Instructional Note

The Role of Group Regulation in Student Groups: A Pedagogical Exploration

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ABSTRACT

When tasked with group projects, students often struggle with teamwork and tend to overlook the importance of group self-regulation and its role in effective collaborative work. The pedagogy was implemented in semester long university level new product development courses. The pedagogy illustrates how educators can use student generated weekly reflective journals in semester long group projects to help students better understand the impact of group self-regulation on group communication, group monitoring and shared task perceptions amongst group members.

Keywords: Student groups; student teamwork; group regulation; reflective journals.

Introduction

In new product development, cross-functional work teams provide an array of benefits and allow firms to produce the highest quality product in the shortest amount of time (Edmondson, & Nembhard, 2009; Hammedi, van Riel, & Sasovova, 2011). Individuals in these teams bring diverse perspectives and expertise to bear on the product concept and that diversity, in addition to broadening the views of each team member, allows a group member to think critically about their own ideas and outlooks. However, while the value and advantages provided by diverse product development teams are well recognized in industry, business students in college and university classrooms often do not immediately see those advantages. In fact, research has shown that for a variety of reasons group work in product development courses is often dysfunctional. Differences in workload, schedules, personalities, interpersonal skills and motivations for enrolling in such classes can make the basic functioning of student groups difficult and problematic (Reisenwitz, & Eastman, 2006; Duus, & Cooray, 2014). These problems often lead to less than optimal performance on group projects, which hinders overall student learning. As a result of these concerns, there is growing recognition by marketing educators that, in addition to discipline specific content, we also need to teach students about group processes and dynamics (Chapman et al., 2010; Finch, Nadeau, & O'Reilly, 2013; Loughry, Ohland, & Woehr, 2014).
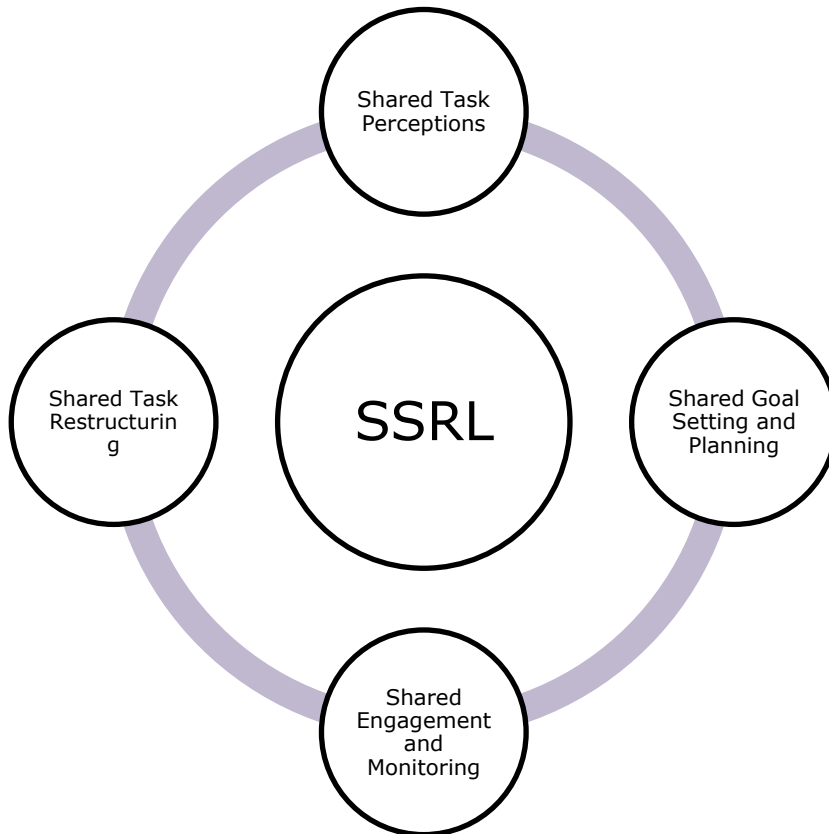
Socially Shared Group Regulation Learning

Based on self-regulated learning (Zimmerman, 2000) socially shared group regulation learning (SSRL) (See Figure 1), consists of the social processes groups use to collectively regulate their cooperative work (Rogat, & Linnenbrink-Garcia, 2011; Panadero, & Järvelä, 2015; Järvelä, Malmberg, & Koivuniemi, 2016). Examples of such social processes include a group collectively building shared task perceptions through constructing communal goals and motivation, shared mentoring and evaluation and working together to restructure the task or environment (Järvelä, et al., 2013; Panadero, & Järvelä 2015; Järvelä et al., 2016). Research by Järvelä et al. (2013) demonstrated that SSRL led to shared task perceptions and successful collaboration on task performance in the form of analyzing cases and webpages. Groups with strong SSRL during those tasks were better able to recognize challenges to the group (problems with technology, group discussions exceeding scheduled time frames or absentee group members), to collectively monitor their progress and shared perception of the task, and collectively restructure their strategies. Those same SSRL groups were also better prepared to plan future strategies, such as setting ending times for group discussions, to overcome these challenges. Groups with weak SSRL were unable to actively identify challenges to the group and activate planning and monitoring strategies to restructure tasks and future plans.

Researchers have identified two types of SSRL. One type focuses on the regulation of group processes and behaviors, while the other centers on understanding each group member's cogitative understanding of content during a shared task. To illustrate, groups can regulate group processes/behavior by working to stay on task or by focusing on the regulation of role taking for tasks within the group (Salonen, Vauras, & Efklides, 2005). According to Rogat and Linnenbrink-Garcia (2011), groups that achieve high quality SSRL focus on three elements of social regulation: planning, monitoring, and behavioral engagement (e.g. reminding a group member to return to task). When the three elements work together to create a synergy, groups focus less on regulation of group behavior and more on the regulation of the group's understanding of content. In contrast, low quality SSRL groups are characterized by failure to create a good plan, leading to low quality monitoring and behavioral engagement. Groups that develop low quality SSRL are often plagued by negative, off

topic and disrespectful group interactions that do not allow the group to restructure tasks nor develop shared tasked perceptions. For SSRL to be effective, groups need to adopt the regulation strategies that socially reinforce group members' ideas and emphasize shared goal/task-oriented discussion or open dialogue (Järvelä, Järvenoja, & Veermans, 2008).

Figure 1:
Socially Shared Regulated Learning Process

Learning Objectives

The learning objectives of the pedagogy implemented in the courses are as follows:

1. Students will learn and apply the socially shared learning process (see Figure 1).
2. Students will use group regulation to address group dysfunction and improve group collaboration.
3. Students will apply group regulation to set and revise task deadlines and strategies.

In short, by using electronic and face-to-face communication activities, self and group regulation assignments and reflective journals, the goal is to have students successfully 1) manage and regulate their classroom teams and 2) use those tools to address group dysfunction.

Implementation Guidelines

These guidelines are an example of implementing the pedagogy in a new product development courses. The students are tasked with developing a new product idea and new product launch plan over the 16 weeks of the course. Students are placed

into groups consisting of four to six students each. Diverse groups are generated by determining group membership based on student gender, GPA and number of hours worked outside of school.

Information Taught Prior to the Start of Course Long Group Project

On the first day of class students are given a short lecture covering the components included in a new product development group project. As part of that lecture the group regulation process is presented (see Figure 1). In addition, the elements of the group plan (see Appendix 1) and the importance of weekly individual journals are discussed. The group plan and first journal entry are due electronically at the end of the first week of class.

Project Assignments and the Group Plan

The semester long project is divided into multiple assignments throughout the semester. Multiple assignments help students plan and monitor their progress towards specific project goals. For example, in the new product development courses the project consists of five assignments (see Appendix 2 for more detail):

>   Assignment 1: Product Innovation Charter
>   Assignment 2: Idea Generation
>   Assignment 3: Concept Statement
>   Assignment 4: Conduct Focus Group
>   Assignment 5: Launch Plan and YouTube Video

The group plan (Appendix 1) is a one-page document consisting of 8 sections. Group members are required to create a unique name for the group as a way for the group to initially bond and take ownership of the process. Next, in order to facilitate open communication and group regulation, group members are required to share with each other multiple ways to communicate. To enable the group to monitor task progress, group and individual goals and expectations are documented. For each of the five assignments, groups develop due dates and a project schedule that meets the needs of the group. Group members are encouraged to assume different roles within the group as a way to limit dysfunction. The group is required to find an initial weekly common meeting time where everyone is available. Finally, in an effort to ensure that group members read and agree with the group plan, each group member is required to add their signature to the document. This activity also helps students take ownership of the project and of their decisions. It is important to note that the group plan is not a static document and via the group regulation process groups are encouraged to update and adapt their plan as they face challenges and difficulties.

Weekly Electronic Reflective Journals

Individual weekly electronic reflective journals are used to help students monitor group progress towards shared group goals and become more aware of the importance of both group challenges and group regulation. The journals place the onus on the students to develop insights and strategies to collectively regulate their group. The goal is to help students accomplish that task by having them review and reflect on their journal entries throughout the semester. Each student is required to answer a series of questions that comprise the instructor's Journal Entry Review Rubric (See Figure 2). These questions are designed to help students focus on elements of socially shared group regulation: goal setting, monitoring and engagement, and task restructuring. Typical journal entries may describe group

activities/challenges, interactions and decision-making and the effectiveness/ineffectiveness of various group regulation strategies.

Individual group members are required to submit weekly 150-200 word electronic journal entries to their private Desire2Learn Drop Box. Using the Journal Entry Review Rubric, the instructor provides students with electronic feedback regarding their journal entries. This feedback provides encouragement and/or further direction for the student. On occasion the instructor asks students to elaborate on the issues they raised in their journal entries in order to stimulate reflection on how group challenges might be addressed. The instructor typically spends two to three minutes reading, interpreting and preparing a response to each journal entry posted by each student.

At the end of the semester, each student is required to review their individual journal entries and write a one-page reflection on any emergent themes. Students are also asked to reflect on what they learned about the content of the group project (e.g. the process of developing a new product) and what they learned about managing the group. This allows the students to gain insights on how they can effectively manage groups.

Figure 2:
Journal Entry Review Rubric

Journal Entry Elements	YES	NO
Did the group accomplish its planned task this week? Why or Why not?		
What task does the group collectively plan for next week?		
What did you contribute to the group this week?		
Does the group face any challenges or difficulties?		
How do the group members collectively plan to overcome these challenges?		
Response to Professor's feedback question?		
Journal entry minimum of 150 to 250 worlds in Drop Box by 4PM Friday		
Comments:		

Assessment

The initial group plan is graded as a pass/fail assignment. The group plan is submitted only after all components of the document are completed and signed by each group member. Using the Journal Entry Review Rubric, the instructor assesses the journal entries of each student weekly. The assessment consists of a simple checkmark indicating whether or not the student satisfactorily answers the questions and more detailed feedback from the instructor. The assessment and instructor feedback is designed to ensure that students engage in self-refection and socially shared group regulation. To convince students of the importance of the journaling work, the initial group plan and the journal work should comprise between five to ten percent of a student's overall grade in the course.

The learning objectives are assessed by instructor review of the journal entries by individual students. Those reviews include a search for evidence of group problems/challenges, students' attempts to address those challenges and progress toward group goals and learning objectives. Based upon the presence of such evidence, the instructor then poses probing questions to encourage further action/reflection on the part of the students. In the journal entry reviews for this

course, the instructor looks for evidence in the following categories of student learning:

1. Shared Goal Setting and Planning
   1a. Group Communication and Task Progress
   1b. Addressing Group Challenges/Dysfunction

2. Shared Engagement, Group Monitoring, and Task Restructuring
   2a. Open Dialogue Using Technology
   2b. Open Dialogue Using Face-to-Face Meetings
   2c. Group Leadership

3. Shared Task Perceptions
4. Group Regulation

Examples of Journal Entries by Review Category

The following excerpts from student journal entries are provided as examples of student learning in each of the review categories. Comments and background information are included to clarify interpretation and analysis by the instructor.

1.Shared Goal Setting and Planning
1a. Group Communication and Task Progress
Laura: It is important that everyone is on the same page and understands the tasks that are coming up. It was very nice to have set deadlines, it was even better that we got to pick them this semester. It felt like we were more in control of this whole developmental project. We could fit the deadlines a little bit closer to our schedule. It helps to have really good communication during this whole entire process. So that everyone is aware of projects, deadlines, and upcoming task. This will help the overall group function and make for a more efficient group.
Tara: This being the first time many of us had a project with our own deadlines, I learned that you need to be flexible when setting goals and deadlines. According to our original schedule we should have finished the project over a month ago. I think extending our deadlines helped our project a lot because we wouldn't have learned all of the necessary information in class so early. I think a piece we did well was developing group cohesion. We weren't all best friends, but we got along, and this opened up the lines of communication that were necessary for our group to be flexible and functional. We were always e-mailing or texting about meeting dates and times and things we needed to accomplish.

Laura's post illustrates a common theme in the individual journal entries of students: Group members indicated that developing a semester long plan, including a schedule/timeline for task accomplishments, improved group communication and task progress. Tara's journal entry demonstrates a second common theme in the students' journal entries: The development by groups of a sense of project ownership. This is a new experience for many students who are typically have group membership and project/task deadlines assigned by the professor. In addition, student journal entries indicate that they learned to function as a collaborative group and to deal constructively with rescheduling of task deadlines.

1b. Addressing Group Challenges/Dysfunction
Mary: Schedules and deadlines should be used as…strong guidelines for managing your time. We learned this the hard way because we aimed to have our assignments done much sooner, but we pushed them back as other external factors arose and we ended up finishing our assignments later than we wanted to. You must continually be in communication about the process.
Jim: It was difficult to coordinate all of our schedules especially due to the fact that we are all working or athletes. It makes it very difficult to make the time to work together.
Sam: I do not think that this is the best group that I have worked in for group projects. I think that there is one group member that tries to overpower everyone and does not let people give input. I think that I'm not the only person that feels like we can't give any input without being shut down.
Heather: I have really come to acknowledge that the creative process is much more complicated than it seems. Through our group, we all have recognized how difficult is it for us to stay on task and stay organized with all of our thoughts, ideas and work. As a group, we always astray from our task at hand with side conversations, light-hearted jokes and off topic ideas.

The journal entries of these students are representative of scheduling and task focus concerns shared by many students. These entries suggest that students learned to be adaptable and to incorporate flexibility in the scheduling/rescheduling of task due dates. However, some groups learned that with flexibility comes the responsibility to collectively monitor and regulate the progress through continuous communication via emailing and texting. Further, as illustrated by the entries of Sam and Heather (above), it is not uncommon for groups to experience difficulty staying on task during meetings and students recognized the need for collective monitoring during meetings.

2. Shared Engagement, Group Monitoring, and Task Restructuring
2a. Open Dialogue Using Technology
Ben: There doesn't seem to be a lot of communication taking place, and every time I bring up meeting after class my suggestion seems to be brushed to the side. There might be some underlying causes to this problem, but without proper communication nothing is going to get solved.
Grace: Our group communicated effectively via texting and emailing each other constantly to keep each other updated about meeting deadlines and group meetings.
Kate: Everyone is not able to make every meeting. This means that the ideas discussed in group meetings need to be communicated via email or phone to keep everyone in the group up to speed.
Karen: For this particular group everyone is really good about responding to texts or emails right away. That makes things easier because we are able to communicate when we are unable to meet and get everyone involved.
Hanna: We all have e-mail to our phones so we have been able to keep the workflow going consistently.
Michael: Working through e-mail is never easy but the use of Google Docs was a great way to combat this because everyone could see what everyone was working on… Overall I feel that it was one of our strong points as a group.

Journal entries similar to these examples revealed that on-going electronic communication between group members allowed students to recognize and overcome scheduling challenges. Students used technology-based open dialogue to monitor group member participation and task progress as stated in the group plan.

2b. Open Dialogue Using Face-to-Face Meetings
Lynn: It's starting to really bother me when the rest of the group doesn't respond to emails… With 5 of us, communication lines NEED to be open to collaborate.
Mike: Schedule conflicts were always a huge problem and we ended up doing most of the project over email. This took away from the creative process a little because we couldn't snowball off one another as easily.
Ken: Real meetings are very important to stimulate creativity, because communication is like a multiplier. If you only divide the tasks for example by email it's more effective regarding time issues, but the output isn't that good. So real meetings are necessary to achieve better results.

While the excerpts provided in 2a show that e-mail, texting and Google Docs were effectively used by students as effective tools to socially regulate their groups, the journal entries in 2b reveal that for many groups electronic communications did not serve as effective substitutes for face-to-face meetings between group members. Students indicated that using only technology to communicate resulted in the loss of the multiplying effect of face-to-face open dialogue collaboration. Journal entries indicated that face-to-face meetings provide real-time, interactive social reinforcement and increased shared engagement.

2c.   Group Leadership
Loren: It was a hard process to manage… I think it would be more beneficial if we had one specific leader, and not everyone trying to take over.
Jen: Our team this semester did a good job, but we could have done better. Our group didn't have a true leader, and I believe that made us suffer. We would always look to the other people in our group to make the decision, but if everyone does that then the decision never gets made.
Kathy: My group makes sure to keep our deadlines by having a leader in the group always having everything organized and e-mailing us when it is time to meet up and start discussing our next assignment. If she thinks we are behind the class on assignments she will suggest that we start working on our next assignment and get it done on an earlier date than our deadline.
Sarah: It is important to be very creative in the team and allow for ideas to run wild but there comes a point when you can get off base with ideas and its always important to come back to the guidelines of the project you are working on or your creativeness can almost take away from the topic at hand. My team had so many great ideas and the creative process was unlike what I have ever been through before because I am very strict on what needs to be done just get it done and move on, so this was refreshing. My role (as group leader) was more to keep us within the guidelines of what needs to be completed so we wouldn't get completely unproductive.
Sam: When we got distracted, I found that the best way to get back on track was to ask the leader questions about what's the next item that we need to take care of.
Nick: The biggest thing I learned about managing a group during the creative process is you need to go with the flow of things and when necessary to take a hard stance and get things back on topic. It also helps to have a diverse group that meets all the major roles like the leader or the devil's advocate for example but are not like a Stalin level of leader.

Based upon these and other such journal entries, students learned that the collaborative selection of a group leader was an effective tool for monitoring group progress towards a shared goal/task. Those leaders helped the group to restructure the group plan and timelines when necessary and to keep the group on task during group meetings throughout the semester.

3. Shared Task Perceptions
Nicholas: As for managing my group throughout the process, it really helps if everyone is on the same page when it comes to task needed to be complete. Looking back at the other journals I would say that we experienced a little hiccup every once in a while which is bound to happen and with us it only happened like twice.
Grant: I learned more about managing group processes, as this was one of the best groups I have worked with in my time in college. It seems to work better when everyone is on task and the group collectively continues to assign deadlines for each other to meet.
Dan: I learned about managing a group that the task must be constantly on everyone's mind. The creative process is a process of constant maintenance. It will not be successful unless it is constantly being updated. Sometimes this means going back a step but if going back a step makes for a more successful product than hopefully it is worth it.
Chad: Throughout the project, I've learned that all members must contribute, or at least attempt to contribute, in every aspect of the project. I've learned that everyone must believe in the project's success and understand what the group is doing or there won't be sustainable synergy in the group.

These and similar journal entries indicate that students learned that shared task perception was a key element of group regulation, collaboration, and the monitoring and modification of group plans.

4. Reflective Journals and Group Regulation
Claire: Working as groups can bring upon some of the most rewarding feelings because as a group we struggle in the beginning to manage the project but through collaboration and dedication we also finish stronger together in the end. The journal entries were a great tool for me to reflect upon the class and group projects. This allowed me to learn about the ways that I can help improve our project and group.
Paige: What I liked about these journals is that it made me think about things that I normally wouldn't. I've never really had to think about how I work through things when I am frustrated or not getting any positive feedback. I think that having thought about this, it will help me in future situations with groups.
Anne: I noticed after going back over my journals that there was a lot of working out difficulties with the group members. It is nice to see now that it is the end that we got through it without your help. I learned that making sure we all understand and communicate our overall goals with each other that everything will come together.

Student journal entries like these reveal that they used their journals to monitor the group and reflect on the process of working as a group to develop a quality outcome/project rather than focusing on the easiest way to complete the project regardless of quality. Journaling and reflection on their entries allowed students to participate in the revision of schedules, task assignments and to work collaboratively.

The excerpts below illustrate that the weekly reflective journal assignment enabled students to learn at two levels. First, from the content perspective, they learned how new products are developed. Second, from the process perspective, the journals allowed the students to recognize that had learned to work effectively in and to regulate groups.

Overall Student Reflections
Cassie: What have I learned? I learned that time and team management is the essence of a good team. We also learned throughout our journey as a group to better judge our ability to meet deadlines, and to assess the level of work needed before setting any dates.
Jake: In the beginning it started off kind of rough as far as the cohesiveness of the group goes. It was hard for everyone to make time to get together and work on the project as well as some members missed some of the first meetings, but as time went on the group got more tightly knit and the project and work quality improved as this happened as well.
Heather: I have really come to acknowledge that the creative process is much more complicated than it seems. Through our group, we all have recognized how difficult is it for us to stay on task and stay organized with all of our thoughts, ideas and work… we have had one person organize a task list of everything we are to complete throughout the meeting; whenever we got off task we all would look down at our task sheet and it would re-focus our entire group.

Conclusion

With reflective weekly journals and the development of a group plan as core elements of a semester long new product development project, students learned the importance of group collaboration and gained first-hand experience with the advantages of adaptability and flexibility in addressing challenges commonly associated with group work. The journals and group tasks helped students to not only focus on the development of a new product but also to understand that group processes are an integral part of that development. Student feedback indicates that for many students, their newly garnered knowledge regarding group processes and socially shared group regulation may be equally important to their career success as is the knowledge they gained about new product development. Instructors should encourage students to take ownership of and shared responsibility for their groups not just in terms of the final outcome but also group processes and communications.

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Appendix 1: Group Plan

Group Name:
Names of Members with contact information (email and cellphone): 1 2 3 4 5 6
Goals and Expectations of Group Members:
Schedule Week to submit the 4 assignments, launch plan & YouTube advertisement: Assignment 1 - Week: Assignment 2 - Week: Assignment 3 - Week: Assignment 4 - Week: Launch Plan/Ad - Week:
Meeting times for group (day and time of the week):
Other ways to communicate with group members:
Role of each group Member: 1 2 3 4 5 6
Signature of each group member:

Appendix 2: New Product Development Group Project

Assignment 1 Product Innovation Charter – The group is tasked with selecting a firm in need of product innovation and the creation of a product innovation charter (PIC) for that firm.

Assignment 2 Idea Generation - The group is tasked with the generation of three product ideas by completing three mindmaps and the creation of a one page write up for each product idea. The write up focuses on the need/problem solved via the product idea and the market profile/target market(s) of the product. To conclude the assignment the group writes a summary explaining which product idea they will continue to develop.

Assignment 3 Concept Statement – The group is tasked with preparing for a focus group through the development of a concept statement, clarification of the goals of the focus group, selection of the participants and development of the focus group questions. The questions should focus on how participants currently solve the problem/need related to the concept, what they think of the concept/idea and the 4 Ps as they relate to the concept.

Assignment 4 Conduct Focus Group - The group is tasked with conducting the focus group and summarizing the findings in a minimum five page double-spaced paper.

Launch Plan and YouTube Ad - The launch plan includes the PIC, a product description and problem/need solved, a target market description/profile, a discussion of a launch strategy and a forty-five second advertisement put on YouTube.