BRINGING THE WORLD A LITTLE CLOSER TOGETHER: DESIGNING TASKS FOR EFFECTIVE CROSS-CLASS GLOBAL VIRTUAL TEAMS

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Abstract

Virtual teams are becoming commonplace in business today. Based on a month-long global virtual team project conducted by the authors, this paper reviews the opportunities and challenges of using global virtual teams as part of a business school curriculum. Because of the complexity of global virtual team projects, the paper applies a virtual team life cycle as a project management tool in order to systematically support the design, implementation, and assessment of virtual team projects.

INTRODUCTION

"Face-to-face teams are no longer the norm in global business" (King, 2007, p.315). Many of our business students will be engaging in global, cross-cultural team experiences without ever having seen the other people on their team -- as members of virtual teams. How are we, within our business curriculum, preparing them for these experiences -- for the complexities of working effectively online as well as across time zones and cultures? (Natale and Ricci, 2006). And, how are we taking advantage of virtual teams in order to provide our students cross-cultural learning experiences that contribute to their awareness and understanding of global environments, increase their knowledge of managerial cross-cultural challenges and create opportunities for self-reflection about their roles as global citizens? Using global virtual teams in course design can provide both graduate and undergraduate students challenging, interesting and meaningful learning experiences. Most importantly, however, it will help better prepare them for today's and tomorrow's workplaces. As Bergiel, Bergiel, and Balsmeier (2006) state: "In today's market, global virtual teams are not the exception, but the rule as companies expand into the global market." (p. 427)

Virtual teams are increasingly used in college courses today, both in distance learning and in face-to-face classes. In addition to providing opportunities for active, participatory, collaborative, hands on and engaged learning for students, virtual teams, through the use of Web 2.0 tools, allow students to contribute to course content as well as shape their own learning experiences. As instructors we are challenged with creating or selecting learning tasks that we think meet course learning objectives and that will also engage students as active learners. Where circumstances include learning tasks with faculty and students from different institutions, even across countries, additional complexity is added. When one is employing a virtual team, it is important to realize it is not just another team:

It is critical to recognize that existing knowledge of traditional face-to-face team interactions and dynamics may not be applicable to teams functioning in a virtual setting. In fact, the growing literature on this subject suggests that a conscious effort at increasing team building techniques and developing communication protocols is requisite for ensuring the success of a virtual team (Alanis, Code, Horner and Spasojevic, 1998).

In this paper we review the complexities and challenges of virtual teams and, based on a month-long virtual project conducted by the authors, describe a general process for creating and implementing effective virtual team assignments. First, we introduce relevant literature about virtual teams and global team management. Next follows a section that describes and presents results gleaned from a complex, month-long team assignment that was conducted during the Fall 2008 semester in a virtual environment, by university business students drawn from two classes, one each at universities in different countries. Third, we describe how the process could be improved through the use of a virtual team management lifecycle model as proposed by Hertel, Geister and Konradt (2005). We conclude with a discussion section.

LITERATURE

The growing critical importance of virtual teams in business today was argued above. For emphasis, Powell, Piccoli and Ives (2004) state, "one of the building blocks of . . . successful organizations [today] is the *Virtual Team"* (p.6). Today, as many as 60% of managers are members of virtual teams (Hertel et al, 2005). However, there is some evidence that virtual teams fail as often as they succeed (Lipnack and Stamps, 1998). This section explores the definition of virtual teams, challenges and opportunities cross cultural issues and global project management of virtual teams.

Definition of Virtual Team

When discussing virtual teams, one needs to begin with an understanding of what a tradition, face-to-face team is. A good working definition of "team" is provided by Cohen and Baily, 1997:

A team is a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems, and who manage either relationship across organizational boundaries (p. 241)

A "virtual team", a subset or special category of "team", can be defined as:

Virtual teams are "groups of people who work interdependently with shared purpose across space, time and organization boundaries using technology to

*communicate and collaborate (*Kirkman, Rosen, Gibson, Tesluk, and McPherson, 2002, p. 67).

The next section explores the research that has been done on virtual teams.

Challenges and Opportunities with Virtual Teams

Although virtual teams have been studied to some extent over the past fifteen years, their growing use -- with today's global marketplace, the ubiquitous Internet, and easy to use online collaborative tools – has increased the importance of understanding how virtual teams work. Some guideposts have emerged from the research results to date.

Potential weaknesses with virtual teams have been identified by Powell et al, (2004):

- inefficient knowledge sharing and planning
- no face-to-face meetings, especially at the beginning of the project, can keep team member links weaker than a traditional group
- insufficient shared language among group members
- cultural differences, especially in global teams
- inadequate technical expertise can impact the team experience and performance

These issues can take on added complexities in global teams where cultural differences are common place.

Blackburn, et. al. (2003) discuss the knowledge, skills, and abilities (KSAs) needed for well functioning virtual teams – KSAs for team members, for the virtual team as a whole, and for the team leader. Individual KSAs include self-management, virtual communication (including competence in using information technology), cultural sensitivity, and trust building. Team KSAs include establishing virtual team goals and roles, establishing team norms, team problem-solving, team conflict management, balancing relationship and task team, and team learning. KSAs for virtual team leaders include serving as a role model (e.g., using the collaborative software, fostering effective virtual communication), keeping focused on the task and objectives, and supporting individual team members (providing "pats on the back" or ensuring that their contributions are valued to team members possibly thousands of miles away).

Gibson and Gibbs (2006) crystallized virtual team's characteristics, as they relate to innovation, into 4 dimensions: geographic dispersion (space and time zones), electronic dependence (mix of face-to-face or no face-to-face), dynamic structure (a more permanent team versus an ad-hoc team), and national diversity (amount of different nationalities). For all four dimensions, a "psychologically safe communication climate helps mitigate the challenges they pose" (p. 451). Cordery and Soo (2008) extend the Gibson and Gibbs (2006) model to include transactive memory (where team members actively use each other's memory or expertise), work engagement (motivation of team members), and collective efficacy (a team's belief that it can perform effectively) along with a number of moderating variables.

Cross Cultural Issues and Virtual Teams

As the use of global virtual teams expands, research addressing the challenges and opportunities faced by participants in cross-cultural virtual environments has been forthcoming and needs to be highlighted. Potential advantages and opportunities of global virtual teams according to Zakaria, Amelinckx and Wilemon (2004) include creating culturally synergistic solutions, enhancing creativity and cohesiveness among team members, promoting a greater acceptance of new ideas and providing a competitive advantage for multinational companies. Specific challenges include differences in language, time zones, locations, organizational and personal cultures, policies and regulations, business processes, political climate, management skills and project leadership (Binder, 2007). From an HRM perspective, Zakaria, Amelinckx and Wilemon (2004) further identify the human challenges in implementing global virtual teams, as creating effective team leadership, managing conflict and global virtual team dynamics, developing trust and relationships, understanding cross-cultural differences, and development intercultural communication competence. (Blackburn, Furst, and Rosen (2003) examine critical knowledge, skills and abilities that are needed to work virtually and address the key role of participant cross-cultural training focusing on developing team member's awareness of differences in language, cultural norms and values. Nurick and Thamhain (2006) discuss the managerial challenges in multinational team projects and the associated complexities of working virtually. Anawati and Craig (2006) address issues related to behavioral aspects and cultural differences in virtual global teams, specifically focusing on how team members adapt their behavior in cross-cultural teams. Types of adaptations necessary for consideration include spoken and written communications, adaptations for time zones and varying religious beliefs. With the plethora of identified cross-cultural challenges in global virtual teams, the need for virtual global team member training is evident. As Zakaria, et al. (2004) state:

> *....cross-cultural training for global virtual team members, individually and as a group is critical. This training helps people recognize, adapt and adjust to culturally diverse work environments and develop global mindset. In regards to global teams, cross-cultural training also addresses and educates members about the cultural differences that they face through electronic communication and how to overcome barriers to knowledge sharing. Training should make clear to the team that cross-cultural communication (electronic or otherwise) does not require a total transformation of behavior to suit cultural differences but does demand an ability to work within a culturally diverse framework.* (p.24)

Cross-cultural training for participation in global virtual project teams, depending on the goals of a project, may vary but might include: issues of team formation, trust and collaboration, cultural sensitivity and awareness, and team communication; language training; understanding of specific cross-cultural differences of countries/participates in a project; best practices in global virtual teams; and knowledge of participating universities, business programs and participating students.

Cross cultural training can enhance guidance in virtual team project design and management, increase individual and group participant understanding of project design, expectations and processes and contribute to better communication between participants throughout the project.

Global Project Management and Virtual Teams

Global teams also present new challenges in work processes, the reliance of technology, knowledge transfer, trust, cross-cultural issues, management skills, and project leadership (Cleland and Gareis, 2006). Based on best practices, they provide recommendations for facilitating high-performing global project teams; early project life-cycle team involvement; define work process and team structure; ensure uniform procedures for technology and knowledge transfer; develop organizational interfaces; staff and organize the project team; communicate organizational goals and objectives; build a high-performance image; define effective communication channels; build commitment; manage conflict and problems; conduct team-building sessions; provide proper direction and leadership; reduce the complexity of the management system; and foster a culture of continuous support and improvement (Cleland and Gareis, 2006).

Table 1 presents a comprehensive lifecycle of virtual team management (Hertel et al. 2005). The model recognizes the prominent role of technology and HRM issues in virtual teams. It also recognizes that the launch phase is a separate phase, a particularly important phase for virtual teams, and it may be a longer phase than in a face-to-face team. The third and fourth phase, performance management and team development, include topics that impact the entire project (e.g., training does not necessarily occur in just the fourth phase, nor does motivation necessarily appear in just the third phase) and it is essential to highlight these important issues. Similarly, the fifth phase – disbanding – is particularly important for virtual teams who may assemble and disassemble quite quickly. The members of such teams need to disband in a way that brings the members appropriate closure, ensure the ability to quickly reassemble and be productive as needed.

Details of the month-long project, during the fall of 2008, follow.

THE VIRTUAL ASSIGNMENT

The virtual assignment was designed between two schools on opposite sides of the world – The University of Massachusetts Dartmouth (UMD) in the United States and the University of KwaZulu-Natal (UKZN) in Durbin South Africa. Faculty on both sides were interested in providing (1) a cross-cultural experience for their students and (2) an opportunity to use some of the current web 2.0 tools available for collaborating and teaching. More specifically, from the UMD perspective, the class was the core MIS class that all MBA students are required to take -- a graduate class with a mix of students, some interested in accounting, some in marketing, some in operations, etc. The virtual team assignment between the two schools was designed to provide an opportunity to reinforce two of the overall objectives of the UMD MBA program:

- To enable graduates to understand, critically evaluate, and contribute to a wide range of business issues needed to effectively manage change in a globally interdependent, diverse world.
- To enhance student interpersonal communication and analysis/synthesis skills necessary to work effectively as managers and leaders. (http://www.umassd.edu/charlton/programs/graduate/mba/welcome.cfm).

From the UKZN side, the class was a senior-level honors undergraduate class for Information Systems and Technology Honours students: an undergraduate class, all IS students, and all honor students.

The Overall Task

Each team of 4-5 students – half SA and half US students – was directed to create a research paper and podcast on a topic related to the effective use of ICT (Information and Communications Technology) around the world. There were 8 teams, each team containing a mix of students from both countries, and each team assigned a separate topic. Seventeen SA students and eighteen US students participated. The technical environment was one that was independent of each school, using NeXtrovert for the assignment web page, forums, and wikis. The task included a variety of individual assignments, group assignments, and self-assessment of how each virtual team performed.

The overall task design was intended to model, as closely as possible, a typical complex task conducted in global virtual teams today -- focused and time-bound. In addition to describing the task and its outcomes in detail, the authors will report below on students' assessment of their experiences, faculty feedback, challenges and opportunities faced and lessons learned.

The Task in Detail

The month-long project began with a set of 3 activities in Week 1 in order to, individually, get a foundation on a very broad and complicated topic: effective ICT use in the world. A variety of activities, readings and viewing videos, provided background in three topics:

- Thomas Friedman's, *The World is Flat*
- The Bottom of the Pyramid (BoP)
- The effective use of ICT – how countries are leveraging ICT

From a project perspective, these tasks provided the SA students an opportunity to send homework, through NeXtrovert, to a new instructor (the US instructor) and get acquainted with him/her.

The second and third week had a mix of individual and group activities:

- Individually
  - Students learned about virtual teams through a reading and student write-up
  - Studnets registered with Nextrovert
- In groups
  - Students introduced themselves to their team members through a project forum in NeXtrovert. Different teams and students used different forms of communication – some branched out and used combinations of email, chat, forums, skype, etc.
  - Team members in the US created project teams and topics for their project. Given some delays and the shortness of time, the SA students were then assigned to a team. The SA team members worked with their

US team members to finalize the topic. The topics, all related to the use of information and communication technologies (ICT) in the world included: determination of the barriers and benefits for small businesses in the global ecommerce marketplace; development and implementation issues around e-government; how ICT can facilitate the development and marketing of products to the bottom of the pyramid (BoP); how ICT can enhance fair trade; and volunteering in the digital age.

- Team members began collecting references and posting information relevant to their team project, to their team wiki, and within NeXtrovert. The wiki was used by the group to collaboratively post information and resources about their topic in an organized way. The wiki provided an easy to access location and an effective way to collaborate virtually.

The software tool NeXtrovert was already familiar to the SA students since they had been using it for the first module of this class. For the US MBA students, a technologically less savvy group than their SA IT counterparts, they had to learn the basics of the package quite quickly. In addition, SA team members were encouraged to help their US team mates with technical questions as much as possible – e.g., using NeXtrovert, its forum, and its wiki. This was one way to encourage communication between the two sets of students and a way to ease some of the perceived nervousness that some of the IT undergraduate students had about working with US "graduate" students – it gave the SA undergraduate students a chance to be the "expert."

The fourth week focused on group activities:

- Once the wiki was completed, the US team used the wiki information for their team to develop a PowerPoint presentation and a one page executive summary
- The SA team members then converted the PowerPoint presentation into a video podcast
- Once the projects were completed, each group reviewed the other team projects and posted comments on the call forum within NeXtrovert.

There was also one final individual assignment where each student submitted written feedback to the instructor on how his/her virtual team worked – what worked well and what could have been improved.

THE VIRTUAL ASSIGNMENT – FEEDBACK AND HOW TO IMPROVE USING A PROJECT MANAGEMENT LIFE CYCLE

The virtual team class project was mostly successful and well received by student participants. In a post-project survey, 64% of the students said the project went "very well" and only 15% said it "did not go well". Students found the software easy to use and enjoyed the opportunity to work with international students. The most productive teams adapted to the 6 hour time difference once they became aware that a team could, essentially, work on a project 24 hours a day – e.g., the US team members could send information by midnight and have updated material when they got up the next morning. Three student comments capture some of their experience:

- Regarding the development of content and outline through a team wiki:

" The wiki was a great collaboration platform – it's nice to be able to add work, and edit the work of others, slowly molding and shaping text into a final product."

- Regarding the ability to review each other's deliverables online and both make and receive student comments about the work:

  "It was great to look through work submitted by other teams, and to comment in the forums. I like how threaded discussion evolved around each topic. By getting people to review the work by others, we learn from the successes and mistakes of other teams."

- Regarding cross-cultural awakenings:

  [From a US MBA student] "I found my [SA] teammates to be knowledgeable and very willing to help. I was particularly surprised, and am not sure why, that their depth and knowledge of our topic equaled ours. Perhaps it was a stereotype to think their educational system would not be on the same level as ours, but it was quite the opposite."

Students also provided a number of suggestions for future virtual team projects:

- Start the technical training (in this case, NeXtrovert) a little earlier so it is more familiar when the research wiki component begins
- Make sure all assignments are clear and detailed
- Spend more time at the beginning for team introductions and building trust – e.g.: establish times for the virtual team members to meet online (e.g., chat, phone, or if possible videoconferencing); create opportunities to share pictures and information. As one student put it, "It takes awhile for people to get acquainted"
- Build in more time during the overall project – especially helpful for any groups that are not working well together
- For the team research wikis in particular: provide more time for the wikis to be developed, provide more detailed feedback on the wikis, count the wiki development as a larger part of the grade
- Students need to be aware that, in a virtual team, requirements for coordination, team spirit, sense of responsibility and focus on the goal are all magnified compared to a traditional team.

While the project was positively received by the students and the faculty involved, the faculty experience reinforced their understanding that virtual teams are challenging, especially when cross-cultural and cross-national. The faculty was curious to see, before conducting this project a second time, if there were a more comprehensive way to plan, manage and review such a project. Since Hertel et al.'s life cycle of virtual teams (2005), discussed earlier, is a project management tool specifically focused on

supporting such a comprehensive method, they began by using it to review the project just completed.

Tables 2a, 2b, 2c, 2d, and 2e each show a three column table scheme for reviewing the US / SA project. The first column contains Hertel et al.'s (2005) key activities, broken into life cycle steps. The second column is the overall evaluation of that activity for the recently completed project. "++" means the activity was adequately addressed while "--" means the activity needs improvement. The third column contains comments, with both positive and negative notes about the key activity in question.

The model proved to be a good means for reviewing a completed virtual team project and a useful way to prepare for doing another. Using the model can assist in improving:

- project design and management
- project integration
- communication among the faculty team, often an international virtual team of faculty, as they discuss project design, expectations and processes
- cross-cultural awareness of differences and similarities throughout the project design process.

Clearly, there may be other, additional benefits as one gains experience with applying the model.

CONCLUSION

In a business world where virtual teams are becoming commonplace, it is critical for our students graduating from business programs to be able to function effectively in virtual teams, especially global virtual teams. The virtual team project discussed in this paper, we believe, is a good prototype for doing just that. Based on the criteria established, the project was successful, interesting, and challenging for both the students and faculty involved.

However, the complexity of virtual team projects requires a more systematic approach for designing, implementing, and assessment. The paper introduces Hertel et al.'s virtual team life cycle (2005) as a project management tool to deal with the inherent complexity of these projects. After using the life cycle to review our project, we feel time invested in using Hertel el al's lifecycle (2005) for planning, managing, and assessing virtual team projects can contribute to systematic and continuous improvement of such projects. Over time, the life cycle can also serve as a common methodology and template that can be used by any faculty team using virtual teams, thus making possible a common repository so anyone wishing to design or assess a virtual team project can benefit from other's previous experience.

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Table 1: Key Activities in The Lifecycle Of Virtual Team Management (Hertel et al. 2005)

Phase A	***Phase B***	***Phase C***	***Phase D***	***Phase E***
Preparation	***Launch***	***Performance Management***	***Team Development***	***Disbanding***
• Mission statement • Personnel selection • Task design • Rewards system • Technology • Organization integration	• Kick-off workshop • Getting acquainted • Goal clarifications • Development of intra-team rules	• Leadership • Regulation of communication • Motivation / emotion • Knowledge management	• Assessment of needs / deficits • Individual and/or team training • Evaluation of training effects	• Recognition of achievement • Re-integration of team members

Table 2a: Preparation: Key Activities in the Life Cycle of Virtual Teams (Hertel et al., 2005)

Key Activity	***Evaluation***	***Comment***
Preparation (faculty driven)		
• Mission statement	++	(+) The purpose of the project was described in writing as well as discussed in class multiple times.
• Personnel selection	++ / --	(+) Teams were self-selected on the US side and, due to time constraints, assigned on the SA side. There were no complaints from the students, directly, about the composition of teams. (-) *Team selection in the future should be begun earlier and included in the "getting acquainted" activity within the Launch.*
• Task design	++ / --	(+) The tasks were designed with a mix of theoretical and hands-on activities, individual and group, with specific instructions, and broken down into smaller tasks when possible. (-) *There was not enough "getting acquainted time" upfront. Given the tight schedule, US students were challenged to learn the software while working on deliverables –see "technology".*
• Reward systems	++ / --	(+) The reward system was specific, with a number of items to grade. Small items, such as posting to a forum, were given points to encourage students to keep on a tight schedule. A peer evaluation three-fourths of the way through the project, highlighted strengths and weakness in the project team when there was still some time to address any problems. (-) *Grading all the elements was time consuming. The system was confusing because the overall assignment was worth different amounts for the US and SA classes. Two peer evaluations are recommended – once after the first major deliverable in order to have adequate time to address problems and once at the end.*

• Technology	++ / --	(+) The NeXtrovert software was a good choice – it worked well, was free, and provided an environment independent of either school – e.g., there were no problems with students, not enrolled in a school, using the other school's learning management system. *(-) the technology training should start at least one week before the assignment deliverables begin*
• Organization, integration	++	(+) The faculty in the two schools worked very well together, both in planning the module and in quickly handling issues that arose during the module.

Table 2b: Launch: Key Activities in the Life Cycle of Virtual Teams (Hertel et al., 2005)

Launch	*Evaluation*	*Comment*
• Kickoff workshops	--	(-) *Students consistently suggested that at least one face-to-face meeting occur (e.g., via videoconferencing) , if possible, at the beginning of the project – for "getting acquainted" and for creating a common understanding of the project*
• Getting acquainted	++ / --	(+) Teams were given small projects on which to work together, in order to sort out work processes, time differences, etc. SA students, experienced with the software, were given a mentor responsibility at the beginning of the project to help their inexperienced US team counterparts. Students were required to use NeXtrovert and email. They were encouraged, if they wished, to use other online tools, such as IM, Skype, Facebook, etc. (-) *As above, a face-to-face meeting at the beginning of the project was highly recommended by the students along with more time built into the project for social overhead. The need was deemed particularly important because of the challenges of working across cultures and nations.*
• Goal clarification	++	(+) Goals were presented in detail, in writing, and clarified, as needed, by the US instructor and the SA instructor via email or class forum.
• Development of intra-team rules	++ / --	(+) After an individual assignment which introduced virtual teams to the class, intra-team rules were left to the team. Team performance ranged from excellent to poor. The highest functioning teams embraced the time difference as a way to work 24 hours a day on the project. (-) *The more poorly functioning teams had their biggest problem with communication (slow or no response being the biggest offender) and meeting internal deadlines.*

Table 2c: Performance Management: Key Activities in the Life Cycle of Virtual Teams (Hertel et al., 2005)

Performance Management	*Evaluation*	*Comment*
• Leadership	++	(+) Given that the team members were MBA students and seniors, internal leadership issues were largely left to the individual groups. This worked well for 6 of the 8 teams. (See "assessment of needs/deficits" below for discussion of the 2 underperforming teams).
• Regulation of communication	++	(+) Online communications – e.g., wikis, team forums, and class forums – were regularly reviewed by the instructor. Participation in the wiki and assigned online discussions were evaluated.
• Motivation/emotion	++ / --	(+) There was genuine interest and anticipation on both sides about working in international virtual teams. *(-) US students, MBA students, were hesitant to embrace the project – most are part time students with full time jobs, children, etc. They saw potential time sink holes related to (1) working with undergraduates, (2) working with new technology / software, and (3) working with team members half-way around the world. As a result, an alternative task (a traditional research paper) was offered. Five of the 23 students in the US class opted for the research paper.*
• Knowledge management	++	The online components (wiki, team forum, class forum) all worked as knowledge collection and sharing tools while also preserving the information for review after the class was completed so the instructor could look for opportunities for improvement.

Table 2d: Team Development: Key Activities in the Life Cycle of Virtual Teams (Hertel et al., 2005)

Team Development	*Evaluation*	*Comment*
• Assessment of needs/deficits	--	*(-) There were, of the 8 team, that did not work well together. They felt, given the tight schedule, that they had little chance to work out any problems. One strong recommendation from the students was that the task time be extended in order to build in time to sort out problems virtually. One idea is to take a break in the project mid-way through (perhaps a week).*
• Individual and/or team training	++	(+) There was a reading and a paper assignment to introduce students to the concept of virtual teams along with its advantages and risks.
• Evaluation of training effects	++ / --	(+) There was a face-to-face discussion in the US class after the reading and paper assignment related to virtual teams.

		(-) There was no live (synchronous) discussion with the SA students after the individual virtual team assignment. The instructor needs to at least facilitate an online discussion.

Table 2e: Disbanding: Key Activities in the Life Cycle of Virtual Teams (Hertel et al., 2005)

Disbanding	*Evaluation*	*Comment*
• Recognition of achievements	++ / --	(+) The results were discussed, face-to-face, by the US students *(-) For the US students, the final podcast from the SA students was not always posted in an obvious spot so it was difficult for some US students to see the final product.*
• Re-integration of team members	++ / --	(+) The project was discussed at length during a face-to-face meeting of the US students. *(-) The results were not formally discussed with the SA students. The classes were on different schedules and the project, after being extended, went to the very end of the finals period for the SA students. They submitted the final deliverables and left.*