methods will be used.

The specific methodology which was adopted is the collective, instrumental, case study method described by Stake (2003). This approach is appropriate when a researcher wishes to pursue an external interest, which in this study is to identify potential avenues for faculty development with regards to how teachers can maximize the effectiveness of group work. As such, through the research questions, this study describes the current practices of college instructors, makes further suggestions based on the literature, with the goal of identifying implications for teachers, instructional designers, as well as for the field of faculty development.

The case study method was adopted as this is the preferred method when the focus of the study is a contemporary phenomenon in its real-world context (Yin, 2014). More precisely, in a collective, instrumental, case study, a researcher investigates a phenomenon, namely the implementation of group work in the college classroom, by jointly examining several cases

which may or may not be known in advance to share common characteristics (Stake, 2003). Both variety and redundancy in the characteristics of the cases are important (Stake, 2003). How such variety and redundancy were achieved is described in the next section, *Participants*.

Furthermore, the instrumental case study is used "to provide insight into an issue or to redraw a generalization. The case is of secondary interest, it plays a supportive role, and it facilitates our understanding of something else" (Stake, 2003, p. 138). In this collective case study, the cases, or teachers, were selected because it is believed that understanding their use of group work will lead to a better understanding of the larger population of college instructors.

PARTICIPANTS

The research site was a Quebec college. The participants were in-service instructors who regularly made use of at least one group-based activity in a pre-university course. Variety was sought in terms of the disciplines taught by the participants by selecting one case in each of the following six academic units: natural sciences; humanities; commerce; computer science and engineering; fine arts; and social sciences. Variety and redundancy were also sought with regards to the type of group work implemented by the teachers. To do so, I selected the cases so as to describe group work in a variety of forms. As such, I included cases which involved both students working in groups in the classroom (in-class activities) or out of the classroom (group projects). Variety was further obtained in terms of the assessment type, seeing as both formative and summative group-based evaluations were considered.

The participants were recruited through professional contacts. I made an informal call for participants during a meeting of the college's community of practice, where faculty meet to discuss topics of interest related to teaching and learning. One participant was identified via this channel. I then approached other teachers whom met the selection criteria, and asked teachers

and department chairs in various disciplines to identify potential participants. This strategy, known as snowball sampling, is used to identify individuals based on the recommendation of others (Plano Clark & Creswell, 2015). I personally met with the potential candidates to discuss their group-based activity or activities before selecting the six cases. The selection was made based on the criteria of variety and redundancy of teaching discipline, type of group work, and type of assessment.

DATA COLLECTION

Prior to the data collection process, the participants have signed a consent form, found in Appendix A, informing them of the scope of the research and that they were able to withdraw from it at any time without negative repercussions. The primary source of data are semi-structured interviews with open-ended questions which are listed in the interview guide found in Appendix B. The interview guide is adapted from a template used by the learning community *Supporting Active Learning and Technological Innovation in Studies of Education* (SALTISE) to document learning activities.

The interviews were conducted in person at the teachers' affiliate institution and lasted approximately one hour. The interviews took place in May and June of 2019, prior to the forced shift to online teaching caused by the COVID-19 pandemic. Detailed notes were taken during the interviews and a recording device was used with the participants' approval. I transcribed the interviews. A colleague of mine who specializes in teaching and learning was invited to join me as a co-interviewer and note-taker as she is involved in a research project that made use of a subset of the interview data. She joined me during two of the six interviews. Because she has experience documenting learning activities using the SALTISE template, her familiarity with other teaching cases allowed her to ask the participants some insightful questions. All

participants were also asked to share any pedagogical resource that relates to their group activities such as course outlines, handouts and evaluation rubrics. While these resources were not analyzed for the purpose of this research, some provided information which complemented the interview data, and were useful in ensuring the accuracy of the case descriptions.

DATA ANALYSIS

To help organize the data for later, deeper analysis, it is useful to take early steps in the analysis of the data (Miles & Huberman, 1994). For each one of the six cases, these early steps consisted in producing: a contact summary sheet presented in Appendix C; a document summary form; and reflective remarks. The contact summary sheet highlighted the main concepts and themes that I saw during each interview. I used the document summary form to keep track of the significance of the documents which I collected. I wrote reflective remarks during the interview transcription process to record my commentary on issues that emerged.

I analyzed the data using a thematic analysis approach, which is used to search for an identify common threads across interview sets (Vaismoradi, Turunen, & Bondas, 2013). It is a "method for identifying, analyzing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 3). Themes capture aspects of the data that are relevant for the research questions, and which are recurring or meaningful in the data set (Braun & Clarke, 2006). The analysis process involved the six steps described by Braun and Clarke (2006), which are: familiarizing oneself with the data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; producing the report. A range of initial codes was created for deductive coding based on the findings of the scientific literature, while inductive coding was used to identify additional codes in the data. Using the software MAXQDA, the relevant data were then collated to each code in a systematic fashion across the entire interview set. The codes

were sorted into potential themes, which were then reviewed against the data before being further refined.

ASSURING CREDIBILITY AND TRUSTWORTHINESS

The qualitative rigour, or credibility and trustworthiness of the data, was ensured by taking the following three measures: member-checking, data triangulation and external audit. The researcher is a college teacher.

Member-checking is an essential form of validation of qualitative research and involves submitting drafts to the participants for review (Stake, 2003). This was achieved by asking the interviewees to review a draft of their case study report and correct it for accuracy. The modifications suggested by the participants were incorporated in the final version presented in this report. Data triangulation involves gathering data from multiple sources of evidence to corroborate a given finding (Yin, 2014) and was achieved in two ways. First, two sources of evidence were used for each case, namely interviews and the relevant pedagogical resources the participants shared with me. Second, by choosing the collective case study as the research design, several perspectives of the phenomenon were observed to verify the repeatability of the observations. This methodology is selected when a researcher pursues an external interest and wishes to redraw a generalization about a larger collection of cases (Stake, 2003). By studying the use of group work from the perspectives of six different academic disciplines, the patterns which were identified point towards certain avenues with regards to how college faculty can make an effective use of group work.

An external audit consists in asking a person that is independent of the study to conduct a review of its procedures (Plano, Clark & Creswell, 2015). For this study, an external researcher, namely a fellow graduate student of Educational Technology, verified the methodology and

results. Specifically, the auditor reviewed the case descriptions, the coded interview data and the grouping of the codes into themes to ensure that the study's results are supported by the data. The auditor additionally reviewed the study's conclusions to confirm that the reported implications are supported by the results. The data collected were stored in an organized database and arranged using a naming convention for all documents. Together, these measures increased the reliability of the case study (Yin, 2014).

CHAPTER FOUR: ABOUT THE PARTICIPANTS AND THEIR USE OF GROUP WORK

This chapter describes the six cases of the instructors whom were interviewed in this project. In an effort to maintain the participant's confidentiality, pseudonyms will be used in lieu of their real names. The first five cases are those of individual teachers whom implement group work in their respective disciplines: William (Physics), Marie-Ève (French as a Second Language), Maya (Art History), Kevin (Business) and Alex (Computer Science). The sixth case is that of a team of four instructors – Jade, Claire, Leila and Hannah – whom all teach the multi-section course Introduction to Research Methods in the Social Sciences, and in which students must work in groups on a mandatory term-long research project. This project is the focus of that last case, which highlights how each instructor implements the activity in their respective classes.

Each profile begins with a description of the instructor's education, teaching background, and courses they teach at the college. Profiles continue with an overview of the type of group work the instructor typically implements, and a detailed example of a group activity. The benefits that the instructor sees in implementing group work are then presented, followed by the challenges and possible solutions they have found. Each profile concludes with advice the instructor would offer to colleagues whom are considering using group work.

All the participants teach in pre-university programs at the same college. The average class size is around 24 to 32 students, and students are typically between 17 and 19 years old. Depending on the course being considered, students have two or three weekly classes, which are between 75 minutes to two hours long.

CASE 1: WILLIAM

William, who teaches physics, notes that his students come to class having already learned "some of the ideas and concepts from the readings, but they're also still very confused. And I *want* them coming in confused." That's because William asks his students to prepare for class by completing a reading assignment, that primes them for in-class, informal, group activities during which his students "[work] on their confusion together."

This section introduces William and his use of group work to teach physics. It first describes his educational and teaching background. Then it describes how William implements group work in his classroom and provides an example of group work he has used. Next, this section describes the benefits and challenges to group work from William's perspective, and it closes with his advice to other teachers regarding group work.

Education and Teaching Background

William's career as a college physics instructor began in 2014. His path to his current position started with a Bachelor of Science in Astrophysics. In 2012, he received his Ph. D. in Physics and Astronomy from a university located in central Canada. During his studies, he acquired considerable experience as a teaching assistant in a variety of courses such as introductory physics, astronomy, and scientific computing. After completing his Ph. D, he traveled around the world for a year. He currently teaches the three core physics courses of the Science program.

The Implementation of Group Work

William has adopted the flipped classroom model in all of the courses he teaches. With this instructional strategy, students are first introduced to new concepts outside the classroom, while activities that are traditionally considered as homework are shifted into the classroom. His

students typically prepare for class by completing a reading assignment which allows them to get an initial exposure to the material. Additionally, prior to coming to class, they submit a reflective writing assignment, which consists in formulating a short text where they document, for example, the items they understand, those that they struggle with, as well as the connections between the concepts they read about. William's use of group work is limited to within the classroom, and focuses mostly on informal, active learning, activities, such as group discussions and problem-solving sessions. The group activities generally are not graded. The only instance where William's students are evaluated on the work they complete in groups are the laboratory reports which are done in pairs. This decision was not made by William, as it is a requirement of his department.

William makes an extensive use of the peer instruction technique popularized by Eric Mazur (Crouch & Mazur, 2001). The first step of this instructional strategy is for students to individually answer a conceptual multiple-choice question, for example on topics such as the electric field, power dissipation in electric circuits, magnetic force and magnetic induction. In William's class, students show him their answers by raising a flashcard on which a letter from A to E is printed. By looking at the raised flashcards, William can assess whether most students answered correctly or not. Next, if he sees that "there's enough of a struggle with a concept," he will let students "discuss and try to work out some of those ideas in groups." Following the group discussion, students once again will raise their flashcard to show him their answer. At this point, while William will always state the correct answer and provide an explanation, the amount of detail of his explanation will depend on the distribution of his students' answers. If William sees that most students' answers shifted to the correct one, his explanation will be brief.

However, if most students still answered incorrectly, he will spend more time addressing the students' misconceptions in detail.

If problem-solving is an inherent part of most college-level physics courses, William says that problem-solving at the whiteboards is an "integral part" of his teaching approach. A whiteboard, also known as a dry-erase board, is a glossy surface on which one can write using non-permanent markers. In most of the college's classrooms, there are several whiteboards mounted on the walls, which offer a large writing space that is visible to everyone in the room. William's students are often required to tackle physics problems, in groups of four to five, standing up at the whiteboards. For example, they may be tasked with calculating the energy of a system of charged particles, analyzing direct-current circuits, and determining the torque on a current-carrying wire in a magnetic field. William forms the groups himself at random, and new groups are formed every week.

At times, William's students work on worksheets where they perform tasks such as completing the steps of a derivation and interpreting different visual representations of a physical concept. Although the guideline for completing these worksheets is that students should work individually, they are permitted to ask for help when need be, whether from their classmates or from William. William describes this type of group work as "very informal": "they'll work on [the worksheets] individually but they're free to chat with their neighbours. […] I want them working individually but when they're stuck, they have peers to go to, as well as me."

Example of a Group Activity

This section describes a one-hour long classroom activity which William designed for the physics course Electricity and Magnetism. The course is mandatory for all students enrolled in the Science program. The course's main objective is to analyze various phenomena in physics by

applying the basic laws of electricity and magnetism. Specifically, students analyze physical situations associated with: static electric charge, electric current, magnetism, and magnetic induction.

In this activity, students build a conceptual model for a proton being launched towards a fixed, negatively charged particle. A "model" here refers to a coordinated set of multiple representations (diagrams, graphs, equations, words) which describe the physical situation involved. William has run the activity both in a conventional classroom and in a low-tech active learning classroom. The only technological requirement of the activity is for the room to be equipped with whiteboards. The steps of the activity are the following:

1. The class begins with William explaining what a model is and why models are important to physicists. As an example, he presents a situation that his students are already familiar with from a previous course – that of an accelerating train.
2. The students then break into groups of four which are formed at random, and are assigned a whiteboard onto which they will present their model.
3. Each group designates a note-taker who is responsible for copying down their group's model onto a sheet.
4. The students are given around 30 minutes to construct their model. As they work, William walks around the room and offers guidance to specific groups when students are off track, or need help to continue their work.
5. Each group then pairs up with another one. They have a total of 15 minutes to present their models to one another. The student note-taker keeps taking notes during the discussion.

To conclude the activity, William re-convenes the whole class for a ten-minute wrap-up during which he first asks students if they have unanswered questions which arose from the group presentations. At this point, William points out that students are "intellectually exhausted": because they've "done a lot of learning": "They were very active during the whole activity and spent about an hour thinking about all this new stuff. […] I could tell they were spent, well spent." The goal of the wrap-up is then for him to "hit the key points and let [the students] digest what they'[ve] already gone through." Without going over the groups' work in details, he may for example point out the representations that are missing in the models, or highlight the connections between the various representations.

At the end of the activity, William collects the note-takers' sheets. After class, he annotates the best model and shares it with his students online.

The Benefits of Group Work

For William, there is one major benefit to implementing group work: it allows his students to learn more effectively. He says: "From my point of view, they're learning more."

Peer learning is an essential element of his instructional strategy. As an expert in the subject matter, it's been numerous years since William first became acquainted with the fundamental principles of physics. He finds it difficult to recall what it's like to be learning about physics for the first time. Hence, his students can sometimes be in a better position than him to explain new concepts to their classmates:

> I think it's useful for [students] to be learning from each other because they're not experts. […] It's hard to get to their viewpoint, to hold our eyes at their level. And that's my job – I wish I could do a better job, but *they* are already good at that.

Students also learn by explaining concepts to their peers, or as William puts it, by needing to "defend their own viewpoints." He adds that "with the group work, everyone kind of becomes the instructor." As the adage says, "you learn by teaching. […] They're going to benefit from that ability to teach."

In addition to its positive impact on students' learning, William believes that group work helps students acquire team work and communication skills: "Working together, I think, it's a skill that you want to learn anyways. And so I think that's a useful thing for them in life." In class, he'll emphasize the importance of communication skills, both in group discussions, and in presenting written work:

> Communication is always important. I tell [students] that the very first day. I tell them that whenever they're working in groups on the boards, that I don't care about the answer. Their job is not to get the answer, but they have to communicate to me that they understand all the important things. If they get the answer but they can't communicate it to me, it's no good.

From an instructor's standpoint, William thinks that the group work makes his teaching more interesting. "It's more dynamic, which can be a challenge to deal with. It challenges teaching. But it's also much more interesting, because it is not always the same piece of theatre that I'm giving to the students." He recalls a few instances where the group work worked really well – students spontaneously applauding another group for the quality of their work; a problem-solving session which he turned into a contest by offering Easter chocolates as a prize to the team who presented the best solution; and students spontaneously getting up to work on the whiteboards even though William had not imposed that students work in groups. He says: "It's fun to have that interactive quality to the class." It also allows him to better see which

misconceptions students have and to better assess their learning needs: “For me, I think the benefit is my students are learning. And that's what I'm after.” He also adds, laughingly, that “it also hopefully makes my marking easier because they’ve done better!”

The Challenges of Group Work

Overall, William describes his experience in using group work as “very, very good.” However, he explains that it makes his job more challenging than if he gave conventional lectures:

> It's just a very dynamic environment. I have to have my head on a swivel, constantly looking around, seeing what groups are off track. I have to deal with all that social nature of the classroom […], as well as the physics and the understanding.

William recalls the first time he implemented the flipped classroom model in one of his courses, two years ago. With this instructional strategy, students are first introduced to new concepts outside the classroom, while activities that are traditionally considered as homework are shifted into the classroom. That semester, there was a lack of buy-in from the students: “There were students who were not motivated. […] It was a struggle to get them up and get to the boards.” He speculates on the reasons he was confronted with that “tough” situation: “I think part of it was that it was just something that was new. […] I think the students would see it as ‘hey, this is a sudden big change, and that's a bad thing’.” The fact that these were first-year college students likely played a role as well:

> There will be students who haven't done this kind of thing too much [in high school]. And they were really good high school students and, when they come in to [the college], they realize that everyone else around them is good too. And that idea of being wrong is front of somebody else is challenging.

With some adjustments, William has managed to increase his students' motivation to participate in the group activities. "There are specific things that I do […] to try to work on that. I just find that as a whole, it's a problem that just kind of disappeared for the most part." First, William mentions the importance of creating a positive classroom atmosphere. The first time he flipped his classroom, he explained to his students why he was adopting this teaching approach, and the benefits research had shown it has. As he explains, this might have made a bad impression on students:

> The first time [I flipped, I] talked about the research and everything, and they don't care about the fact that it's evidence-based. But after that, I just told them this is how my class works. And I want you doing things in the class because you learn things by doing. And I'm gonna be more useful to you helping you with that than if I just lecture to you. Pretty much right away the atmosphere changes.

William now describes his classroom atmosphere as "really, really, positive." To further establish the right classroom environment, William often re-emphasizes to his students that it is normal for them to be confused at first, and that making mistakes is fine: "I *want* them to make mistakes here, because they're gonna learn."

A second strategy which had a positive impact on the group work dynamics was for William to start forming the student groups at random. His motivation for doing so was that he noticed that when students self-selected their groups, some groups were stronger than others: "I'd often get groups where you'd have the weak students stick together, and they're really just not getting anywhere. And I wanted to just see if mixing it up with would help with that. I think it did." To further help with the issue of groups of unequal strengths, he prepares handouts with

extra problems so that the stronger groups who work faster can keep busy while the other ones are catching up.

Even with the formation of groups at random, some issues can arise, such as: students chatting or looking at their phone rather than being on task; students who prefer working on their own; dominating students whom take the lead while their partners are left working on their own and needing help; or groups that try to monopolize William's attention. In these situations, William makes what he refers to as "little interventions." For example, he can approach individual students whom are not participating in the group work to encourage them to do so. As he gets to know his students better, he might "just tease them a little bit." When there are dominating students in a group, he can remind them that the goal of an activity is not for them to get to the correct answer, but that it is rather for all teammates to communicate effectively and learn. William can also use "little tricks," such as interrupting the entire class, and asking whoever is writing on the whiteboard to pass the pen to their groupmate who is currently standing the furthest away from the board.

William recalls the problematic case of an autistic student with whom these interventions were not effective. This student had special needs and could not function well in groups. William had not been made aware of the student's situation prior starting the course, but his suspicions grew once the group activities began. He explains that "getting [that student] to work in a group didn't really work. And there was friction in the class and everything. […] He was very hindered in the class due to his inability to work in groups." William wishes that more support had been offered by the college to help him deal with this challenging situation, which in the end never came to a satisfying resolution.

Last, William points out that a classroom's physical layout can also represent a challenge. During the group activities, he needs to walk around freely around the room to give students feedback on their work on the whiteboards. In conventional classrooms where students sit at individual desks, he has "often played the role of amateur gymnast, as well as climb[ed] over [students'] desks" because the desk arrangement was inconducive to circulating around the room. For him, the solution is to work in an active learning classroom where the students' individual desks are replaced with tables that can sit four to six students.

Advice to Other Teachers

To instructors who are considering implementing group work, William summarizes his advice as follows: "Try it. Do it." He recommends that instructors begin by implementing group activities in one section of their course, and add more once they have learned from doing it a little bit. He himself has incorporated group work gradually in his instructional approach. He humbly says that, over time, "I've certainly gotten better at it."

CASE 2: MARIE-ÈVE

For Marie-Ève, "group work *is* active learning." Her favourite approach to group work is to have her students work in teams of four on the whiteboards that are mounted on the walls of her classroom: "I use [the whiteboards] a lot, almost every class. I teach languages, so I think it's a good way for [students] to speak in French [and] work on their communication skills." She likes the "boost of energy" her students get when they stand up to work at the boards.

This section introduces Marie-Ève and her use of group work to teach French as a second language. It first describes her educational and teaching background. Then it describes how Marie-Ève implements group work in her classroom and provides an example of group work she

has used. Next, this section describes the benefits and challenges to group work from Marie-Ève's perspective, and it closes with her advice to other teachers regarding group work.

Education and Teaching Background

Marie-Ève holds a bachelor's degree in French Studies as well as a Master's degree in French literature from a large university in central Canada. Prior to obtaining her position at the college in 2009, she acquired nearly ten years of experience teaching French as a second language in various language schools. She currently teaches French as a second language at the lower three out of four French placement levels; the highest level is for advanced students or native French speakers.

Marie-Ève's interests in teaching include: universal design for learning, which is an educational framework to optimize teaching environments to meet the individual learning needs of all students; active learning pedagogies such as the flipped classroom, where students are first introduced to new concepts outside the classroom, while activities that are traditionally considered as homework are shifted into the classroom; and techno-pedagogy, which is a teaching practice that integrates the use of technological tools such as computers.

The Implementation of Group Work

Marie-Ève likes to divide her class time alternating between lecturing and group work. Her group activities are formative in nature, which for her means that "there [are] no marks [attached] to it," and are exclusively done in class. In addition to helping her students focus and work on their communication skills, these activities are an opportunity to "practice before the real evaluations," meaning those that do count for marks. Marie-Ève makes frequent use of group work at the whiteboards in her classroom because it allows her to easily keep an eye on each group's progress. Her students must then go from sitting down at their desks, to physically

standing up to work in groups at the whiteboards. She often structures the work at the whiteboards in the following way. In teams of four, her students "interact in groups, then switch boards and do a different task like correcting the other groups' mistakes, come back to their [desks], write notes about what [they] have seen, then go back [to the boards] again."

But some of the group work that Marie-Ève employs does not involve using the whiteboards. For example, Marie-Ève describes an activity she finds "very, very interesting:" a collective writing exercise inspired by a technique known in French as a *cadavre exquis*, in which students follow a scaffolded structure to write a narrative text in groups of five. Each student writes the first segment of a narrative text, and then passes it along to a teammate who, after reading the first segment, proceeds with writing the second segment. The cycle repeats three times more, and the activity ends when the five narrative texts are complete, and each student has contributed to writing a segment in each one. Marie-Ève recalls that, in participating in this activity, her students got very engaged: "In every class that I tried it in, when class was over I had to tell people to stop [working]. That is not the case when I ask them to do a practice essay in the classroom!"

While Marie-Ève used to let her students self-select their groups, she now forms the groups herself and changes them every class. She selects the group members to ensure that there is variety in terms of students' strengths, weaknesses, and mother tongue. To be able to do such a selection, she assesses her students' writing skills, speaking skills, and their linguistic profile very early in the semester. To evaluate their writing skills, she asks her students to submit a sample piece of writing. She assesses their communication skills, listening skills, pronunciation and their linguistic profile by having them introduce themselves orally during the first day of class.

Example of a Group Activity

Marie-Ève designed the following group activity for the course Français 101, which is a French as a second language course for students at the second of four French placement levels. The course is mandatory for students across all programs; students are placed in particular sections based on their performance on a placement test. The course's objective is for students to communicate in standard French with some ease. As part of the course, students improve their listening and reading comprehension skills, in addition to their speaking and writing skills. They do so by: writing and revising a simple text following grammar and spelling rules; interpreting a written text; giving an oral presentation; and interpreting an oral text, for example by watching audiovisual documents.

The learning objective of Marie-Ève's activity is for students to apply nominal concord (*accord dans le groupe nominal*) for gender (masculine or feminine) and number (singular or plural). For example, in the nominal group *les yeux verts* (the green eyes), the determiner *les* (the) and adjective *verts* (green) must match the gender (masculine) and number (plural) of the noun *yeux* (eyes). Additionally, students build vocabulary to describe the physical features of a person. The steps of the activity are the following:

1. At the start of class, Marie-Ève takes 15 minutes to lecture on the rules for nominal concords.
2. She then gives the instructions for the activity: in teams of four at the whiteboards, students are tasked to come up with ten nominal groups that describe a portrait. The adjectives they use must be new to the students to ensure they improve their vocabulary. Marie-Ève encourages them to consult an English-French dictionary application on their phone to look up new words.

3. Using the overhead projector, she then displays a list of students' names so that they know which group and whiteboard they have been assigned. Her students stand up and go to their assigned whiteboard.
4. The activity begins when Marie-Ève displays a first portrait. Students have ten minutes to complete the task of writing ten nominal groups on their respective whiteboards. As they work, Marie-Ève walks around the room, checks the boards, and gives feedback to individual groups when she thinks it's appropriate.
5. The next step consists in having each group switch boards with another one. The groups are assigned a new task, which is to correct each other's work. They have five minutes to check the gender, the placement of the adjective, the spelling, etc.
6. Students are next asked to return to their desks. Addressing the entire class, Marie-Ève spends ten minutes going over the work on every board and giving comments. When she is done, she gives students a few minutes to write down personal notes.
7. The class then repeats the activity. Marie-Ève displays a second portrait, and the students perform the same activity in the same groups.
8. After class, Marie-Ève posts a sample set of nominal groups online for students' future reference.

The Benefits of Group Work

Marie-Ève sees "a lot of benefits," both for her and her students, to group work at the whiteboards. For her, it makes her teaching more enjoyable because she benefits from having "more dynamic groups, more engaged groups." She finds that listening to a lecture that lasts an entire class is "very demanding on the brain" for her students and is "not efficient." When her students stand up to work on the boards, they get energized from moving, which helps them stay

focused. This effect is particularly welcome during early-morning classes, when students' energy level tends to be low. Additionally, she can make a more effective use of class time because, from a glance around the room, she can quickly see whether some groups are off-track and intervene early with those.

The group work provides students with several opportunities to work on their spoken French language skills. Marie-Ève explains that the group work "recreates real life communication situations," more so than, say, an oral presentation. This is because in their everyday life, students are more likely to talk in small groups rather than in front of an audience. Furthermore, one of the reasons she forms the groups herself is that she finds it important for students to work with people they don't know, as this will often be the case in "the real world." In her view, the group work also reinforces "the link between what [she is] teaching and how [students] can use it. It makes the learning very concrete and not just theoretical." For example, in the activity described in the previous section, her students learn vocabulary and they leave class "feeling that they've learned something very concrete that they can use right away."

Students also get to improve their overall communication skills as they must engage in group discussions effectively. They must work on their listening skills, and share their ideas in a respectful manner without dominating the discussion or being overshadowed by the others. This notion of respect must also extend to the entire class, and Marie-Ève explains how the group work contributes to shaping the classroom dynamics:

> I try to do group activities as soon as my first class to build this community, so that [students] can feel comfortable with others right from the start. They can see that nobody's perfect, that everybody makes mistakes. And I think that it helps for classroom

> discussions after, because [students] had a chance to work with almost everybody in the classroom, so they feel more comfortable sharing their thoughts.

In Marie-Ève's view, the group work "creates a safe space to make mistakes," and this reduces students' stress level in two ways. First, as they are participating in the group activities, students can ask each other for help if they get stuck. Because Marie-Ève forms groups with students of various strengths and weaknesses, this opens the door to peer learning, where the stronger students can help the weaker. As Marie-Ève explains, "the learners become the teachers." Second, students feel better prepared for the summative evaluations because the group activities offered opportunities for them to practice and learn from their mistakes. In doing the group work, students become aware of their own strengths and weaknesses, which allows them to better identify the areas they should focus on when studying for the summative evaluations.

Last, Marie-Ève discusses the positive impact of the group activities on students' attitudes. She has the feeling that they truly enjoy the active learning approach: "I've seen students very, very engaged in the process. I have asked students to leave the classroom, because class was over and they wanted to keep working on what they were doing." To engage students, Marie-Ève stresses the importance of telling students the purpose of the group activities:

> With Millennials, they need to understand *why* we're doing something, so they realize that it's linked to their learning objectives […] Once we're doing something, they see the purpose of it, and they see *why* we're gonna do it, and I'm not just this person who's telling them: "do this, do that, do this, do that." I think that the *why* is very important, and the *why* is very explored with active learning. And I think they enjoy it.

The active learning approach can also change students' perceptions of French language courses. Because the courses are mandatory, some students, for example those who did not enjoy the

subject in high school, start the course with a negative outlook. However, in part because they're having fun in Marie-Ève's class, it can positively change the way they feel about the French language.

The Challenges of Group Work

When asked to describe her worst experience with group work, Marie-Ève describes her experience back when: she let the groups self-select; and her classrooms were not equipped with whiteboards.

Letting students self-select their teammates led to many issues. In itself, the team formation process used to be time-consuming. Students were slow to choose teammates and move around, and would form teams of uneven sizes. Some students would be left alone without a team, either because they were uncomfortable introducing themselves to their classmates, or because they were stigmatized because of their "learning disabilities or awkward behaviors in the classroom." Even though, when facing that situation, Marie-Ève would be proactive and point these students to a group they could join, she "did not feel comfortable for those students." Marie-Ève's decision to start forming the teams herself solved these problems, and thus had a positive impact on her experience with group work.

In addition to making the team formation process more efficient, imposing teams has helped minimize other issues. Back when her groups self-selected, Marie-Ève observed that students would often work with their friends, and were more likely to be off-task and "talk about their weekend." Furthermore, they were less likely to communicate with each other in French, which is the rule in Marie-Ève's class. The difficulty of getting her students to speak in French, which Marie-Ève explains is specific to her discipline, is an ongoing challenge:

> The thing is, with languages, it's a second language, sometimes the third or fourth, so it's always easier for students to communicate using their own mother tongue. I get the feeling that when I'm creating the teams myself, trying not to put friends together, they will […] try to communicate more in French.

By ensuring that there is cultural diversity in the groups, Marie-Ève thinks that students are less likely to revert back to speaking in their mother tongue: "If I put three Chinese-speaking students together, they might have the reflex to translate in Chinese, which could be a problem for the native English student in that team." Even with this precaution, Marie-Ève will often hear her students reverting back to their mother tongue. This is especially the case when students become really engaged in a group activity, because it is more efficient for them to speak in their mother tongue.

A second factor which improved Marie-Ève's experience with group work was the installation of numerous whiteboards on the walls of her classrooms. Before they had access to whiteboards, her students would work in groups while sitting at their desks. To check whether the groups were on track, Marie-Ève had to circulate around the room to go see each group individually, whereas she can now quickly glance at all the whiteboards around the room. Because the checking process used to be time-consuming, there were instances when, by the time an activity ended, she ran out of time and could not intervene with all groups.

Marie-Ève now refers to her experience with students working at the whiteboards on the walls as her "best." Beyond assigning groups, she finds that assigning a specific task to individual group members further contributes to establishing positive group dynamics. She assigns specific roles, such as: being the note-taker, looking up words in the dictionary, writing down the answers, and correcting mistakes. She may also ask students to switch tasks during an

activity. Prior to her assigning roles, she observed that "some students were doing the work, and the other students were just enjoying the ride." In addition to reducing the social loafing, Marie-Ève finds that assigning tasks gives "empowerment" to the shy students, who are more likely to speak up when they have been instructed to do so.

Another strategy Marie-Ève uses to increase student engagement is incorporating "an element of competitivity." She does so by, for example, telling her students that whichever group finishes a task first will be exempted from homework. She says that it "creates a fun classroom atmosphere, because some [students] are very competitive. They're very engaged and they're not losing time […] because they want to win." She specifies that, in the end, she exempts everyone from homework, so that not only all students feel like their efforts were rewarded, but also so they don't find it unfair if their group underperformed. Therefore, this strategy cannot be used repeatedly in a same semester.

While these strategies help minimize many issues, some problems remain. For example, if a student comes to class without having done the preparatory work, such as reading a novel the groups must discuss, they cannot contribute to the work. Marie-Ève has experimented with assigning "pop quizzes" to check whether students had done the readings. While the quizzes help, she says they are "not a perfect solution." Even with this incentive, "there's always maybe one [student] in the classroom [who hasn't done the mandatory prep work]. It can be frustrating for the rest of the team." Students who come in late to the class and missed Marie-Ève's explanations of a group activity also have a negative impact on the group's dynamics.

Last, Marie-Ève mentions that some students have difficulties working effectively in groups, such as "dominating students" who "talk too much and take all of the lead." She also recalls cases with students with a diagnosis of autism spectrum disorder: "[…] they were

struggling to work in teams because they can't read facial expressions really well." Marie-Ève says their teammates were getting annoyed because of the way they interacted around them. She however believes that their teammates would be more understanding if they were made aware of a student's disability: "We have very open-minded students about these classroom realities. But if they don't know [about a classmate's disability], they just think the person is making fun of them, or not being serious."

Advice to Other Teachers

Marie-Ève acknowledges that "it can be stressful for teachers to change our way of doing things." She goes on to say: "but there's so much value added to [active learning], that it's worth changing the way we're teaching: less lecturing, and more group work, more flipped classroom." It is essential that students are engaged in their learning, and being able to physically move in the classroom helps them do so. To further increase their engagement level, it is important for the instructor to state the learning goals of the activity, and to debrief with students after the activity to check whether these goals were achieved.

Her advice about group work is "to try it," and that it "can be done in baby steps." She says teachers should step "outside of [their] comfort zone, but not too much at first." She advises that to build some confidence in using group work, teachers should talk with other instructors: "If you're afraid, and you get the feeling that you will just jump without a net, asking colleagues to describe an activity that works really well can be very reassuring."

For active learning activities, she recommends that the instructor selects the groups themselves. However, she hesitates to make the same suggestion for long-term projects. Her tip on long-term projects, however, is to scaffold the work by breaking it down into small tasks, so that the instructor can keep track of the groups' progress over time.

CASE 3: KEVIN

Prior to his teaching career, Kevin acquired over 15 years of experience in the business world, which he now shares with his students. He says he is obsessed with not wanting to be "a guy who just teaches theory." Through the group activities he implements, he wants his students to acquire "real life skills" by replicating what they can expect in the workforce.

This section introduces Kevin and his use of group work to teach business. It first describes his educational and teaching background. Then it describes how Kevin implements group work in his classroom and provides an example of group work he has used. Next, this section describes the benefits and challenges to group work from Kevin's perspective, and it closes with his advice for other teachers regarding group work.

Education and Teaching Background

Kevin holds a Bachelor of Commerce degree and a Master of Business Administration degree from a university located in a large urban area of central Canada. His areas of expertise are management, marketing, entrepreneurship, and international business. Prior to teaching, he worked for over ten years at a development bank where he offered consulting services to business entrepreneurs. He also served as a Sales and Marketing director, a corporate trainer, and a management consultant.

Kevin has been teaching administration courses at the college since 2010, and concurrently teaches at the undergraduate and graduate levels. The college courses he teaches include Fundamentals of Business, Personal Selling, Accounting, Sports Management, and a popular international-business course where he and his students travel to Europe. Amongst his professional and personal accomplishments, Kevin has been nominated multiple times for his distinguished teaching at the university-level, and has completed three marathons.

The Implementation of Group Work

Kevin uses two distinct types of group work: in-class active learning activities which he implements on an impromptu basis to break up his lectures, and long-term projects which are formally assessed.

Kevin has a list of active learning activities which he decides to implement randomly based on the classroom vibe on a given day. He explains that if, while he is lecturing, he observes that "the message is not sinking through, or the students look bored," he will call what he refers to as a "random timeout" for group work. Although he has no set plan for when he'll implement the group activities, he always comes to class having an idea of the activities he could possibly use. He explains that in class, he must think on his feet, and that with experience, he has learned which active learning activities to use as a "backup plan" for when "the train might derail." As an example, he mentions a class where he was lecturing on sponsorships and the qualities a brand should look for in celebrity endorsers, such as being well-known and credible. At a point where he felt the students needed a "timeout," he formed groups of four and tasked them to select a product along with a suitable endorser, such as Michael Jordan for BMW. He then asked each group to explain why they thought theirs was a good match.

Inspired by gamification principles, Kevin sometimes turns his group activities into games or contests. The gamification of learning is an instructional strategy where game elements, such as competition with others, are incorporated in a learning environment. One of his favourite activities is to ask students to guess the top ten brands which were selected by *Interbrand*, a marketing consultancy, in their annual list of the 100 *Best Global Brands* (https://www.interbrand.com/best-brands/best-global-brands/). As a prize, the team which has the most correct guesses wins a bag of candy.

Whether it'd be for active learning activities or long-term projects, Kevin tries to form the groups himself. For in-class activities, although he admits that it can be difficult to achieve, he finds it beneficial that students don't work with friends. A group-formation strategy he uses is to randomly distribute numbered cards to his students; all students who receive the same number become groupmates. For long-term group projects, he tries to match students with complementary skills.

Example of a Group Activity

This section describes a group oral presentation which was inspired by the popular TV show *Dragons' Den.* The presentation acts as a capstone project for the course Fundamentals of Business. This administration course introduces students to the world of business, and to the fundamental principles of business. Students learn the basics of: business ownership, management, marketing, finance, accounting, human resources and globalization. They develop the ability to write a business plan. The course is mandatory for students enrolled in certain streams of the Social Science program which focus on commerce. The course can also be taken optionally by students in other streams of the Social Science program, as well as students in the Liberal Arts program.

In this activity, students deliver an oral presentation in which they pitch a business idea to a panel of fictitious investors. Their goal is to secure funding for the company, service, or product of their choosing. In this simulated competition, Kevin can decide to invest a fictitious sum of $100, 000 in only one of the class' entrepreneurial ventures. In groups of six, students have eight minutes to persuade Kevin that their business proposition is the most deserving of receiving the funding. Students present in front of Kevin only – not in front of the entire class.

Throughout the semester, students learn about the five pillars that keep a business afloat: marketing, finance, strategy, operations, and human resources. In presenting their business idea, students must consider all five pillars. Kevin sees the project as a great way of summarizing the course, in addition to encouraging students to be "team players" and "adept at group dynamics." As he explains, "*Dragons' Den* measures two things: the acquisition of semester-long knowledge, plus the ability to work in teams."

The guidelines that students receive for the presentation are only a few sentences long. Kevin mentions that the instructions are simple on purpose, because he wants "to allow for a lot of latitude and creativity on the part of the students." Students may use visual supports such as a slideshow, a brochure, posters, or a fact sheet. Over the years, he has seen very keen students who, for example, wore business suits, brought in props, created business cards, and handed out samples.

To prepare their presentation, students meet on their own time outside of class. He sees this "hands off" approach as yet another way of assessing teamwork. He explains that "in the workplace, their boss is not always going to go in to micromanage team dynamics." Depending on the semester, the presentation accounts for 5 to 10% of the students' final course grade. Kevin uses an evaluation rubric to assess each group's score. When asked whether he implements other evaluation mechanisms such as peer-evaluation, he says that he "probably should," but that the project is "not large enough in percentage terms."

The Benefits of Group Work

Kevin explains that his main motivation in implementing group work is for students to develop skills they will need in the workforce, whether in business or in other fields:

> One of the greatest skills sought by employers today is the ability to work in teams, the ability for cooperation. So group work, when students question it, or wonder about it, well, that's the answer: you need it when you work in the workplace. You don't necessarily choose all of your co-workers. You have a lot of deadlines. You have to work in teams. Some people on the teams are all-stars, some are medium, and some are laggards. And you can't always choose, but you must compose with it. So we try to replicate that in our coursework here.

He is very keen on the *Dragons' Den* presentation because it brings "real-life teaching to the classroom." Its purpose is to "get out of the textbooks, get out of lecturing, get out of 'PowerPoints', and have the students mimic what happens in real life." He says that students look forward to *Dragons' Den* because it is different from other course projects they might encounter.

Beyond active learning, his impromptu in-class group activities are designed to make students "talk, communicate and present." In engaging in group work, his students develop communication and presentation skills which will allow them to stand out in the workforce and increase their chances at obtaining promotions. Furthermore, by exchanging with others, students become more open to different points of view and better-informed citizens. Students also benefit from early networking opportunities with classmates with whom they might cross paths in their future careers.

For Kevin himself, a major benefit of the group work is the pride he gets from seeing students produce quality work. His best experience with group work is teaching a summer course where he and his students travel to Europe, and during which students present a *Dragons' Den* pitch to local businesspeople. Kevin and the businesspeople are both usually amazed by the

quality of the presentations that students put together in a short time frame. Kevin gets a feeling of reward from the students' work, which is further validated by a third party when he teaches abroad. Beyond the students' quality work, he finds the group work very gratifying because he sees "theories applied" and "used for constructive purposes." For Kevin, the course abroad stands out because it is "totally immersive" and "all hands-on knowledge." He says: "it's very rewarding for me because it bridges the gap between knowledge in theory and knowledge […] in practice."

The Challenges of Group Work

One of Kevin's worst experiences with group work took place the semester he taught in a newly-designed active learning classroom. The tables fit 6 students, which in his opinion is too big of a size for group discussions, cases and role plays. Kevin explains that the classroom setup is "probably sometimes just as important as the exercise itself, when it gets to group work." His experience was a "disappointment" because while a few students in each group were actively speaking, other ones were more passive or shy and were invariably "left out of the group." For him, an ideal table size in an active learning classroom fits four students.

Kevin has also been disappointed with group work at times where he did not pay enough attention to group composition. He recommends that students should work with classmates they don't know for the following reason: "when it comes to group work, you want people to be challenged, you want them to get out of their comfort zone." For the in-class activities, he forms groups at random. For long-term group projects, he tries to match students with complementary skills. For example, he might pair up a student with strong scientific skills with another who may be more gifted in the arts. To be able to do so, he must be able to identify his students' strengths, which he didn't always do in the past. He now learns about his students' personal background by

having them fill out an information sheet at the beginning of the semester. He further gets to know each one of them as the semester progresses.

The main issue Kevin has encountered with regards to long-term group projects is "laggards," such as students who don't "pull their weight" or don't attend group meetings. Additionally, with their busy schedules, students may not be able to dedicate enough time to the project to produce quality work. However, he has never encountered any "serious blowback" or "crisis situation." He admits that while he does not know "everything that goes on behind the scenes," group members seem to manage issues "within themselves."

Although Kevin tries to stay out of managing the groups as much as possible, at times, he's had to make interventions. For example, if a student does not attend class and never responds to the group's e-mails, he might step in and require that all students reply to a message by a certain deadline if they wish to remain part of the group. While he does not systematically use peer-evaluation forms, he has used them in the past and noticed their positive impact on group dynamics. He therefore sees them as a solution to the problems that can arise during long-term group projects. If all else fails, in what he refers to as the "worst worst worst case scenario," he will intervene and send e-mails, impose deadlines, and ask students who don't meet the deadlines to come speak with him in person.

Advice to Other Teachers

Kevin offers two pieces of advice to instructors whom are considering group work: first, give a lot of thought to the group composition; second, design activities which reproduce real-life situations in your given field of expertise.

No matter the discipline, students will benefit from developing teamwork skills because they are sought-after by employers in several fields. Kevin suggests that "whether it'd be a lab,

whether it'd be an experiment, whether it'd be a psychological diagnosis, just mimic what happens in your industry."

CASE 4: ALEX

Alex believes that learning by heart should be avoided as much as possible. He insists on students learning through practical exercises, because when they apply their knowledge, students are less likely to forget the course content only a few weeks after the final exam. While Alex could simply tell his students that successful tech companies such as Microsoft and Apple were created by people who worked in teams, he prefers for students to experience teamwork firsthand. For him, the "keyword" to successful teamwork is: "communication."

This section introduces Alex and his use of group work to teach computer science. It first describes his educational and teaching background. Then it describes how Alex implements group work in his classroom and provides an example of group work he has used. Next, this section describes the benefits and challenges to group work from Alex's perspective, and it closes with his advice to other teachers regarding group work.

Education and Teaching Background

In 1983, Alex was awarded a Master of Computer Science from a university located in an urban area of Eastern Europe. Alex also holds a Certificate in Pedagogy from the same university. He began his career as a Quebec college teacher in the early 1990's. For over ten years, he taught computer science, accounting and mathematics in technical programs. In the early 2000's, he briefly worked as a college internship coordinator where he advised students on career opportunities.

Alex holds his current position as a computer science teacher at the college since 2003. He teaches courses such as Computer Programming, Computer Graphics and Web Page Design. As part of his teaching, he continues to coach students on the realities of the job market.

The Implementation of Group Work

Alex implements group work in the form of a group project in two of his courses: Computer Graphics, and Web Page Design. His students do not otherwise work in groups. In Computer Graphics, students work in teams to design the graphic composition of the six faces of a cardboard cube using the software CorelDRAW. In Web Page Design, as an end-of-term project which is described in detail in the following section, students collaborate to create functional webpages. Alex prefers not to implement group work until the end of the semester, and gives the following explanation: "[…] in order to work in a team, first you have to know what you're doing. You need to have background. This is what we do at the beginning [of the semester]. We don't start with teamwork in the first class."

Example of a Group Activity

This section presents the end-of-term group project for the course Web Page Design. The goal of the project is for students to create one or more functional webpages. A webpage is a document which can be displayed in a web browser such as Google Chrome; a website is a collection of interconnected webpages. The course introduces students to the principles of webpage and website design using the HTML formatting language. Throughout the semester, students design and maintain a website, and learn how to use images, links and special features that make it easy to navigate. This course is optional and can be taken by students in all programs. Students are not assumed to have any previous experience with computers.

To create their webpages, students use an HTML editor of their choice, which is a program that is used to write the foundation of a website. In addition, students insert hyperlinks into the website they have been maintaining throughout the semester, both to their own and to their partner's section of the project. The project, where students can work either in groups of two or three, involves the following steps:

1. Each student creates their own webpages on one of four possible topics, such as: creating an online tic-tac-toe game or a logic puzzle known as a magic square. Teammates must select different topics, for example one could pick tic-tac-toe, and the other one the magic square. If a team comprises three students, they must choose three different topics.
2. Students then insert a hyperlink to their section of the project into the website they created earlier in the semester.
3. In addition, students insert a hyperlink to their partner's section of the project. If a team comprises three students, each student must add two hyperlinks on their website.
4. As a complement to their new webpages, students submit a report on the HTML editor they have used to complete the project. If all group members used the same editor, they may submit one report as a group. If each student worked with a different editor, they must submit individual reports.

The project as a whole counts for 15% of the students' final grade. From the time Alex gives the instructions in class, students have roughly three weeks to complete the project. Students are responsible for finding a partner of their choosing, and making sure that the group members pick different topics. They dedicate about five class periods in the computer lab to the project, in addition to the time they'll invest out of class. During the class periods, students are

encouraged to consult with their partner to discuss their work even when they are working on their own section of the project. Alex is available in class to assist and answer questions.

The Benefits of Group Work

In implementing group work, Alex says he wants to give his students "the best possible picture of the real world." While he admits that in the short run it might be "easier" for him to do without the group work, he believes that in the long run students will benefit from having a firsthand experience with group work. In their future career, they will likely have to work in teams because, as Alex puts it, "nowadays, almost everything happens in a team." He sees group work at the college level as an opportunity for students to practice working in a team, which is for him the main benefit from an instructor's standpoint.

Alex's best experience with the webpage design project is seeing his students cooperating, working enthusiastically, and supporting each other while applying what they have learned. Although some students may apprehend group work, most seem to enjoy it and are "ready to get into this," in part because the project is "different" from their previous work in the course. They seem to find it encouraging to have a partner, in addition to feeling less alone.

In contrast with the assignments that come earlier in the semester, the webpage design project does not have step-by-step instructions, and so students have more freedom in choosing how they produce their work. Alex explains that this independence "comes with a price," which is that students need to "figure out" the steps they will take. Having a partner is therefore helpful because students can exchange opinions with someone else at different points throughout the project.

The Challenges of Group Work

To foster good group dynamics, Alex encourages his students to communicate effectively. When looking for a partner, he tells his students that the best student in the class may not necessarily make for a good teammate. He says: “It's not the best knowledge that will help you. It's somebody that you can communicate with.” Students need to be able to keep the communication lines open with their partner, keep each other informed of their progress, and not be shy when they have something to say. As a means of promoting communication, Alex encourages students to sit next to their partner when working on the project in the computer lab. He explains that even though students mostly do independent work at the beginning of the project, having partners sit together helps create a connection, or a “current” between them.

Alex says that his worst experience with group work might be “the lack of communication between the teammates, or sometimes the lack of chemistry.” As a means of identifying potential issues, during the second class period dedicated to the project, Alex checks in with all the groups and asks students to tell him which of the four topics they have chosen to work on. He says that in reality, he’s not interested in the topic, but that rather he wants to check whether the students “chose something and know what they are doing.” He has seen instances where students had not found a partner, did not know their partner’s name, or did not know how to contact them outside of class. Checking in with students early on in the project, giving them milestones, and keeping track of their progress at various points, are all means he uses to ensure his students are communicating well. He further encourages them to do so by explicitly explaining what he means by *communicating*: it does not mean to talk about “last night’s game”; rather, it means to discuss a challenge, ask for advice, not be shy of asking questions, etc.

Because he believes that some students won't naturally work well with each other, he chooses not to impose teams. He is aware of group formation strategies other than self-selection, but prefers not to use them: "I don't find it's a good solution to make a team out of a strong student and a weak student. I don't think it's a good idea to impose. If this comes naturally, that's great, but it's not a good idea." Furthermore, a group may not work well in the beginning of the project because teammates don't know what to expect from each other. He encourages students to make concessions, such as letting their partner first select their favourite out of the four topics, in order to promote positive group dynamics.

Some students may be apprehensive of the group work, possibly because of previous negative experiences. On a few occasions, students have asked Alex if they could work alone. He says he tries to "resist the temptation to say: 'yes, you can do it'" and that, rather, he further encourages those students to work in teams. However, when he notices a strong aversion to group work, he will let a student work alone. Alex also notes that amongst students who initially show enthusiasm toward the project, the excitement may fade once they see some "limitations" to working with a partner. However, he's never encountered situations where he had to intervene and change the groups.

While Alex explains that the project is usually done well by a majority of students, it has happened that a student "disappeared" or did a "lousy job." While he admits that his way of dealing with such situations may not be representative of "real life," he does not want to penalize students whose partner's contribution to the project is unsatisfactory. That is the reason why Alex designed the project so that each student creates their own webpages nearly-independently from their partner. While students are encouraged to consult their teammate when working on their own webpages, the only step that requires true alignment between both partners is inserting

the hyperlinks to each other's section of the project, and optionally writing the report on the HTML editor. Alex estimates that about 70%-80% of his students choose to write the report as a group.

On instances where a student dropped the course, stopped coming to class, or otherwise got "lost in space," Alex explains that he asked the partner who get left behind to create a dummy webpage in lieu of what would have been their partner's webpage. While the technical issue got solved, Alex's impression is that this kind of situation can leave students feeling abandoned by their partner who vanished. He believes that if students keep in touch and communicate well, this situation is less likely to happen.

Advice to Other Teachers

Alex emphasizes the importance of following students' progress throughout the project by checking in with them in person during class. This is even more crucial at the beginning of the project, when some students might feel the most overwhelmed. They are "trying something new, without really knowing what [they]'re doing." While an instructor might assume that once the students are told the project's guidelines, they are prepared to work on their own, Alex finds it "risky" to make that assumption: "People may get lost. And they don't even know that they're lost." Setting milestones will help students gain awareness of their own progress, and will give them a chance to get back on track if need be. Students should be encouraged to remain aware of their partner's progress as well. Last, instructors should put themselves in the position of a student and attempt the project themselves before assigning it to their class.

CASE 5: MAYA

When students work in groups in class, Maya finds that "you just have a bit more control" than when they do so outside the classroom.

Maya uses group work in the three disciplines she teaches in: art history; humanities; and arts and letters, a field in which students develop an understanding of the fine arts and literature. She has experience implementing both in-class activities, as well as group projects. The negative experiences she has encountered with group work are for the most part related to plagiarism in a long-term group project she assigns. This is why she believes that the "formative in-class work is really more successful."

This section introduces Maya and her use of group work in teaching all three of her disciplines, with a focus on art history. It first describes her educational and teaching background. Then it describes how Maya implements group work in her classroom and provides an example of group work she has used. Next, this section describes the benefits and challenges to group work from Maya's perspective, and it closes with her advice to other teachers regarding group work.

Education and Teaching Background

Maya holds a Bachelor of Arts degree in Art History and Architecture. In 1999, she received a Master of Architecture degree in Architectural History and Theory from a university in central Canada. Prior to coming to teaching, she was an archivist and researcher at a museum and a research centre.

Maya has held her position at the college since 2004. Her approach to teaching has been influenced by her own experience as a university student. Most of the courses she took towards her degrees were lectures, with a few upper-level undergraduate and graduate seminars. One of the goals of her teaching practice is to involve students more actively in their own learning than these traditional methodologies allow, by introducing a wider variety of learning activities to the art history classroom.

Alongside her teaching, Maya continues to edit scholarly publications in architectural history.

The Implementation of Group Work

Maya implements group work in various forms in each of the three disciplines she teaches in. In both her art history and arts and letters courses, she runs informal, in-class, activities that do not count for marks, such a group review sessions before term tests. In her humanities course, she assigns what she describes as a "major" term-long project that is marked. This section provides an overview of these activities.

In her art history course, Maya runs four in-class group activities during the semester: the first is a video analysis activity which is described in detail in the upcoming section *Example of a Group Activity*; the second is a workshop in which students create a cubist work of art; the remaining two are review sessions which take place before each of the two term tests. Along with the video analysis activity, the workshop where students create a cubist work of art constitute Maya's two best experiences with group work. Although it is atypical for art history students to actually make a work of art, Maya must implement such a component to comply with one of the ministerial objectives attached to the course. The goal of the activity is for students to create a collage in the style of the 20th-century synthetic cubism art movement. Students have previously learned about this particular technique, in which artists incorporate 2D materials such as liquor bottle labels into works of art that are representative of their environment. In the arts studio, students have 75 minutes to create a collage with a partner of their choosing. Students prepare for the workshop by collecting materials they could incorporate into their collage such as cut-outs from magazines. Maya makes sure that more materials are made available in the arts studio in case students forget to bring their own. While the students work on their art, Maya

checks in with the groups to ensure that they are headed in the right direction. At the end of class, students go look at other groups' works of art. They have the opportunity to discuss their own work, explain the strategies they used to reflect the language of synthetic cubism, and ask questions and comment on each other's work. Although Maya does not attach a grade to the work, she gives individual feedback to every group. She says the activity is effective in getting students to "really understand synthetic cubism at the end, which is why [she likes] it so much."

In the same art history course, students participate in group review sessions before their term tests. Students individually prepare for the session by identifying questions that they have on the material. In class, they self-select into groups, discuss their questions for 15 minutes, and Maya "hope[s] that there's a bit of peer instruction going on at that point. Like, if somebody has a question, that other people can answer." Students then write any questions that could not be answered by the group on the classroom board. During the remaining class time, Maya addresses those questions with the entire class. She says that these review sessions are "super effective – if the students prepare."

In her arts and letters course, Maya does not implement group work, with the exception of an in-class peer-review activity which she says "works really well." As part of the course, students must write a research paper. Prior to submitting their paper, in groups of three, each student reads out loud what they consider to be their final draft to their two teammates. Maya says that although many students would rather not have to read their text out loud, "it's an amazing way for them to hear what they wrote and actually self-correct." Using a rubric that Maya created, teammates give each other comments on how to improve their paper. Students can then incorporate the feedback before the official submission. Because she made other modifications to her course at the same time as she implemented the activity, Maya cannot make

a direction association between the activity and the quality of the papers she now receives. But she does observe that they "tend to be better overall." She says she "feel[s] that the students are more confident with the papers."

In Maya's humanities course on architecture, students complete a term-long group project during which they research the architecture of a building and its historical context. The project culminates with an in-class group presentation on the building. The project has three components: the submission of an annotated bibliography; the group presentation; and the completion of both a self- and a peer-assessment. Students work in teams of four on the first two components of the project, for which they all receive the same grade. Although Maya dedicates one and a half class periods to letting the groups work on their project, students are expected to work mostly outside of class. While she lets the groups self-select, she says she "like[s] the idea that the groups should be diverse, with people from different programs" and encourages her students to form diverse groups. She designed the project so that students can contribute in different ways while using their own strengths. She tells her students to "figure out, in your group, what your strengths are. […] Find out who's good at [certain] things and assign them those jobs."

Example of a Group Activity

This section presents an activity which Maya designed for the course Twentieth-Century Art History. In art history courses, students learn how to describe and interpret works of art by examining the materials, techniques and subject matter chosen by the artists, as well as the historical context in which the art is produced. This course specifically explores the major art movements of the twentieth century, such as: cubism, futurism, surrealism, abstract expressionism and pop art. The course can be taken as a core course by students who are in the

Arts, Literature and Communication program, in the Liberal Arts program, or in the Arts and Science program. It can also be taken as a complementary course by students in any other program.

In this 75-minute long classroom activity, students first watch a video where art historians describe a series of works of art. The goal of the activity is for students to then analyze the art historians' discourse in groups. To do their analysis, students must use a four-part method for art historical analysis. This method can be used to analyze the following four aspects of a given work of art: its physical properties; its formal or visual structure; its subject matter or conventional symbols; and the integration of the work in its historical context. When listening to art historians talk, all four aspects may overlap in their discourse; the students' objective is to separate them out according to the four categories.

Because it takes place during the second class of the semester, this activity serves a dual purpose: in addition to introducing students to the four-part method for art historical analysis, it also acts as an ice-breaker activity where students get to know each other. The steps of the activity are the following:

1. In preparation for the activity, students individually read a short introductory document on specialized art vocabulary.
2. Maya begins class with a brief, formal, presentation on art history and the four-part method for art historical analysis.
3. Students are then assigned to a group of three or four. Maya forms the groups non-randomly based on students' programs. Since the course is open to students in many programs, she aims to have a diversity of programs represented in each group.

4. The class then watches a 16-min video during which professional art historians consecutively analyze several sculptures. Each group has been assigned a specific sculpture; their task is to analyze the discourse of the art historians in the segment where their sculpture is described.
5. Within their groups, students have ten minutes to analyze their designated segment. They must sort the remarks of the art historians into the different categories of the four-part method for art historical analysis, or point out anything that does not fit within any of them.
6. Each group then has five minutes to present their conclusions to the entire class. Each group self-designates their spokesperson.

After students present, Maya sometimes asks further questions, and teammates other than the spokesperson will easily jump in and speak up to answer Maya's questions. Maya believes that this can happen because the group size is kept relatively small.

Overall, she finds that the activity is a "really effective introduction." She developed the activity because she noticed that her students particularly struggled with the four-part analysis on term tests. Since implementing the activity, she finds that most students develop a better understanding of the approach.

The Benefits of Group Work

Maya sees many benefits to implementing group work, both for her students and for her. She summarizes the benefits of formative, in-class, activities, by saying that "generally, it improves student learning and student engagement in the class," because of active learning and peer instruction. In these activities, students learn by having an opportunity to think, articulate their opinion, and share their grasp of the material with their teammates. Maya says that when

students provide an explanation to their teammates, they might re-phrase something she previously said, and that it "might be easier for some of [their teammates] to understand." Students may also feel more comfortable speaking in small groups as opposed to asking questions or giving opinions to the entire class.

With regards to the workshop on synthetic cubism specifically, she says that the discussions students have both during and after making their work of art contribute positively to students' learning. She explains that the exercise of speaking using specialized vocabulary allows students to become comfortable with something that was previously difficult for them: "Once they've done this, they don't really have to study synthetic cubism anymore, because they know it." Furthermore, students learn even if they struggle to execute the project:

> I reassure [students] that this is not about making a great work of art, but actually showing that you're working to understand the language. And if you don't understand the language, you actually learn about where you were not able to do it. So even a failed project – and it's not graded at all, so it's really low stakes for them that way – even if it doesn't look like synthetic cubism, I think usually it allows them to learn about it.

Combined with the fact that it stands out from the day-to-day classroom routine, Maya believes that this makes for a workshop that is "memorable" for her students.

From her instructor standpoint, she benefits from having students that are more engaged. She explains that her students are "really happy and they feel like they're doing stuff that interests them, and they're active, [which] means that the course runs better. They develop more autonomy and I find that when students feel more autonomous, they're more respectful as well." Beyond the fact that students become engaged because they are active and not just sitting down, she says that the key to their engagement is to clearly explain the objectives of an activity. She

thinks that it is important for students to know what they should learn from doing an activity, in addition to how it relates to the course: “I think that's why the [activities] that I do generally work because the students are like: ‘Oh, yeah, well, we need to learn this, and we're going to learn this by doing this’.” Overall, her students seem satisfied with their learning experience after doing the activities, and this “shows in the other evaluations that they have in the course that are summative.”

With regards to the long-term project on architecture in her humanities course, Maya says she wants the project to be close to a “real-world situation,” and so she encourages her students to form teams with a representation from a variety of programs. She designed the activity with flexible parameters so that students can contribute using their own strengths and “put together a really excellent final project.” She explains that “it's like putting a team together in any kind of work situation, where it’s not about everyone has to contribute the same thing. But everyone has to contribute, and understand the final project, for it to be good.” She believes that this ability to identify and use groupmates’ strengths is a big “takeaway skill,” especially in the humanities, which is a discipline where students should acquire general skills. She has noticed that more and more, instead of meeting in person when working outside of class, students are collaborating on online platforms, “all the time.” Although she does not think that this approach makes for the same group dynamics as if the students met physically, this is a reality that students will be likely to encounter in their future work environment.

From Maya’s standpoint as an instructor, there are some benefits to having students work in groups as opposed to individually. The humanities project has a large scope and each group has a different topic. By reducing the total number of projects, she can offer more specific

feedback to each group, and be "more supportive in terms of the individual research." She adds that "it's also definitely lighter on grading."

The Challenges of Group Work

Maya has faced several issues with group work, especially with the long-term humanities project where students work mostly outside of class. As part of the project, students work in groups of four on two distinct components: the submission of an annotated bibliography, and a group presentation. Students receive the same grade on those group components. While the self- and peer-evaluations students complete anonymously normally work "very well" in terms of making the grades fairer, she says it can get "very difficult when there's a problem."

First, as much as she would like for students to divide up the work based on the teammates' strengths, she notices that students tend to divide it by content, as opposed to by the skills required. This leads to an uneven workload since some subjects require more research than others. However, students don't realize this until they begin the research process. Furthermore, while she encourages students to team up with classmates from other programs, the trend she observes is for students to "stick to people in their own program." She recalls an instance where a non-science student went against this trend, but for a dubious reason:

> He told me that his strategy […] was to choose a group that he anticipated would be hard-working. So he basically thought that if he was in a group with science students – it was his prejudice that they are hard-working – they would fill in any gaps and do the work that is required to get the grade that they want. So he was hoping to work less and he figured that they would make up for him.

Second, Maya has encountered instances of plagiarism on both the annotated bibliography and the group presentation. A common issue on the annotated bibliography is for

students to “pretend they have read [a reference source] but then make up some kind of thing.” She’s also seen descriptions of a work copied and pasted from the publisher’s website. With regards to the group presentation, she recalls an instance where a group presented a video with no original footage: “They’d basically taken three videos on YouTube, set them together, and recorded a voiceover which itself was actually reading texts from other websites, that they hadn’t written.”

For Maya, catching plagiarism is not the issue. For example, on the annotated bibliography, plagiarism “stands out pretty clearly” to her because she is usually familiar with the sources students refer to, in addition to the students’ writing style. However, dealing with plagiarism is “really difficult,” and she says that “managing individual contributions” within groups has been her worst experience with group work. In an instance of plagiarism on the annotated bibliography, she was once able to identify the culprit in the group, seeing as students had divided up the work as opposed to contributing as a group. While the student who plagiarized received a penalty, she did not apply the penalty to the rest of group. However, for the case of the video which contained no original footage, the entire group was faced with a grade of zero. Maya explains how she felt in dealing with that situation: “Just unraveling that – and feeling the need to unravel it – I actually didn’t want to unravel it. […] Anyway, I hated dealing with that.” When she met with the group to discuss their case, some students argued they were not responsible for the plagiarism. She answered that in a group, everyone is supposed to be talking to each other.

Third, students’ availability outside of class time is problematic, especially with large groups. This incites students to work online as opposed to in person. While Maya doesn’t think it’s inherently a bad thing, the way students use the online tools can have a negative impact on a

group's dynamics. Online, students tend to work asynchronously on platforms such as Google Docs. While they may write comments on each's other work, the "analysis" and the "back and forth" are happening with less immediacy than they would if in person. Maya noticed that the "quality of the projects can suffer that way."

Furthermore, she mentions that students' lack of time is also problematic for the informal, in-class, activities which require students to prepare before class. With their busy schedules, students may not put in enough preparation time to be able to contribute effectively to the in-class group work.

Though Maya has not yet found solutions to these issues, she is considering making several changes to the guidelines for her long-term humanities project. For example, she could dedicate more class time to letting students work on the project, in order to offer more support. She thinks that breaking up the project into smaller chunks and implementing preliminary submissions would be beneficial. Last, while she currently strongly encourages her students to consult with her so she can suggest good resources for their research, not all groups take advantage of this consultation. She is considering making this meeting mandatory.

Advice to Other Teachers

Maya gives the following advice to instructors who are considering group work: "I think it's good for the students. I would encourage people to do it." She prefers the in-class group work over long-term projects. By being able to monitor students' work in class, she can better support them and actually witness whether they are learning. To make sure students engage in an activity, she recommends that the instructor should clearly explain the activity's objectives and how it fits in the design of the course.

CASE 6: JADE, LEILA, HANNAH, AND CLAIRE

Leila: *I've said it before, but I do want to say it again: I don't think it's all bad. There are benefits. It's just that I don't think we often see them in Research Methods. We might see them in other courses, in other contexts, more than we do in Research Methods.*

Claire: […] *I agree. And I think it's because the problems are sometimes so upsetting that we think about them more than the successes...*

The course Introduction to Research Methods in the Social Sciences, commonly referred to as "Research Methods" or "RM" for short, is mandatory for first year students in the Social Science program. In addition to Leila and Claire, Jade and Hannah also teach the course. According to Jade, the course has the reputation of being the "most hated class […] in social sciences" amongst students, and this most likely because of the many hurdles they can encounter in working on a mandatory term-long, group-based, research project, which will be the focus of this section.

This section introduces Jade, Leila, Hannah and Claire and their use of group work. It first describes their educational and teaching backgrounds. Then it describes how the four implement group work in their classrooms, and the term-long research project is presented as a common example. Next, this section describes the benefits and challenges to group work from Jade, Leila, Hannah and Claire's perspectives, and it closes with their advice to other teachers regarding group work.

Education and Teaching Background

In the winter semester of 2019, four teachers gave the multi-section course Introduction to Research Methods in the Social Sciences: Jade, Leila, Hannah and Claire.

Jade holds a Bachelor of Commerce, as well as a Master's degree in Business Administration and Management, which she was awarded in 2012. She received both degrees from universities located in a large urban area of central Canada. She is currently completing a graduate certificate in College Teaching. Jade has experience teaching business and social science courses at the college and university levels. She has been working at the college as an administration teacher since 2016, and concurrently teaches at another college. She has previous experience teaching the Research Methods course at other institutions. In addition to teaching Research Methods, she teaches a course on quantitative methods in the social sciences, as well as business and marketing courses. Jade is interested in exploring mindfulness-based stress reduction in education, as a way to help her students cope with their stress.

Leila holds both a Bachelor's and a Master's degree in Psychology from a university located in a large urban area of central Canada. She is currently a Ph.D. candidate in Psychology at the same university. Leila likes interacting with her students and thinks that a lot of the best learning happens when they are actively interacting with each other. She also finds that it makes class "more fun for everyone!" She has experience teaching psychology at the university level, and currently teaches a continuing education communications course. Leila joined the college in 2017 as a psychology teacher. In addition to teaching Research Methods, she teaches a course on quantitative methods in the social sciences, as well as psychology courses, including a second-year course on business psychology.

In 2005, Hannah was awarded a Bachelor of Science in Psychology from a university in Eastern Canada. At the graduate level, she pursued her studies in Psychology at a large university in central Canada, receiving her Ph.D. in 2012. Hannah has taught psychology courses at the university level, both as a graduate student and as an assistant professor. In 2018, she

started working as a psychology teacher at the college, where she now teaches exclusively. She has since completed several graduate courses in college teaching. She finds that when teaching at the college level, teachers have an enormous opportunity to interact with students at a critical point in their intellectual development. While she finds it important to teach course content, she sees facilitating a supportive environment that empowers students to think critically and be curious, as the most important role of a college teacher. The winter of 2019 was Hannah's first semester teaching the Research Methods course.

Claire holds graduate degrees from the Faculty of Arts of a large university in central Canada. She started teaching at the college in 2011. In addition to teaching Research Methods, she teaches an advanced social science course for second-year students.

The Implementation of Group Work

Although this case focuses on the long-term group project that Jade, Leila, Hannah and Claire must implement in the Research Methods course, this section will first address other ways in which they use group work, both in Research Methods and in other courses. The Research Methods project will then be described in the section *Example of a Group Activity.*

All four instructors choose to implement in-class, informal, group activities. In the Research Methods course, Jade recently introduced bi-weekly informal group assessments which she calls "labs." During these labs, her students engage in group activities devoted to a specific topic for a minimum of 45 minutes. In addition to these labs, she implements informal group work in the form of "scenarios" and "small cases," which require students to analyze various situations.

For Hannah and Leila, their best experience with group work is when students stand up and work in groups at the whiteboards that are mounted on the classroom walls. Both agree that

the simple fact that students are physically standing up and moving is beneficial in terms of student engagement. For Hannah, a second advantage to having students working on the whiteboards is that they become more accountable as a result of seeing everyone else's work written on the boards. Leila likes to design activities where students need to truly collaborate and rely on each other, such as solving "puzzles" and creating concept maps. She describes these activities as "times when I see [students] come to life a little bit." She further adds that "it seems like they've created something. And then they take pictures of their [white]boards and stuff. So it makes me feel like it's successful." In her business psychology course, her students break out into small groups nearly every class: "Sometimes I put them into groups. Sometimes I let them choose their own groups. And they have to work on problems, little mini-cases, categorizations, role plays, etc." At the end of these activities, students must turn in a group worksheet, which Leila returns once they are graded. While she grades the worksheets leniently, Leila takes the opportunity to write thorough feedback on every copy. She explains that she could not give such frequent feedback to her students if they turned in individual worksheets: "Just logistically, it'd be impossible."

Hannah finds that, in general, group work is most effective in "quiet" classes, meaning those in which not many students will speak up willingly during class discussions. She finds that the traditional approach of asking questions to the class as a whole in order to facilitate a class discussion advantages students who are more outspoken. This is when she will use the think-pair-share strategy, where students are given a few minutes to discuss a question with their nearby classmates. She uses this approach in a contained manner to try to empower all students to speak in class. She finds that "group work really works well then, because [students] actually

will talk a little bit more to their peers." When using this approach, she finds that students "feel a little bit more comfortable engaging, and talking to each other."

For Claire, the most successful type of group work involves "some sort of scaffolding," in which students "research something, some course content, but they have some liberty with how they approach it." As an example, she describes an activity she implements in her advanced social science course. In the last third of the semester, students take over the instruction of a course section on international issues. In groups of two or three, students select a contemporary international development issue from the United Nation's list of 17 sustainable development goals (https://www.un.org/sustainabledevelopment/sustainable-development-goals/). They must then give a 15 to 25 minutes presentation on the issue, as well as share a written summary of their research with their classmates. Claire says that she has had "huge success with [the activity]. [Students] get really invested in that particular issue." She also mentions that for her, it is essential to devote enough class time for students to complete most of the group tasks: "Requiring them to get together outside of class seems a little bit unreasonable. It doesn't work very well." On the other hand, she notes that Google Docs and Google Slides have become "huge, over the years," and that this was "revolutionary" for group work.

Example of a Group Activity

In the course Introduction to Research Methods in the Social Sciences, students learn about the various research methodologies used by social scientists, and develop critical thinking about such research. In parallel with the lecture component of the course, students undertake a semester-long group-based research project where they must:

1. formulate a problem statement, research questions, and hypotheses;

2. write a research proposal, which includes a literature review and a proposed methodology;
3. design a methodological tool, namely a survey;
4. collect data by individually surveying between 15 and 25 students at the college;
5. pool the group's survey data and analyze them using the statistical software SPSS;
6. produce a final research report;
7. complete a peer-evaluation.

Students are also required to give a group oral presentation which, depending on the instructor, can take place at various points along the project.

Although the instructors have some flexibility in terms of how they choose to implement the project in their own sections of the course, they follow a common structure and are obligated to incorporate group work in some form to adhere to the program guidelines. Students work in groups of four on average. They are given time in class to complete most of the project; they must meet outside of class to complete any outstanding work. Until recently, students worked with their group for the entire duration of the project. In addition to the written work, they were required to do two oral presentations: one upon the submission of their research proposal, and a second upon the submission of their final research report. In total, 55% of each student's final grade was attached to group work.

As Claire explains, having such a large portion of a student's grades associated to group work "was difficult over the years." Issues such as social loafing and bullying arose. In a collaborative effort to minimize these problems, in the winter semester of 2019, the teachers decided to modify the structure of the project. The solution, for them, was to cut back on the group work. They reduced the number of steps that required collaboration, and eliminated one of

the two group oral presentations. Although group mates must still design a common survey and pool their survey data, they now complete some steps of the project individually. This section will highlight how each instructor adapted the activity.

When Jade previously taught the Research Methods course at other institutions, her students worked on the project individually. When she describes her transition to the group approach, she says: "When I came [to the college], I had to work with this group framework. And my biggest issue with the project was that I didn't feel that the grades represented the individual students' knowledge or contribution […], because it was a group grade." Jade explains that her motivation for wanting to cut back on group work was mainly to make the grades more equitable. It now represents 12% of each student's final grade as compared to 55%. To carry out the project, she proceeded by having her students self-select into groups based on their research interests, which they identified during a brainstorming activity. While students in a same group all shared the same research problem and hypotheses, they submitted their proposal individually. The methodology component, however, was left out of the proposals, and was submitted as a separate group assignment. Furthermore, students had to present their methodology during a group oral presentation. After collecting and pooling their survey data, students then independently analyzed the data, and all wrote their own final report.

While grading individual proposals and final reports meant that Jade's workload increased, she is happy with the changes she made:

> I felt my grade distribution was much more representative of the actual classroom dynamics. You could tell that certain students that would normally rely on others and would normally be the ones to, you know, socially loaf, they were actually having to do work now. Which meant that they actually had to figure out how to get it done.

Although she says that she was "going to go nuts" because of the large amount of grading, she says she will keep working with this new framework, as she feels that the grade distribution "warranted that kind of project."

Leila's approach to cutting back on group work was to disband the groups after they had collectively entered their survey data. She explains that she chose to do so primarily "because people were complaining about their social loafing teammates. And to have to continue to police that until the end of the term was really unpleasant." She reduced the group work component to be worth 20% of each student's final grade. Leila formed the groups herself, based on a list of research interests and preferred teammates that students submitted. Up until and including the step of the data entry into SPSS, her students worked in groups, and so they wrote the research proposal together. They also gave a group oral presentation where they sought feedback from the class on the construct of their survey. Students completed the remaining steps of the project individually, meaning that they analyzed the data and wrote their final report on their own. Leila says that disbanding contributed to alleviating the social loafing, in part, as did the peer-evaluations her students filled in.

The winter of 2019 was Hannah's first time teaching the Research Methods course. In doing her course planning, she considered other teachers' syllabi, and chose to essentially adopt the same project structure as Leila's. The group work component amounted for 15% of each student's final grade. Just like Leila's students, hers also worked as groups until the data entry, and completed the remainder of the project individually. She debated whether she would let the groups self-select or not: "I decided to let them self-select because I was afraid that if there were any kind of internal problems, that it would be seen as though I put them in that group, [and that] I created that situation." While the groups were self-selected, she first had her students

participate in a "speed-dating" activity so they could find out which classmates had matching research interests. In considering what she would change the next time she teaches the course, she says she might do without the speed-dating activity in winter semesters, because, even after engaging in the activity, students had a tendency to simply partner up with their friends. In the fall semesters, however, the incoming students may not know each other as well, and so the activity may deem more useful. She is also thinking of going "a little bit less on the group work." She is considering having students submit individual research proposals. Alternatively, if she maintains the group proposals, students could each ask their own research questions, which they would later be responsible for analyzing in an individual final report.

Over the years, Claire has observed many instances of bullying related to students working in groups. Of all four instructors, she is the one who most cut back on the group work. She says: "I just got rid of it." With the exception of a final group presentation worth 5% of the student's course grade, there were no marks directly attached to group work in the project. Claire formed the groups herself based on students' research interests. Her students had to write individual research proposals, with their own research questions. However, they needed to work in groups to construct a common survey, and enter the pooled survey data. Although there were no marks attached to this step specifically, Claire explains that "without the group collaboration, you can't actually do the report. Because you need to have the survey." It is therefore the structure of the assignment that forced students to collaborate. Students then individually proceeded with the data analysis and writing of the final report. During the final group presentation, Claire explains that "the collaboration was still evident […], even though they were presenting their own analysis." She saw advantages to having students work individually: "I had no issues with students, and it seemed to go very well. […] The other thing I noticed was that not

only were their report grades were higher, but their exam grades were higher [too].” On the downside, her grading time quadrupled because of the individual submissions. She says the grading task was “onerous” and that “it'd be hard to do that all the time.”

Table 2 summarizes the various group and individual components of the project for each instructor, and compares them with the common structure that used to be in place before the winter semester of 2019. Whether their main motivating factor was to make grades more representative of each student’s work, or to reduce interpersonal issues, all instructors found that minimizing the group components had a positive impact.

Table 2

Group (G) and individual (I) components of each participant’s project structure

Structure	Research Proposal	Survey Design, Data Collection and Data Entry	Data Analysis	Final Report
Before Winter 2019	G	G	G	G
Jade’s	I, expect for Methodology section (G)	G	I	I
Leila’s	G	G	I	I
Hannah’s	G	G	I	I
Claire’s	I	G	I	I

The Benefits of Group Work

With regards to the benefits of having students working in groups on the Research Methods project, all four instructors agree that the “number one benefit for instructors,” as Leila says, is that it reduces the grading workload. Claire sees no other benefit to it: “honestly, the benefit for RM, to me, it's really only the grading.”

When questioned on the benefits of the group project for students, Jade asked which perspective she should adopt in answering the question: “in a perfect world, or in our actual

world?" She says that "in a perfect world," everyone would contribute to the work, and that group work should facilitate the completion of a large-scale project. Leila, who agrees, adds that "in an ideal world, you can do a larger project, if you have a group, that you could never do on your own." While she thinks that students should take pride in contributing to this "cool, amazing, huge thing that we've created," she debates whether students actually reap that benefit: "I feel like they don't necessarily identify with the whole piece of work when all they do is divvy it up."

Jade observed that when students work in groups, their ideas tend to be "better thought out" and "more interesting" than when they work alone. Her best experience with group work lies in the "quality of the ideas that [students can] come up with." She and Leila agree that the diversity of voices and perspectives within a group contributes to the generation of new ideas. Jade notes that students can be more open to ideas when they come from their peers instead of their teacher. Leila and Hannah both agree that the peer-to-peer dynamics has a positive impact on students' learning. Hannah explains that what she likes most about group work is that "[students] generate the knowledge themselves, as opposed to being sort of talked at." She further adds that group work "forces students to be active" and "forces them to be engaged."

With regards to informal, in-class, group activities, all instructors find that they have many benefits. Leila thinks that this "sort of active learning environment is where group work really shines and demonstrates its benefits at large for the students." Such activities allow students to "construct their knowledge," "learn from each other," and "master the material." Because the activities are low-stake, she says students are not stressed about their grade, which allows them to "relax into the activities" and increases their engagement. Hannah observed that in-class group activities make her classes "a little bit more dynamic - it's not just me making one

more PowerPoint slide." Leila agrees that these activities change the classroom dynamics. For Leila, "class becomes more fun for everybody when there's group work involved." She finds that she finishes her classes "feeling a little bit energized, as opposed to feeling drained, if you're just the only one 'delivering content'." For Claire, the student presentation that she implemented in her advanced social science course had a similar impact. She explains that it "creates a way more interesting classroom atmosphere" because there is "more buy-in to the material." As a result, there is "a more dynamic exchange of ideas in the class. Because it's coming from them instead of from me and my 'PowerPoint'."

The Challenges of Group Work

For Jade, Leila and Hannah, their worst experiences with group work have to do with instances of social loafing they've observed in the Research Methods long-term project. Jade describes social loafing as "relying on other students to do a big chunk of the work, as opposed to really [making] a collaborative effort." Leila recalls an instance where, from an initial group of four students, one dropped the course and two stopped coming to class. The remaining student took over the project on their own, which is a situation that Leila found problematic: "that, to me, is…that sucks." For Hannah, the long-term nature of the project is an issue, because teammates fall into "established roles," where they adopt patterns such as relying on a single student to do the work. She finds that group activities work best when they are contained within one or two classes, so that groups can be frequently changed.

Another recurring challenge is students' tendency to "divvy up the work," as Leila says, meaning that students individually work on a small part of the project without oversight on its entirety. Jade, laughingly, describes the students' strategy as follows: "You do one part, you do one part, I do another part, and then we'll just [copy and paste] them all together. We won't even

change the font, to make it simpler. It will all be different font sizes and colors, and we're going to hope for the best." Leila understands that students may choose to do so because they are "crazy busy" and want to work efficiently. She herself says: "Put me in a group of other people, and I will divvy up the work! That's what I'll do naturally as well, because we're all busy." She adds, however, that this can create a lack of both accountability toward the group and ownership over the project.

Students' tendency to divide the work leads to other issues, both in written work and oral presentations, namely: the difficulty for teachers to assess individual students' learning; and the group grades not necessarily being representative of each student's contribution. All four instructors agree that cutting back on group submissions, and instead having students turn in individual pieces, makes for grades that are more representative of students' abilities and effort. For group submissions where all teammates receive the same grade, the instructors use peer-evaluations to "adjust" the grades and make them fairer. While Leila thinks that peer-evaluations are a "part of the solution," she questions students' honesty level in filling them in. So does Jade: "Even with peer-evaluations […], [students] weren't always very honest. And there were issues with bullying, you know, two students against one and things like that."

For Claire, instances of bullying and interpersonal conflicts between students represent some of her worst experiences with group work. Over the years, she has had "plenty of examples of those." She mentions situations such as: a student sending racist text messages to another; a dominant student who overwrote everyone else's contribution to the work; a student undergoing a mental health crisis and who was getting criticized by teammates who were unaware of the situation; and segregated students that "no one wants to work with," such as a student on the autism spectrum. She says those situations are difficult to deal with. For example, while she

reported the student who made racist remarks to the academic administration, no solution was offered, and so she intervened herself by letting the student work individually. For her, getting rid of the group work in Research Methods not only reduced the "complaining," but it most importantly helped address these difficult problems.

With regards to students "complaining" about problematic teammates who could be, for example, social loafers, Leila mentions that she records student attendance. She can then intervene early when she sees an issue arise, in order to "nip it in the bud." Hannah explains that because the project builds over a long period of time, there is a lot of room for students to "fall" if they become disengaged early on. Leila suggests doing low-stake group assessments in class as a way to promote student attendance and increase their accountability towards the group.

Leila believes that a lot of the issues that arise from group work where all students receive the same grade are "about students wanting to get the best grade." As an example of a problematic situation, Leila, Hannah, and Claire have witnessed instances where non-native English speakers were "not allowed" to contribute to writing the report, and lost a chance to practice their English-writing skills. Hannah also speaks of the impact this can have on students' self-esteem: "If I'm a student and I said: 'you can't write anything because you can't speak English', that's devastating." Jade explains that when students are awarded a group grade, "that gives them a lot of anxiety, when they feel like things aren't going well." In order to reduce students' anxiety around group grades, Hannah suggests dividing up the group tasks into smaller, lower-stake, assessments completed in class.

With regards to the group formation process, Leila, Hannah and Claire observed a tendency for students to want to work with their friends. Hannah, who this time let her groups self-select so that students would have ownership of the group, debates "whether they were the

best-chosen groups." She adds: "That's arguable, but they made them." Leila, who formed groups based on a list of students' preferred topics and teammates, observed an "uncomfortable" situation once her groups were disbanded for the second half of the project:

> There would be groups where a couple people were friendly with one another, and they didn't like one of the other people. And then as soon as the groups were officially disbanded, that one person was kind of abandoned and these two were still working together and chummy, chummy. And the other person was sort of left off to the side.

While Jade does not explicitly discuss friends working together, she does mention that students can lose focus of the task at hand and talk about "their plans for the evening." She finds that students are "very easily distracted by social media and their phones."

In reflecting on whether the issues they face with group work are specific to their discipline, Claire suggests that instead, they are more prominent in first year than in second year courses. She believes that this is especially true when students take the Research Methods course in their first term: "a lot of them – but not all of them – they're shell-shocked. Some of them come [to the college] and they don't know anybody. And they're thrust into a group, and they have to do a project that's worth a lot." Jade and Leila agree that it may be premature for first-semester college students to undertake a project of such nature.

Advice to Other Teachers

To instructors who are considering implementing group work in their courses, Jade mentions that it is key to have well-structured assignments, evaluation criteria and evaluation grids. If the activities are not well-designed, students "fall into these patterns, and then you end up with some students that check out, and some students that are doing all the work." In order to

avoid students falling into these established roles, Hannah recommends implementing short-term group activities, which can last from one to two classes, and to mix up the groups.

Leila would avoid implementing large-scale, written group projects, such as the one in Research Methods. She finds that in-class, active learning, groups activities are most beneficial for students. Having no grade-point value attached to these activities facilitates student engagement.

Until Claire introduced her group activity in her advanced social science course, she admits that: “I would have said to anyone to avoid group work at all costs.” She says that in the Research Methods course, “lowering the stakes, for me, has worked.” There are fundamental differences between the Research Methods course and her advanced social science course: the former is a mandatory, first-year course; the latter is an optional second-year course. While these factors may play a role in the fact that she’s never had problems in her advanced social science course, she believes that having an activity that is well-structured, but which at the same time gives students the flexibility to take the project in a direction that that they want, is helpful. She says: “That’s what has worked for me so far.”

CHAPTER FIVE: STUDY RESULTS

This chapter presents the results of the analysis across the six cases presented in the previous chapter.

Because the interviews were semi-structured, all participants were asked questions on the same topic areas: their experience with group work, including the description of a group activity; the benefits of group work; the challenges of group work; and their overall reflections on group work. I used a thematic analysis approach to identify recurring patterns (themes) across the interview sets. A range of initial codes was created for deductive coding based on the findings of the scientific literature and the participants' responses to key questions. Inductive coding was then used to identify additional codes in the data. The codes were then sorted into potential patterns, which I further refined on the basis of their recurrence across the interviews.

The results of the data collected across the cases are presented in answer to each of the research questions. Three types of patterns are identified, which are defined as follows: dominant patterns appear across all six of the cases; strong patterns appear in four or five cases; and interesting patterns appear in two or three.

RQ1. WHAT PRACTICES DO COLLEGE TEACHERS USE IN IMPLEMENTING GROUP WORK?

Ahern (2007) defines group work as two or more students working together to complete an assigned task, such as an in-class activity or a graded project (Ahern, 2007). I adopted Ahern's (2007) terminology to name two strong patterns identified in the types of group work the participants implement, namely: in-class activities; and graded projects. The group size observed across the cases ranged from two to six students. The two instructors who reported forming groups of six did not do so because it was their intended pedagogical design, but rather

because it was a constraint due to the table size in an active learning classroom. Only two other types of group work found in the data do not fall under either one of these categories: students who spontaneously consult a classmate in class when their teacher allows it (Cases 1 and 6), and laboratory experiments (Case 1). In laboratory experiments, students work in pairs for a duration of one class period, at the end of which they submit a report. Because the reports are graded formally by the instructor, laboratory activities cannot be categorized as formative, in-class, activities. But laboratories activities are also too short in duration to qualify as a group project.

Table 3 lists the type(s) of group work implemented by each participant. This section first presents a description of both in-class activities and graded projects. Next, it describes the three patterns identified in the group-formation methods adopted by teachers, namely: random assignment; criterion-based selection; and self-selection.

Table 3

Type of group work implemented by each participant

Participant	**In-class activities?**	**Graded project?**
William	Yes	No
Marie-Ève	Yes	No
Kevin	Yes	Yes
Alex	No	Yes
Maya	Yes	Yes
Jade	Yes	Yes
Leila	Yes	Yes
Hannah	Yes	Yes
Claire	Yes	Yes

In-Class Activities

The pedagogical approach which best describes the in-class activities teachers implement is *informal cooperative learning*, also known as *active learning*, as per the terminology of Smith et al. (2005). According to the authors, students in active learning groups work together to

achieve a common learning goal in temporary, ad hoc, groups that can last from a few minutes to one class period. The "think-pair-share" method mentioned by Hannah is an example of an active learning strategy, where students are asked a question that they must first consider on their own before discussing it with their neighbour, and settling on a final answer (Lyman, 1981). Peer instruction, mentioned by William, is another related technique which was developed in undergraduate physics courses, and which makes use of polling systems (Crouch & Mazur, 2001). Interesting patterns are those which appear in two or three cases. An interesting pattern (three of six cases) stood out in William, Marie-Ève and Kevin's activities, namely the addition of a competition element, including an actual prize (candy) in William and Kevin's cases, as a means of engaging students. This finding is in line with previous studies which determined that the use of a token economy where students receive rewards for correctly answering questions resulted in an increased classroom participation (Boniecki & Moore, 2003; Junn, 1995; Koch & Breyer, 1974; Nelson, 2010). This procedure is based on operant conditioning, meaning that the students' participation is stimulated because students have associated this behaviour with some positive reinforcer (Boniecki and Moore, 2003). While several studies use bonus points to reward students for their participation (Boniecki & Moore, 2003; Junn, 1995; Nelson, 2010), Boniecki and Moore (2003) propose that the rewards can come in other forms, such as dropping a quiz, being excused from an evaluation, or other easily delivered rewards such as, namely, candy.

Teachers described a range of active learning activities, such as solving problems (Case 1), engaging in an ice-breaker (Case 5), reviewing before a formal evaluation (Cases 1, 5 and 6), and analyzing cases and scenarios (Case 3 and 6). While Smith et. al. (2005) refer to active learning as an "informal" form of cooperative learning, the participants' activities typically

follow a well-defined structure with set learning objectives. For example, the activities described by William, Marie-Ève and Maya, consist of distinct blocks that involve: (1) the teacher presenting the activity's learning objectives and giving instructions; (2) students working in groups; students giving other groups feedback or presenting informally to the class; (3) the teacher giving feedback; and (4) the teacher re-stating the learning objectives that were met by the activity. The instructor may follow up with students after class, either by posting resources online in Marie-Ève's case, or by giving students additional written comments, such as in Williams's and Leila's cases.

The "informal" aspect to active learning activities may lie in that they have in common that they are low stakes: either they do not count for marks, or students receive a participation grade on a pass or fail basis. The reason for this is that these activities are formative and are often designed for students to learn from their own mistakes. As Marie-Ève explains, low-stake formative activities provide a "safe space" for students to make mistakes, learn from them, and be better prepared for the summative evaluations. This is echoed by Hannah, who says that assigning no point-value to the activities removes a stress, and allows students to "relax into the activities, and […] learn from each other." This description is in line with Smith et al.'s (2005) description that active learning activities offer students a personalized learning experience where their misconceptions and gaps in understanding can be identified and corrected. As an additional way of identifying students' misconceptions, six teachers across four cases have reported that they ask students to write on the whiteboards installed on the classroom's walls. Strong patterns are those which appear in four or five cases. The use of whiteboards allows instructors to assess the entire class's progress in a glance, and is a strong pattern (four of six cases) in the data.

Graded Projects

A common characteristic of graded group projects is that students work on a task or assignment for several weeks. In these projects, students submit one or more deliverables which are formally graded by the instructor. Table 4 lists the participants who assign a graded project, as well as their respective project deliverables. These include formal oral presentations, written reports, as well as a website in Alex's Web Page Design course. In Alex's course, as well as in the Research Methods course, students are given time in class to complete a significant portion of their project. Kevin and Maya's students, on the other hand, exclusively meet outside of class.

Table 4

Characteristics of graded projects

Participant	**Group deliverable for the project?**	**Does the overall grade for the project include an individual grade component?**	**Do students fill out a peer-evaluation?**
Kevin	Presentation	No	No (but has used it in the past)
Alex	Website, written report (with option of writing individually)	Yes	No
Maya	Presentation, written report	No	Yes
Jade	Presentation	Yes	Yes
Leila	Presentation, written report	Yes	Yes
Hannah	Presentation, written report	Yes	Yes
Claire	Presentation	Yes	Yes

Table 4 also indicates how each student's overall project grade is evaluated. In Kevin's and Maya's courses, all team members receive the same overall grade, which is an approach that Maya and the Research Methods instructors commonly refer to as a "group grade." In the Research Methods course, as a result of the decision to cut back on group work to minimize the

problems associated with it, the instructors built in an individual component. The students' overall grade is therefore composed of both a group grade, and an individual grade. In Alex's case, the group component is kept to a minimum – students are required to insert a link to their partner's website, but they can otherwise work nearly independently. Alex explains that he does so intentionally so that students don't get penalized "if their partner does a lousy job," and that students "are not really responsible for the other [partner]."

Last, Table 4 presents an interesting pattern (three of six cases) in the data, that of peer-evaluations, which are anonymous evaluations by group members of a student's individual contribution to the project. These evaluations are filled out once the project is over in Maya's case, or once the group component is over in the case of the Research Methods project. The results are taken into consideration when calculating an individual's project grade. Although Kevin has used peer-evaluations in the past, and acknowledges that he probably should implement them for the *Dragon's Den* project, he chooses not to. His justifies his decision by explaining that the project does not represent a large enough component of the students' final grade in the course to warrant the use of a peer-evaluation mechanism.

Although the literature describes three distinct pedagogical approaches to group work (cooperative, collaborative and problem-based learning), Davidson and Major (2014) report that these approaches are often blended in practice. Each of these approaches has been described in the *Literature Review*, but some of their key aspects are reviewed here in order to contrast them with the participants' projects. Cooperative learning activities as those which are intentionally structured so that students must work in cooperation to achieve a common goal, and not just on the same project (Johnson et. al, 1991). The five key features of cooperative learning are: positive interdependence (cooperation); individual accountability; face-to-face promotive

interaction; an appropriate use of social skills; and group processing. The main distinction between cooperative and collaborative learning is that cooperative learning activities emphasize interdependence and individual accountability, whereas collaborative learning activities do not (Smith et al., 2005). Collaborative learning is less structured than cooperative learning, and students can divide up the main task and assemble the individual components to achieve the common goal. Collaborative learning activities are designed so that students are actively engaged in working together towards explicit learning objectives. These objectives can be achieved by designing loosely structured assignments with open-ended goals. In problem-based learning, students are assigned authentic, ill-structured problems. Although none of participants' projects display the characteristics of problem-based learning, some do exhibit features of cooperative or collaborative learning.

The only instructor who structured their project in a way that students had to work interdependently was Claire. In her Research Methods course, even though students submit an individual report, they must collaborate together in drafting the survey, collecting data and analyzing them, and presenting their results in a formal group presentation. Because an individual cannot succeed unless others succeed, and vice-versa, this project meets the criterion of positive interdependence required in cooperative learning activities. It also meets the criterion of individual accountability, because each group member is assessed individually on the report they write, and is therefore responsible for mastering all of the material. Because of its structure, Claire's project is the one that comes closest to qualifying as a cooperative learning activity. However, it does not meet the criterion of group processing, and the data show no evidence of face-to-face promotive interaction nor of an appropriate use of social skills.

Four instructors reported building in flexibility in their project guidelines, making it a strong pattern (four of six cases) in the data. Because they are loosely-structured assignments, these would be a closer match to collaborative learning activities rather than cooperative. The instructors' motivations for adopting such a flexible structure differ. Kevin reported that his project's instructions are simple because he wants to "allow for a lot of latitude and creativity on the part of the students." Alex expects his students to develop independence by tackling a project where, for the first time, they must "put everything together without having a clear indication." Maya establishes the parameters of her Humanities project so that her students can work according to their strengths and put together an "excellent final project." Last, Claire describes the design of her advanced social science course project as "sort of well-defined, with at the same time some flexibility." By doing so, she wants students to be able to "take [the project] in a direction they want." It is interesting to note that of the four projects that have a loose structure, two are capstone projects where, as Alex says, students "put everything that they learned in practice"; the other two involve formal presentations that take place late into the semester and where students take over the instruction of the course.

Maya and the Research Methods instructors report that group members often "divvy up" the work, which leads to issues such as social loafing, a lack of accountability, and group grades that are not representative of each student's contribution. Johnson, et al. (1991) distinguish cooperative learning groups from a less-structured group type, which they refer to as traditional learning groups. Traditional learning groups are described as groups where students are required to work together, but where very little joint work is actually required (Johnson & Johnson, 1996). The result is a non-cooperative, individualistic, learning experience, where students may loaf and not try their best, where one student may do all the work, and where group members lack

teamwork skills (Johnson & Johnson, 1996). Although traditional learning groups are not a pedagogical approach per say, several of their features coincide with those reported by the participants.

In summary, the data suggest that the participants implement group work in two distinct ways: in-class, active learning, activities (a strong pattern), as well as graded projects (another strong pattern), that can exhibit features of cooperative or collaborative learning. The in-class activities take a variety of forms and are designed so that students can learn from making mistakes in a low-stake environment. In graded projects, students are formally assessed by the instructor on the project's deliverables such as a written report or a presentation. Students may also be assessed by their groupmates through peer-evaluations.

Group-Formation Methods

This section discusses the three patterns which were identified in the group-formation methods adopted by teachers, namely: random assignment; criterion-based selection; and self-selection.

Random Assignment

Gunderson and Moore (2008) describe random assignment as "an instructor putting students into groups by some method of chance," such as counting off with like-numbers comprising a group. Two participants mentioned using group formation by random assignment, exclusively in the context of in-class activities, making it an interesting pattern (two of six cases). Whereas William changes his group every week, Kevin does so for every single activity by distributing index cards labeled from one to six to his students. Group formation by random assignment was mentioned by a third participant, Hannah. Although she has not yet used it, she

believes that it has the potential to prevent students from falling into "established roles" like she observed in long-term projects.

Criterion-Based Selection

According to Gunderson and Moore (2008), an instructor uses criterion-based selection when they administer some sort of test or data collection tool and uses the results to assign students to a given group. The authors add that, as a result of criterion-based selection, groups are heterogeneous yet roughly equal in overall ability. Criterion-based selection is a strong pattern (four of six cases) in the data, used by Marie-Ève, Kevin, Maya, Claire and Leila. For her in-class activities, Marie-Ève forms groups on the basis of the students' mother tongues and strengths (such as writing, speaking, and listening skills), to promote diversity and discourage students from speaking a language other than French. Although Kevin does not use criterion-based selection for in-class activities, he sometimes forms groups based on students' strengths for long-term projects in the business course he teaches abroad. In her in-class activity on the four-part method for art historical analysis, Maya forms the groups by mixing students in different programs. She does so because the activity occurs at the start of the semester and also acts as an ice-breaker. For the Research Methods project, Claire forms groups on the basis of similarities across the students' research questions. Although Leila uses an approach that is similar to Claire's, her students can also submit a list of desired teammates, which she considers when she assigns groups.

Self-Selection

In using self-selection, students choose their own group members. Gunderson and Moore (2008) explain that students may choose their teammates in one of two ways: at random, for example by teaming up with students sitting nearest them in class; or by design, for example by

teaming up with students they know or have worked with in prior classes or elsewhere. With the exception of Leila and Claire, all instructors who implement graded projects (Kevin, Alex, Maya, Jade and Hannah) reported using self-selection, making it a strong pattern (four of six cases) in the data.

Although students get the final say about who they work with in self-selection, several instructors hope to influence the choice. For example, in her Humanities course, Maya encourages her students to work with classmates in other programs in an attempt to recreate the diversity of a "real-world situation." The trend she observes, however, is that "people stick to people in their own program." This method is similar to the way that Jade and Hannah form groups for their Research Methods project. Their students first engage in an activity designed for students to discover their classmates' research interests, after which students can choose their group mates. Although the intention behind the activity is for students to team up with classmates that share similar interests, Hannah observed that in her class, students "just had to go with their friends." She adds that she let students self-select because she was afraid that in the eventuality that "internal problems" were to arise, students would blame her for creating that situation.

In summary, the data suggest that teachers who implement in-class activities typically form groups using random selection or criterion-based selection and change the groups frequently. Teachers who implement graded projects form groups either on the basis of set criteria, or let students self-select their groupmates.

RQ2. WHAT DO COLLEGE TEACHERS PERCEIVE AS THE BENEFITS OF GROUP WORK?

This section answers the second research question. It specifically describes the benefits that group work provides to students and teachers.

Student Benefits

Wolfe (2010) states two reasons for using teamwork in schools: to improve students' learning effectiveness and educational experience; and to prepare students for future employment by providing opportunities to develop the social and organizational skills required for effective teamwork. This section describes the benefits that teachers hope that group work provides to students. Although the participants did not speak of the impact of group work on the overall students' educational experience, they reported that group work has a positive impact on four spheres of the student experience: student learning; the classroom environment; the development of career and social skills; and student engagement.

Student Learning

One strong theme in the data (five of six cases) is the positive impact of group work on student learning. This finding is in line with the literature, which reports that group work allows students to learn more actively and effectively than in passive, teacher-centered learning environments (Murphy, et al., 2005). Several beneficial factors were identified in the data, which can be grouped into two subthemes: students learning from making mistakes; and students learning from each other.

Students learning from their own mistakes was a interesting pattern in the data (three of six cases). The learning from mistakes specifically occurs when students take part in formative in-class group activities. As William explains, he purposely wants his students to make mistakes

in class so they do not repeat them on summative evaluations of student performance (such as final exams). Marie-Ève gives a similar explanation, and adds that students likely feel less stressed about the summative evaluations knowing that they've had a chance to practice in a "safe environment." Maya mentions that her students can learn from the synthetic cubism workshop even if their work of art does not end up resembling cubism. An interesting pattern (two of six cases) that appears in both Marie-Ève's and Maya's cases is that of students self-correcting, a process by which students identify their mistakes themselves, instead of the teacher doing it. William, Marie-Ève and Maya agree that by engaging in the in-class group activities they have designed, their students are better prepared for the summative evaluations.

Several instructors report that a second benefit of group work is that students learn from each other. This appears as a dominant theme in the data, because it is present in all six cases. It was reported both in the contexts of in-class activities and graded projects. William explains that his students "learn by teaching," and from the fact that they have to defend their views in discussions with groupmates. He adds that because he is an expert in his discipline, it can be a challenge for him to "fold [his] eyes" at the level of a novice learner, and that for this reason, a student may learn better from a peer who is also learning the material for the first time. Indeed, Wolfe (2010) explains that when students discuss problems with peers, they are freer to debate and think through the issues involved than when they discuss with their instructor whom they perceive as an expert. Along the same lines as William, Marie-Ève believes that in group work "learners become the teachers." Furthermore, by forming groups with students of various strengths, stronger students can help weaker students. Alex also reports that group mates can help each other, and believes that talking with someone else can help a student "clear up [their] mind." For Maya, students learn from talking with their partners because they must think and

articulate opinions. Similar to William's point on the expert-novice differences, she mentions that it might be easier for a student to understand a concept when it is explained by another student, because they might "phrase it differently" than the teacher. Jade from the Research Methods instructors' team, adds that students are often "more open to ideas from [their] peers" than when they come from the teacher. She mentions that when working in groups, students hear many perspectives and get "a lot of ideas from each other," and that the diversity of voices in a group has a positive influence on the quality of the ideas that are generated. Kevin adds that this exposure to other points of view favours open-mindedness. For Hannah, one benefit of group work is that it forces students to be engaged and "generate the knowledge themselves," as opposed to being "talked at" by their teacher. Similarly, Leila mentions that in-class group activities are beneficial in that they help students "construct their knowledge" and "master the material."

Positive Classroom Environment

A strong theme in the data (five of six cases) is that group work contributes to setting a positive classroom environment, in which students feel comfortable speaking up and also feel supported by their peers. William and Marie-Ève actively work on establishing a positive classroom culture early during the semester. Because he knows that making mistakes in front classmates can be uncomfortable, William emphasizes that he actually wants his students to make mistakes because they will learn from their experience. Marie-Ève implements group work activities very early in the semester, which offers students an opportunity to get to know each other, and realize quickly that "everybody makes mistakes." Because they get to know their classmates well, her students are respectful of each other, show empathy, and are comfortable speaking up during in-class discussions. She adds that assigning roles during in-class activities

empowers shy students because they have been assigned a specific task which requires them to make a contribution. Maya and Hannah also report that group work gives shy students an opportunity to speak up because they may feel more comfortable talking in a small group as opposed to in front of the entire class. For that reason, Hannah finds that in-class group activities are most effective in "quiet" groups. Both Alex and Marie-Ève mention that students feel supported by their peers during group activities because they can ask each other for help. Alex's way of setting a positive class environment involves emphasizing the importance of group work and communication, and encouraging students to ask each other for help.

Career and Social Skills

With the exception of the Research Methods' instructors team, all teachers report (a strong pattern, five of six cases) that group work is beneficial in that it simulates a real-life situation, making it a strong theme in the data. Four instructors (another strong pattern) also note that group work allows students to develop skills that will be useful in future employment. The participants who teach physics, business, computer science and the humanities believe that their students will develop teamwork skills for their careers by engaging in group work in their courses, and that these teamwork skills will be desirable in students' careers. Furthermore, teachers in physics, French as a second language, business and computer science (a strong pattern, four of six cases) mention that group work contributes to students developing communication skills. In physics and computer science, William and Alex insist on the importance of students being able to communicate with each other so that they can effectively support each other in their learning. Alex adds that this is also to ensure that students are aware of their partner's progress in the project. William further emphasizes the importance of students communicating their understanding through their written work. By doing so, he wants to shift

students' focus away from a problem's final answer, and rather have them concentrate on the logic and the presentation of the steps they took to obtain that answer. Kevin specifically speaks of the importance of oral presentation skills in business-oriented careers. In French as a second language, Marie-Ève says that, in addition to promoting the development of communication skills, in-class activities also promote listening skills.

Student Engagement

According to Davidson and Major (2014), the common characteristic of pedagogical approaches to group work is that they are learner-centered pedagogies that promote the active engagement of students. In fact, the participants in all but one case mention that group work actively engages students with the course material, making it a strong theme in the data. The participants observe several examples of active student engagement such as: groups applauding at the end of other groups' presentations; students not wanting to leave class because they want to keep working; an increase in students' buy-in and motivation for participating in an activity; and not seeing students "slouching in a corner."

Several instructors (a strong pattern, four of six cases) report that as result of an increased student engagement, the classroom atmosphere changes for the better. The instructors describe the classroom as being "more dynamic," "fun," and "more interesting." As Hannah puts it, "it's not just [her] making one more PowerPoint slide." Marie-Ève reports that during class times where she would expect her students to be less engaged, such as early in the morning or after lunch, they are still actively involved in the in-class activities. Because of their positive impact on the classroom atmosphere, Kevin uses in-class activities as a strategy to re-engage students when he notices they look bored. Beyond the fact that group work asks students to

become active learners, four instructors in three cases (an interesting pattern) note that students physically standing up and working on whiteboards increases engagement levels.

Last, with the exception of the Research Methods instructors, the participants report that students have a positive attitude towards group work (a strong pattern, five of six cases). For example, participants say that students "enjoy it a lot," have "fun doing it," "are excited," "are really happy" and work "enthusiastically." Marie-Ève believes that this is so because her students are aware of an in-class activity's learning objectives, and therefore understand the reasons why they are engaging in it. Maya notes that when students have the liberty of choosing their project's topic, they are enthusiastic. That's because students are investigating a topic that interests them. Maya, Kevin, and Alex mention that students enjoy group work activities because they are "different," and stand out from the "day to day routine." Alex and Leila also note that students can experience a sense of pride by having contributed to a project which they could not necessarily have completed on their own.

Teacher Benefits

Group work offers two key benefits to teachers: one for assessment, the other for intrinsic rewards. The following sections explore both of these themes.

Assessment Benefits

The data show that group work facilitates student assessment in several ways (a strong pattern, four of six cases). First, according to William, Marie-Ève and Maya, in-class activities in which students write on whiteboards allows teachers to monitor the students' work and assess their weaknesses (an interesting pattern, three of six cases). The participants report that they can then intervene by offering support to a specific group or by addressing key points with the entire class. This is in line with Smith, et al.'s (2005) description of active learning activities, which

should offer students a personalized learning experience in which their misconceptions and gaps in understanding can be identified and corrected.

Second, the four Research Methods instructors as well as Maya (an interesting pattern, two of six cases) mention that group assignments lighten the workload associated with grading. For Leila, Hannah and Claire, this is in fact the "number one benefit for instructors" for implementing group projects. From an instructor's standpoint, Claire actually considers that this the only benefit to having students work in groups for the Research Methods project. This pattern is in line with Williams et al. (1991)'s observation that instructors may perceive group assignments as an effective way to reduce the workload associated with grading. Williams et al. (1991) add that instructors can effectively monitor students and provide feedback on group projects. This position aligns with Maya's and Leila's experiences with group work (an interesting pattern, two of six cases). For Maya's Humanities project, each group chooses a different topic so Maya can be "more specific and more supportive" of the groups' research than if all students were doing individual projects. Similarly, in the context of Leila's in-class activities, groups submit a piece of work nearly every class session. Leila responds with extensive comments, and returns them to the groups. Although this allows her to give meaningful feedback to her students on a weekly basis, she says that she could not do this if every student turned in individual assignments because it would make for an unmanageable workload. But this approach of providing comments to a group and better monitoring student performance does not work with the Research Methods instructors. Although these instructors appreciate the workload reduction, they also observe that student learning can suffer because of the students' tendency to work separately on different sections of the project. The Research Methods instructors find that they can better monitor student's learning when students submit individual projects.

Intrinsic Rewards

Beyond the assessment benefits, Burbach, et al. (2010) note that other benefits of group work to instructors include an increased enjoyment of teaching, getting to know students better, and a greater sense of accomplishment. Although participants did not explicitly speak of group work as helping them get to know their students better, what stood out as a dominant theme in the data (all six cases) are the intrinsic rewards instructors receive from group work and how that can drive their own engagement in teaching.

For example, teachers commented that they experience a sense of reward from seeing their students learning effectively. For William, this is the main benefit of in-class group activities. Furthermore, four participants (a strong pattern) mention that group work represents an opportunity for students to put their theoretical knowledge into practice. Kevin describes the fact that group work "bridges the gap" between theory and practice as both "rewarding" and "gratifying." He takes great pride in seeing his students making "theories come alive" when they deliver quality presentations to international businesspeople, who are themselves amazed by his students. Kevin speaks of this feeling of reward as a "strong" benefit of group work.

Teachers also report benefiting from having students that are engaged in class and enjoying group work because of the positive impact it has on the classroom dynamics (an interesting pattern, two of six cases). For William, group work makes his classes "more dynamic" and "much more interesting," because teaching the same lesson to two different groups can result in two very different experiences. He is not "always [giving] the same piece of theatre […] to the students." For group work other than the semester-long Research Methods project, Leila, Hannah and Claire make similar observations to William's. Specifically, Leila finds that "class becomes more fun for everybody when there's group work involved." She adds that while

she can feel drained at the end of class if she gives a conventional lecture, when she implements in-class activities, she instead leaves class “feeling a little bit energized.”

Burbach, et al. (2010) state that group work can result in teachers experiencing a greater sense of accomplishment. Although the participants did not explicitly use this term, many of their statements point to that conclusion. On numerous instances, the participants mention that the activities or projects that they implement “work really well” (a dominant pattern, all six cases). They also describe them as being “great,” “effective,” “desirable” and “successful.” These statements reflect that teachers experience a sense of competence and satisfaction when the group activities they designed meet the objectives they had set for them.

In summary, the data suggest that group work has the following benefits for students: students learn effectively by talking to each other, and from making mistakes during in-class activities; group work contributes to setting a positive classroom environment where students are respectful of each other and are enabled to speak; it simulates real-life situations and thus contributes to the development of career and social skills, namely communication skills; and it increases student engagement. Teachers benefit from implementing group work in two areas. In the area of assessment, teachers who implement in-class activities can better monitor their students’ learning, whereas those who implement group projects benefit from a reduced grading workload. In the area of intrinsic rewards, teachers value seeing their students learning effectively and being able to make connections between the theory and its applications. Teachers who implement in-class activities further benefit from having a more dynamic classroom atmosphere, which drives their own engagement in teaching.

RQ3. WHAT CHALLENGES DO COLLEGE TEACHERS FACE IN IMPLEMENTING GROUP WORK?

Roberts and McInnerney (2007) describe seven common problems associated with group work:

1) students' negative attitude towards group work, or students who prefer to work alone
2) the formation of the groups
3) a lack of teamwork skills
4) the free-rider, or social loafer
5) inequalities of student abilities
6) individuals dropping out of the group
7) the assessment of individuals within the groups

Additionally, Burke (2011) mentions attitude problems such as individuals who dominate discussions, while Yamane (1996) brings up transaction costs such as the time spent in scheduling and meeting with a group. All of these issues, and more, were indeed identified by the participants. The challenges identified in the data were grouped into five themes: group formation and composition; social loafing; interpersonal difficulties; external pressures; and assessment challenges.

Group Formation and Composition

The participants mentioned several issues associated with student self-selecting their groups. First, all instructors except William (a strong pattern, five of six cases) mentioned that the "natural trend" is for friends to work with friends, or with students whom they already know. Participants comment that this can be problematic because students working with friends are more easily distracted and their discussions can get sidetracked. From Kevin's perspective, in

order to be challenged and step out of their comfort zone, students should not work with friends. For Marie-Ève, friends working together is problematic because they are more likely to speak in their mother tongue rather than practicing their French. She points out, as do Alex and Claire, that some students might not know anyone in their class, and might be shy to ask classmates if they can join their group. Marie-Ève explains that she has also observed students being stigmatized by their classmates, and that this made her feel uncomfortable.

Amongst the other issues associated with self-selection, four instructors mention that it can result in groups of uneven strengths, or uneven size. Self-selection can also slow down the group-formation process during in-class activities because students need to decide whom they will work with. William, Marie-Ève and Kevin (an interesting pattern, three of six cases) spoke of the classroom layout as a potential barrier to the effective implementation of in-class activities. Kevin finds that the table size of six in active learning classrooms makes for groups that are too big, and, as a result, some students become passive. This is in line with the literature, which suggests that in groups of more than five members, students are more likely to become disengaged (Felder & Brent, 2016). But conventional classrooms pose their own problems. William and Marie-Ève (an interesting pattern, two of six cases) commented that traditional classrooms in which students must move desks to form groups are inefficient. When they do, teachers have a difficult time moving around the room because they lack space to do so.

Social Loafing

When they were asked to describe their worst experience with group work, the four Research Methods instructors answered unanimously: their biggest problem is social loafing. The *Encyclopedia of Social Psychology* (Grace & Shepperd, 2007) describes social loafing as:

> […] a decline in motivation and effort found when people combine their efforts to form a group product. People tend to generate less output or to contribute less effort when working on a task collectively where contributions are combined than when working individually. The consequence is that people are less productive when working as part of a group than when working individually. (p.2)

In Jade's words, students rely on other students to do a big chunk of the work, as opposed to making a collaborative effort. Leila elaborates by saying that some students don't attend class when there is in-class time dedicated to group work, and don't contribute anything to the project. Hannah adds that she has observed that over time, group mates can fall into "established roles," where some students stop contributing, and let other students do all the work.

Marie-Ève, Kevin and Maya also mentioned social loafing as a problem, although they described the phenomenon using different terms. Marie-Ève spoke of students "letting" or "expecting [that]" others will do the work, "enjoying the ride" and "surfing off" the others' work. Kevin spoke of "laggards" who "don't pull their weight." Maya described a student hoping to work less by letting other students "make up for him" and "fill in any gaps."

A common signal of social loafing, mentioned by several instructors (an interesting pattern, three of six cases) is student absenteeism, which takes many forms. Students can decide not to come to come to class, or leave class, when there is time dedicated to work on the project. They can also skip group meetings. Students can also permanently leave a group, either because they drop out of the course, or because, as Alex describes it, they "disappear" and are "lost in space." A side effect of social loafing, mentioned by three instructors (an interesting pattern), are students who complain about the loafer's behaviour.

Teachers also identify problems related to social loafing that are specific to in-class activities. Student may not contribute the group activities because of a lack of motivation or of a lack of buy-in. When students are required to prepare before coming to class, some omit to do the preparatory work, and thus cannot contribute effectively to the group's effort. Finally, Marie-Ève mentions that late-comers can disrupt the flow of an activity.

Interpersonal Difficulties

The teachers identify several types of student personalities that can be difficult to deal with because they may result in communication challenges in group work. Five instructors (a strong pattern) have mentioned that shy students may not participate actively in group work. William and Alex offer as an explanation that the cause may be that students are embarrassed to show that they have not mastered all of the material. William and Alex also mention that some students simply prefer to work alone. In one instance, William learned that a student who did not want to participate in group work was on the autism spectrum disorder. Although instructors receive a list of their students with special needs, the nature of a student's condition is typically kept confidential from the instructor. In this case, William was only made aware of it because he sought additional support from the institution. This situation was particularly challenging for him to deal with because the student's social impairments caused friction within the group. Marie-Ève adds that students on the autism spectrum disorder can be stigmatized by their peers because of their social impairments. Claire makes the same observation, noting that she had a student "who was on the autism spectrum, and no one wanted to work with him."

The theme of dominating students within groups appeared in three cases (an interesting pattern), and takes on various forms. A dominating student is one who exercises undue control over the group assignment to the detriment of the other members. During in-class activities,

dominating students can talk too much or complete a group's assigned task without consulting their group mates. With regards to group projects, the Research Methods instructors observed that dominating students can take over the project and re-write their classmates' contributions. A specific example of re-writing, witnessed by all of the Research Methods instructors, is for a student to overwrite the contribution of a student for whom English is a second language to improve the quality of the writing. It can also be the case that students with English as a second language are, as Claire says, "not allowed to write anything in the report."

Related to the theme of dominating students, three Research Methods instructors mentioned bullying as a challenge. Bullying can manifest itself mildly, such as when a student overwrites a groupmate's contribution, or "two students against one" as Jade says, to more severely, such as the racism Claire has observed. When a students' final project grade relies on the results of a peer-evaluation, bullying is especially a problem because students might not be honest and could unfairly assess a specific group mate.

External Pressures

Students' wish to obtain a good grade, combined with a limited amount of time to dedicate to group work, can generate anxieties and cause students to work in ways that they do not reap the benefits of group work. As Kevin, Maya and the Research Methods instructors (an interesting pattern, three of six cases) explain, college students have a really busy schedule, which limits the amount of time they can dedicate to group work outside of class. Kevin and Maya have observed that the quality of the students' work can suffer because students don't dedicate enough preparation time to both in-class activities and projects alike. For projects specifically, students don't have much time to invest in holding meetings with their teammates.

Maya notes that as a consequence, students mostly communicate asynchronously on online platforms, which results in lower quality discussions than in person.

Another consequence of the students' lack of preparation, reported both by Maya and the Research Methods team (an interesting pattern, two of six cases), is that in an effort to work efficiently, students tend to "divvy up" the work for group projects. When doing so, students each write an individual contribution, which they then merge into a common document before submission. Beyond the fact that this practice can result in an uneven document, it causes problems for other reasons. First, students might not experience a feeling of ownership toward the resulting work. Second, this practice can lead to an uneven distribution of the workload. Third, because students do not have an oversight over the entire project, they lose an opportunity to learn about certain aspects of the work. As a result, they might not individually develop all of the course competencies targeted by the project. The last two points are linked to difficulties in assessing the students' work, which are discussed next.

Assessment Challenges

Teachers reported no difficulties assessing in-class activities, most likely because these do not count for marks or are graded on a participation-only basis. With regards to group projects, three issues were reported (an interesting pattern, two of six cases); two of which are directly related to the fact that students receive a group grade even though they tend to "divvy up" the work.

First, the Research Methods instructors emphasized that group grades are not representative of each student's individual learning, effort, and contribution to the project. Second, Maya noted that group work makes it hard to deal with plagiarism. As she described, of the instances when she detected plagiarism, it was difficult and unpleasant to unravel whether

only one student was the culprit, or whether all students were responsible. Worse, determining whether to penalize only one student or the entire group is a difficult decision. The third issue, reported in the same two cases but unrelated to the fact that students "divvy up" the work, is the impossibility of assessing students' levels of honesty on peer-evaluations. As was noted in the section *Interpersonal Difficulties*, some students might be victims of bullying and as a consequence, could be unfairly assessed by their peers.

In summary, five main challenges to group work were identified from the data. First, in self-selected groups, friends tend to work with friends, which results in groups of uneven strengths and students being easily distracted. Second, students rely on other students to do a big chunk of the work, a phenomenon known as social loafing. Third, interpersonal difficulties arise when students lack teamwork skills, have a dominating personalities, or bully a groupmate. Fourth, students experience external pressures from wanting to obtain a good grade on a group project yet have limited time to work on the assignments. And fifth, the assessment of group projects may not truly reflect an individual's contribution to the project.

RQ4. HOW DO COLLEGE TEACHERS ADDRESS THE CHALLENGES THEY FACE IN IMPLEMENTING GROUP WORK? WHAT ADDITIONAL MECHANISMS COULD THEY POSSIBLY PUT IN PLACE?

The purpose of this section is two-fold: it discusses the themes in the participants' descriptions of how they address the challenges they face in implementing group work, and makes additional recommendations based on the literature about other mechanisms which could be implemented. The themes identified and additional recommendations will be presented separately for the two types of group work identified in the data, namely: in-class activities, then

graded projects. The section concludes with additional advice which can apply to both in-class activities and graded projects.

In-Class Activities

A strong pattern in the data (four of six cases) with regards to in-class activities is for instructors to change the group composition frequently, whether group selection is random or criterion-based. For William, forming groups at random and changing them often has the benefit of making teams more uniform in terms of students' strengths as he had noticed that weak students tend to "stick together." He also feels that frequently changing groups reduces the number of issues related to students who do not work well in groups. Jade thinks that changing the groups has the advantage of students not falling into established roles, which minimizes the risk of social loafing. Another strategy to reduce social loafing, which appears as an interesting pattern in the data (three of six cases), is for students to be assigned a specific role within their group. For example, a student could be the designated group's note-taker or reporter. Because this strategy forces students to play an active role during the activity, it not only reduces social loafing, but it also empowers shy students to speak up.

Three interesting patterns appear in the data, as ways to increase student engagement. First, early in the semester, William and Marie-Ève (two of six cases) actively work on setting a positive classroom atmosphere that makes students comfortable engaging in in-class activities. They do so, for example, by changing the groups often so that students become acquainted with each other, and by framing mistakes as an opportunity to learn. Second, instructors (three of six cases) clearly state the learning goals of an activity so that students understand why they will benefit from participating in it. These strategies are also recommended by Felder and Brent (2016), who explain that they set the stage for active learning and minimize the risk of

encountering student resistance to group work. Third, including a competitive element (three of six cases), such as awarding a prize to the group who finishes first, motivates students to work well and efficiently.

Three additional interesting patterns stand out as ways to make group activities run smoothly. First, some instructors (three of six cases) described having a back-up plan. For William, this means having additional tasks to assign to groups who might finish an activity early. For Maya, a backup plan means having arts and crafts materials prepared in case students forget to bring their own. For Kevin, a backup plan means being able to introduce group work on the fly as a way to re-engage students during class. A second way (three of six cases) to make group activities run smoothly is for instructors to keep an eye on the students as they work and be ready to make "little interventions," as William says, which will keep students on track. This is in line with Felder and Brent (2016)'s advice that instructors should be proactive, and "casually and confidently" direct resistant students to engage in the group work, especially during the first few group activities. The third way (three of six cases) that participants make group activities run smoothly is to use a classroom design conducive to group work. Classroom design refers to the type of desking (individual desks or shared tables), the numbers of seats around shared tables, as well as the presence of whiteboards on the classroom's walls. However, teachers' needs differ.

Additional Recommendations for In-Class Activities

Felder and Brent (2016) argue that if students continue to resist working in groups even after their instructor has intervened, teachers should not be bothered by it because it is better to have a few students disengaged from an active learning exercise than have a majority of students who are disengaged when listening to a long lecture. The authors further recommend that, to

dissipate resistance to group work, the activities should be challenging because students are likely to resent being asked to perform a task that they consider trivial.

Marie-Ève and Kevin mentioned that they can use active learning activities to "wake up" students and when they "look bored." This is in line with Johnson et al.'s (1991) description of informal cooperative learning groups, which are used in part to focus students' attention on the material. Johnson et al. (1991) recommend that in a lecture, students should engage in active learning activities every 10 to 15 minutes to ensure that they cognitively process what is being taught. Felder and Brent (2016) further recommend that the activities should be short, and last anywhere from 30 seconds to 5 minutes to prevent problems that could arise when teams have uneven strengths. They explain that when students are given more than five minutes to complete an activity, the strong groups may finish faster than others and could become distracted during the remaining time. By contrast, the weaker groups could get stuck and not make any progress. According to Felder and Brent (2016), keeping the activities short solves both issues. However, this recommendation is made assuming that in active learning activities, groups are quickly formed by clustering students who sit next to each other. It therefore may not be pertinent for instructors who implement work at the whiteboards because that takes time for students to stand up. In the case of instructors like William who flip their classroom, there is no need to impose a time limit to the active learning activities. This is because students have received instruction outside the class and then come to class specifically to work through activities that build on the material (Felder and Brent, 2016). Active learning should therefore be the primary teaching method used in the flipped classroom model (Felder and Brent, 2016).

One of the basic elements of cooperative groups is individual accountability, which means that all students in a team are responsible for doing their share of the work and

understanding the material covered in an assignment (Johnson et al., 1998). Felder and Brent (2016) propose a strategy that is line with this principle: instructors should inform their students that they should individually be prepared to explain their work to the class at the end of an activity. When students complete the activity, instead of asking for a student volunteer, the instructor should call on an individual student to present. The instructor does not actually need to follow through with this strategy every single time – the simple fact that students are aware that there is a possibility they might be called on to present is enough to hold them accountable.

Last, to maintain a lively classroom environment that is appreciated by students, instructors should vary the structure of active learning activities so they do not become predictable. This can be done by varying an aspect of the activity such as its type, duration, the time interval between activities or the group size (Felder & Brent, 2016).

In summary, the data suggest that college teachers who implement in-class group activities use several strategies to address particular challenges. A strategy to reduce social loafing is to change the groups frequently and assign students to specific roles. Strategies to engage students include actively working on setting a positive classroom environment, clearly communicating the learning objectives of an activity, and building in an element of competitiveness. Further practices include having a back-up plan and intervening when needed to keep students on track. The literature adds that for in-class activities, the level of difficulty, timing, and variety of the activities are key elements to consider. To ensure that students are accountable for their own learning, instructors can get into the habit of calling on an individual student to present rather than waiting for a volunteer.

Graded Projects

With regards to group projects, Maya and the Research Methods instructors (an interesting pattern, two of six cases) comment that dedicating in-class time to letting students work on their projects is useful, if not essential, because students find it difficult to schedule meetings outside of class. Although Alex did not specifically speak of this practice as being beneficial to the students, he also does dedicate several class periods to his group project. Another practice implemented by Alex as well as Kevin is to explain to students the importance of developing team-work skills for future employment (an interesting pattern, two of six cases). This pattern is in line with Hansen's (2006) recommendation to emphasize the relevance of teams when introducing group projects. When students value teamwork and its relevance to real-word situations, they are more likely to demonstrate a positive attitude towards group work and to work more effectively within a team (Hansen, 2006).

Instructors put a lot of thought into the structure of the projects they assign. A strong pattern (four of six cases) is for teachers to put a basic structure into place, or as Claire says to "scaffold" a project but to also build in some flexibility to let students decide which topic or aspect of the project they want to work on. Another interesting theme (three of six cases) is for instructors to check the students' progress on an assignment often and provide feedback. Chunking up the work into smaller units and introducing project milestones facilitates this check-in and feedback cycle. Such practices also let instructors intervene early if needed to prevent situations from snowballing into bigger problems. If a situation involving social loafing or interpersonal conflicts does escalate, several teachers mentioned that they must then turn to "policing," as Leila calls it, which is perceived as an unpleasant experience by teachers.

To minimize challenges with assessment, two instructors in the Research Methods team mentioned the importance of establishing clear expectations and evaluation criteria for the project. The literature, too, supports this approach. Burke (2011) is adamant: students should know and understand how they will be evaluated, and one way of communicating that information is for instructors to share their grading rubric with students. Instructors should explain the expected outcomes of the project and their policies for group work (Burke, 2011; Felder & Brent, 2016; Hansen, 2006). But participant Alex raises concerns about this. He chooses not to disclose his evaluation criteria with students before they submit their work. He tried it in the past but found that students were too focused on the items in the evaluation criteria as opposed to the bigger picture.

The use of peer-evaluations is an interesting theme in the data, appearing in three of the four cases that involved graded projects. Although peer-evaluations come with disadvantages, such as being time-consuming and students possibly being dishonest, peer-evaluations are generally perceived as being desirable. In fact, their implementation is suggested by several authors (Burke, 2011; Felder & Brent, 2016; Hansen, 2006; Williams et al., 1991; Wolfe & Powell, 2014; Yamane, 1996). Peer-evaluations are based on the benefit that students are in a better position to evaluate contributions of other group members than instructors (Williams et al., 1991) and can be used to evaluate several aspects of team citizenship (Felder & Brent, 2016; Williams et al., 1991).

An interesting theme which appears in two of the four cases with graded projects is to lower the stakes associated with group work. Instructors do so in different ways. For Alex, it means that each partner's contribution to the project is basically graded independently from the others. In Alex's project, students do not receive a group grade unless they choose to submit a

group report. The Research Methods instructors collectively decided on another approach: reducing the contribution of the group grade to the project's overall grade. This is in line with Burke's (2011) recommendation that when group grades are assigned, they should only represent a small fraction of a student's final grade. But this led to an increase in the number of individual submissions from students thus increasing teachers' workloads.

Additional Recommendations for Graded Projects

Burke (2011) describes four stages for group projects: (1) designing the activity, with a particular focus on how to form groups; (2) teaching students how to work in a group; (3) monitoring the groups; and (4) assessing the groups. This section presents additional recommendations at each of those four stages.

Group projects should be designed so that a single student could not comfortably complete the assignment on their own (Felder & Brent, 2016), yet represent a manageable workload (Hansen, 2006). With regards to group-formation strategies, although some teachers use criterion-based selection, most let students self-select into teams. Several authors advise that instructors should use criterion-based selection (Burke, 2011; Felder & Brent, 2016; Hansen, 2006; Yamane, 1996). Hansen (2006) argues that teachers should select teams because that most resembles the workplace, where employees do not get to pick with whom they work. As noted earlier, Burke (2011) sees self-selection as problematic because students tend to team up with friends, which can lead to students self-segregating, or socializing as opposed to working on the assigned task. This is indeed an observation that several participants made (a strong pattern, five of six cases). To encourage heterogeneity, instructors can form teams on the basis of parameters such as: academic strengths, weaknesses, and ethnicity (Burke, 2011). Further parameters can include times available outside of class (Felder & Brent, 2016; Yamane, 1996) and areas of

interest (Yamane, 1996). With regards to group size, some authors suggest that groups of three to four members work best (Csernica et al., 2002, as cited in Burke, 2011; Felder and Brent, 2016), while others recommend four or five members (Davis, 1993, as cited in Burke, 2011). Larger groups should be avoided because social loafing is more likely to occur (Burke, 2011; Felder & Brent, 2016). Pairs should also be avoided since there are not enough individuals to generate a diversity of ideas (Burke, 2011). Felder and Brent (2016) further add that in pairs, a dominant student will likely always win an argument.

Burke (2011) argues that because some students may never have worked in a group before, an instructor cannot assume that students know how to work with others, structure their time, or delegate tasks. As part of their role, instructors should therefore facilitate the development of team work skills (Burke, 2011). This recommendation is of particular interest since several participants reported that they implement group work so that students acquire such skills, yet no instructor mentioned that they intentionally help students develop them. In fact, Maya and the Research Methods team reported that students have a tendency to divide up the sections of a project among themselves. This method of working is referred to as *divided* collaboration by Wolfe (2010). Wolfe (2010) reports that while this method comes naturally to students and allows the work to be completed in the least amount of time, it works against the development of team work skills that students do not work together; they work on separate tasks at the same time. This approach to dividing up group work requires minimal collaboration between groupmates, and leads to inconsistencies in the final result because students did not coordinate their work. Because it leads to higher-quality work and most resembles team work in the workplace, Wolfe (2010) suggests students should be trained to use *layered* collaboration, where each group member takes a turn contributing to the work, making revisions, and additions.

Instructors should additionally help students learn listening skills, methods for receiving constructive criticism, and strategies to deal with conflict and disagreements (Burke, 2011). Because students often hesitate to confront a teammate to avoid conflicts, Wolfe and Powell (2014) specifically recommend that students should be taught and encouraged to provide constructive criticism. Hansen (2006) adds that students should be made aware of the importance of communication and trust in between group mates. These skills and methods can be modeled through in-class activities. They contribute to building cohesion within groups (Burke, 2011; Hansen, 2006). Among the participants in this study, William, Marie-Ève and Alex reinforced the importance of communication skills. But no one spoke of the importance of trust in effective team development.

To reduce social loafing, instructors can assign specific roles to the group members (Burke, 2011; Felder & Brent, 2016; Hansen, 2006; Wolfe & Powell, 2014; Yamane, 1996). Although many participants reported using this technique for in-class activities, none mentioned it in the context of graded projects. Roles within a group project can be rotated over time, and can include the discussion leader, the meeting coordinator, and the note-keeper. Each role must be well-defined and come with specific responsibilities. The assignment of roles has the additional benefit of letting instructors better monitor a group's progress because instructors can assess which students did not fulfill the requirements of their role (Yamane, 1996).

With regards to a group's internal infrastructure, Wolfe (2010) further recommends that groups should establish a task schedule, which outlines major tasks assigned to specific group members, along with the completion deadlines. To further monitor a group's performance, instructors can ask students to track their progress. This can be done in many ways. For example, groups can be asked to submit weekly progress reports or meeting notes (Burke, 2011). Hansen

(2006) suggests that students should individually keep track their contributions to the project, and submit their personal contributions file periodically to their instructor. An instructor can also hold meetings with students during class time to debrief on the group's performance (Yamane, 1996), or ask groups to submit self-assessments where they describe what they are doing well and what needs to be improved (Felder & Brent, 2016).

The assessment mechanisms for a project can be designed to address students' individual accountability, a key feature of cooperative learning (Johnson et al., 1991; Johnson, et al., 2014; Smith, et al., 2005). Burke (2011) mentions that instructors can choose to evaluate the process, the final product or both. As a way of evaluating the group process, several participants (an interesting pattern, three of six cases) mentioned that they implement peer-evaluations or have used them in the past. Another way of structuring students' accountability is to monitor each member's understanding of the expectations of them. Instructors can do so through individual tests, having members edit each other's work, or having students teach what they know to someone else (Felder & Brent, 2016; Johnson et al., 1991). When groups give presentations, Felder & Brent (2016) recommend that instructors avoid letting students report on the parts of a project for which they were responsible, and to only let students know which team member will be presenting which part of the project a day in advance. In doing so, all team members must be prepared to explain any part of the project, which increases individual accountability.

In summary, teachers already implement several mechanisms to ensure that group projects run smoothly. To build motivation for group work, they explain the purpose of the group work assignment, discuss the role of teams in the workplaces in which students will eventually work, and dedicate class time to the group projects so groups have time to work. They structure the work to include project milestones that allows instructors to monitor group progress.

Instructors limit the total impact of group assignments on final grades, and evaluate students based on established criteria, including the results of peer-evaluations. The literature further suggests that teachers should favour criterion-based selection, rather than self-selection, which aligns with the recommendations of participants. Instructors should explicitly train students on teamwork and communications skills, and provide them with specific guidance on giving and receiving criticism, managing conflict, and managing tasks. The project's structure could include the assignment of specific roles to students, as well as the submission of individual or group progress reports. Mechanisms such as individual tests should be put in place to ensure that students individually achieve the competencies targeted by the project.

Other Advice

The patterns presented in this section were identified in the answers the participants gave when asked what advice they would give to other instructors considering group work. Two interesting patterns appear with regards to how faculty go about self-improving their implementation of group work. First, some instructors (two of six cases) mentioned that discussing with colleagues is useful in getting ideas for group activities that work well, or in helping them solve specific issues. Second, one of the specific instructions from Alex is that instructors attempt the in-class activity or group project on their own before they assign it to students. While he did not formulate this as a recommendation explicitly, William did mention that this is a part of his practice.

As a last remark, a third interesting pattern (two of six cases) in the data is that instructors describe in-class activities as generally more successful than graded projects. This was in fact reported by Maya, Leila, and Hannah, who are experienced with both in-class activities and graded projects. For Maya, this is because she appreciates being able to monitor the students as

they engage in in-class activities. Leila finds that students learn better during in-class activities, because they do not experience the pressure of their grade depending on the outcome of the activity. For Hannah, in-class activities offer the benefit that they are short-lived; therefore, students do not get a chance to fall into established roles like they do during long-term projects.

In summary, the data suggest that to ensure a successful implementation of group work, teachers can consult other colleagues, try the activity themselves, and favour in-class activities over graded projects.

CHAPTER SIX: CONCLUSIONS

This chapter presents the conclusions of the study, which explored the implementation of group work in college classes in disciplines across the spectrum of academic disciplinary areas: commerce; computer science and engineering; fine arts; humanities; natural sciences; and social sciences. It first discusses the implications of the results for college teachers and instructional designers. Next, it presents the implications for faculty development at the college level. The chapter closes with a discussion on the limitations of this study, and suggestions for further research.

IMPLICATIONS FOR TEACHING AND INSTRUCTIONAL DESIGN

College instructors implement group work in two distinct ways: in-class, active learning, activities, and graded projects.

Several key components that contribute to successful implementation of in-class, active learning activities were identified in the data and the literature. Recommendations include:

- varying the structure of the activities so they do not become predictable
- designing an activity so that it meets set learning objectives and follows a well-defined structure
- making the activities low stakes, because they are formative in nature
- having students write on whiteboards mounted on the classroom's walls
- changing the groups often

Additionally, participants identified several key elements that contribute to successful implementation of graded projects, including:

- clearly defining the project's guidelines, yet allowing for some flexibility so that students can take the project in a direction that they want

- dedicating class time for students to work on the project
- including project milestones to monitor the groups' progress
- minimizing the contribution of the group grade to the overall grade
- assessing group processes through mechanisms such as peer-evaluations
- discussing the relevance of teams in the workplace

IMPLICATIONS FOR FACULTY DEVELOPMENT

Although the study identified several benefits and challenges to group work, these benefits and challenges were found to be broadly applicable rather than discipline-specific. In fact, all participants reported that they believe that the majority of the challenges they face are universal across disciplines. The results of this study therefore suggest that faculty development guidance on group work should not be discipline-specific, but should target a specific type of group work, such as active learning or graded projects. The data also suggest certain avenues that faculty development can follow to best address college teachers' instructional needs around groupwork. These avenues are described next.

Although the teachers who implement active learning activities seem to have found satisfactory solutions to the challenges they can face, social loafing and interpersonal difficulties on graded projects are more difficult to resolve. For example, Claire's bad experiences with the Research Methods project let her to abandon her methodology, as she may not have had the resources to deal with challenges which arose from students' unique situations rather than the assignment itself. Faculty development initiatives could therefore share best practices for addressing such situations. The results of this study and the literature suggest that issues that faculty development might address include the assignment of specific roles to students, and assessment mechanisms that track students' individual contributions to projects and promote

individual accountability. Furthermore, to prevent students from dividing up the work and working in parallel rather than as a team, teachers could benefit from receiving information on *layered collaboration*, as described by Wolfe (2010).

Although several participants reported that they implement group work so that students develop teamwork skills, no instructor mentioned that they explicitly teach these skills. Burke (2011) recommends that teachers should explicitly teach students about teamwork skills, including listening skills; skills for giving and receiving constructive criticism; and strategies for dealing with conflict and disagreements. Teachers could therefore benefit from training in all of these before instructing their students.

With the exception of the Research Methods' instructors team, all teachers reported that group work is beneficial in that it simulates real-life, a strong theme in the data (five of six cases). Yet, it is interesting to note that none of the instructors (a dominant theme, representing all six cases) reported using problem-based learning (PBL), even though this pedagogical approach presents students with theoretical or practical problems that are based specifically on real situations (Major & Eck, 2000). Faculty development initiatives could therefore address how to design group activities so that they best reproduce real-life situations, with a specific emphasis on PBL.

As a last item of interest, three participants (an interesting pattern) raised the point that students on the autism spectrum can face particular challenges due to the social interactions inherent to group work situations. Given the current increase in the number of special needs students in Quebec's post-secondary institutions (Ministère de l'Éducation, du Loisir et du Sport, 2010), teachers could benefit from additional tools and support to better meet these students' needs.

LIMITATIONS OF THE STUDY

A common concern about case study research is the limits of its generalizability (Yin, 2014). Indeed, the six cases presented in this study and the fact that they only represent one institution mean that they cannot be assumed to represent the larger population of Quebec college instructors (Stake, 2003; Yin, 2014). Although a variety of disciplines were included among the cases to ensure broad disciplinary representation, all of the participants teach in pre-university programs. This study is thus limited in that it did not consider group work in the context of technical programs that colleges also offer. It is also limited to the particular context of Quebec's collegial structure, which is unique in the North American educational landscape.

Yin (2014) however makes a distinction between two types of generalization: statistical generalization and analytic generalization. In statistical generalization, an inference is made about a population, which this study cannot do because the number of participants is too small to serve as an adequate sample. On the other hand, case studies lend themselves to analytical generalization, which aims to generalize the findings and lessons learned to other concrete situations that go beyond the setting of the study (Yin, 2014). Given the description of each case, the results of this study might therefore transfer to technical programs as well as other post-secondary institutions in North America. Furthermore, the results of case studies may be applied to re-interpret the results of previous studies (Yin, 2014), as well as suggest avenues for future research (Stake, 2003). This is done next.

SUGGESTIONS FOR FUTURE RESEARCH

This study focused on the teachers' perceptions of the benefits and challenges associated with the implementation of group work. A similar case study could investigate the perceptions of group work from the perspective of college students.

The participants in this study were selected because they already implemented group work in the context of their teaching. However, past studies have shown that instructors can be reluctant to using group work because of the barriers they face (Kim, Speed & Macaulay, 2018; Michael, 2007; Turpen, Dancy & Henderson, 2016). A quantitative or mixed methods research design could be used to determine whether the barriers which were identified in other institutional contexts also hold in the Quebec collegial system.

In the context of the COVID-19 pandemic, all of Quebec's educational institutions underwent a forced closure on March 16, 2020 (Assemblée nationale du Québec, 2020). On March 30, 2020, the interrupted classes gradually resumed online. Courses in the 2020-2021 academic year were either delivered online or in a hybrid format (Fédération des cégeps, 2020), forcing many instructors to teach online for the first time and adapt their course delivery methods to a new learning environment. Although studies on online group work already make recommendations for its successful implementation (Morgan et al., 2014; Roberts & McInnerney, 2007; Wade, Cameron, Morgan & Williams, 2016), a case study could investigate why and how, if at all, Quebec college instructors implemented active learning and graded projects online in the context of the COVID-19 pandemic, and whether a difference was noted in terms of the students' learning. Future research could also explore whether the intrinsic rewards which several instructors reported feeling when they implement group work were also experienced in the context of online group work.

A case study conducted post-pandemic could assess how the instructors' experiences implementing group work online will have influenced their approaches to group work upon their return in the physical classroom. Specifically, it could assess whether they have permanently adopted new technological tools which they discovered while teaching online. Similar research

could be conducted amongst Quebec and other Canadian university professors who also had their first experience teaching online during the world pandemic.

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APPENDIX A

Participant Consent Form

INFORMATION AND CONSENT FORM

Study Title: Bring It to Them: A New Approach to Professional Development on Teaching and Learning for Universities and Cegeps'
Researcher: Saul Carliner
Researcher's Contact Information:
Phone: 514-848-2424 ext.2038
E-mail: saul.carliner@concordia.ca
Source of funding for the study: Entente Canada-Quebec

You are being invited to participate in the research project mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the study is to develop and evaluate an alternate approach to faculty professional development that uses the convenience of online information coupled with evidence-based practices in general and related to specific disciplinary areas such as commerce, engineering, and humanities.

B. PROCEDURES

If you participate, you will be asked to describe your application of a particular teaching practice during an audio-recorded interview. The interview will be scheduled at your convenience and you will receive the interview questions a few days in advance. The interviewer may also ask to perform a classroom observation of the teaching practice. Optionally, you will be asked to share your pedagogical resources (e.g. project guidelines, evaluation rubrics, etc.) related to the teaching practice and to provide a photograph that we can publish with your case.

The data will be used to prepare a one to three pages description of your teaching practice which will be published online. The description will be included with additional background material related to the teaching practice. You will have an opportunity to review, edit, and approve the description before it is published. The interviewer may request for you to clarify or elaborate on points in the edited interview. Only after you formally approve the edited description will it be published.

The data will also be used in the interviewer's thesis and may be used in academic publications. In those two instances, your name and that of Marianopolis College will be anonymized to minimize the risk that your identity be disclosed.

C. RISKS AND BENEFITS

You might face certain risks by participating in this project because your interview will be published online and will be available in both digital and printed form. That's why we are asking you to review and approve your case before publication.

Potential benefits to the field will be the power of your description to inspire other CEGEP and university instructors to adopt your teaching practice.

A more immediate benefit to you is the exposure. We expect this online resource for faculty development to be widely promoted by the institutions behind this project: Marianopolis College and Concordia University.

D. CONFIDENTIALITY

Your profile will be published, and will be public after that happens. As noted earlier, that's why we are giving you an opportunity to approve the profile before it is published. We will retain the notes on your profile for at least ten years after publication of the first version of the online resource for faculty professional development.

[ ] I accept that my name and the information I provide appear in the online description of my teaching practice.

[ ] I accept that the information I provide be used anonymously in the interviewer's thesis and academic publications.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this interview. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't

want us to publish your profile, you must tell one of the authors before you provide final approval to publish it.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

APPENDIX B

Interview Guide

Note: These are semi-structured interviews. Five interviews will be individual. The sixth will be a group interview with members of a course team who all use the same activity.

Although we hope to address all of these issues, if a participant responds to a later question as part of the response to an earlier one, we will record the response and not ask the question later.

Also note that members of the group will be offered the opportunity to speak to an interviewer privately, in case they want to express ideas that they are not comfortable sharing in front of their colleagues.

Topic Area 1: Experience with Group Work

- What is your best experience with group work?
- What is your worst experience with group work?
- What type of group work do have your students engage in (e.g. informal group work in class, formal assessments)? How frequently?

Topic Area 2: Benefits of Group Work

- What are the benefits of group work for students?
- What are the benefits for instructors?

Topic Area 3: Description of Group Activity

Technical information about the course and activity:

1.Course name and number	
2.Discipline and sub-discipline	
5.Activity title	
6.Technology used	
7. Time span for the activity	
3.Class and group sizes	
4. Classroom environment	

- What is the overall purpose of the activity? That is, what do you want students to get out of the activity? If you have written specific objectives or outcomes for the activity, perhaps you could share those, too.
- Please walk me through your activity, from starting with your preparation of the activity through to your turning off the lights in the classroom and, if relevant, completing the marking of assignments. At each point, explain who is doing what.
- Do you feel that the activity achieves the objectives or outcomes established for it?
- Have you ever modified the activity to address particular challenges?

Topic Area 4: Challenges of Group Work

- What are the challenges you have encountered with group work in general?
- What solutions have you found to deal with these challenges?
- Which of these challenges would you say are specific to your discipline? Which are common across disciplines?

Topic Area 5: Overall Reflections on Group Work

- What advice would you give to other instructors considering group work?
- Is there a question I didn't ask that you were hoping to answer?

APPENDIX C

Contact Summary Sheet

Location:
Attendees:
Interview Date:
Today's Date:

1. **What are the main issues or themes that struck you in this contact?**

2. **Summarize the information that you got (or failed to get) on each of the topic areas for this contact:**

Topic Area 1: Experience with Group Work	Best: Worst: Type:
Topic Area 2: Benefits of Group Work	For students: For instructor:
Topic Area 3: Description of Group Activity	
Topic Area 4: Challenges of Group Work	
Topic Area 5: Overall Reflections on Group Work	

3. **Is there anything else that struck you as salient, interesting, illuminating or important in this contact?**

4. **If you were to have a follow-up interview, what new questions would you want to ask?**

5. **Other notes:**