

Midterm Report IPRO 309
Education and Technical Support of Prosthetics and
Orthotics Education in Latin America

Illinois Institute of Technology

Chicago IL

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Instructor

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Team Members

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1.0 Revised Objectives/Goals

Primary Objective

The primary objective of this IPRO has not changed and is to support the development of the first Category 3 International Society of Prosthetics and Orthotics (ISPO) accredited program in Latin America.

Secondary Objectives

The secondary objectives are necessary for accomplishing the primary objective. To ensure that the program will be accredited, many guidelines must be followed; these guidelines have set the secondary objectives as follows:

- Develop several educational modules concerning common conditions and their orthotic treatments
- Develop several low-cost demonstrations and hand-outs to compliment the educational modules
- Carefully follow ISPO requirements to ensure accreditation
- Translate all material to Spanish for use in Latin America
- Work with educators in Colombia to develop a program similar to IPRO 309
- The IPRO team will no longer be planning a conference in January at Joliet Junior College. Instead, the team has been invited to attend an open house and present the educational materials created throughout the semester.

2.0 Results to Date

Multiple drafts of the educational modules have been submitted and reviewed by the class. Each sub-team received feedback from the class on how their presentations can be improved. Work will continue until November 8, when all sub-team materials are due. The final modules will be incorporated into the curriculum of Joliet Junior College (Illinois) as well as Centro Don Bosco (Bogotá, Colombia). The Code of Ethics has also been completed and uploaded onto iKnow. The team has also completed the Midterm Presentation to the other service learning IPROs.

Bryan Malas, director of the O&P Program at Children's Memorial Hospital, spoke to the class about actual cases and different treatment options. He showed videos of a man suffering from stroke and how effective an orthotic device was in helping him walk.

3.0 Revised Task/Event Schedule

The team has stayed on track with the schedule laid out at the beginning of the semester. Completed tasks have been struck-through. The Midterm report was pushed back so that the team could focus on sub-group work. The required time estimates have been accurate to this point.

Due Date	Item	Req. Time
Sept. 20	All subgroup project plans uploaded	2 hrs/subgroup
Sept. 25	Project Plan available for review	15 hrs
Sept. 28	Project Plan reviewed and uploaded	2 hrs
Oct. 21	All subgroup midterm report uploaded	2 hrs/subgroup
Oct. 25	Midterm Report available for review	15 hrs
Oct. 26	Midterm Report reviewed and uploaded	2 hrs
Nov. 8	All project materials due	Ongoing
Nov. 20	IPro Poster completed	15 hrs
Nov. 20	IPro Day presentation completed	15 hrs
Nov. 22	Abstract available for review	5 hrs
Nov. 26	Abstract reviewed and uploaded	2 hrs
Nov. 15	Meeting minutes recorded and uploaded	1hr 15min/meeting
Nov. 28	Website available	20 hrs
Nov. 29	IPro Presentation submitted to IPro office	30 min
Nov. 30	All deliverables uploaded	Ongoing

On the days subgroup material is to be uploaded each subgroup has completed the necessary summaries of their work for each document. The review items were made available by the Content Project Manager and Project Manager for the advisor and team to review and edit as necessary so they may be uploaded afterwards as indicated in the table above. The IPro team has decided to complete the poster and presentation early to allow for review by the team and sufficient practice time for the presentation. All other deadlines have been stipulated by the IPro office and may be completed before the specified date; the specified date is the latest expectable date for completion.

In addition to the above dates each subgroup has set dates for apt completion of the educational modules.

Club Foot Schedule

Due Date	Item	Req. Time
September 13	Initial Presentation, Research Updates	4 hrs/person
September 27	Continuation of Research, Update Presentation	4 hrs/person
October 11	Begin to finalize presentation, Begin compiling reference page, Submit vocabulary to vocabulary manager	3 hrs/person
October 25	Finalize presentation, Create Brochures	2 hrs/person
November 8	Final presentation to class, submit brochures, submit information for project poster	2 hrs/person

Spinal Trauma Schedule

Due Date	Item	Req. Time
Sep 27	Background of slide show completed	6 hrs
Oct 11	All individual slide show material submitted	5 hrs/ person
Oct 25	Orthotic treatment of spinal trauma PPT completed	6 hrs

Nov 1	All presentations revised as needed	20 hrs
Nov 6	All material available in Spanish	6 hrs
Nov 8	Final materials due	5 hrs/ person

Stroke Schedule

Due Date	Item	Req. Time
Sept 13	First subgroup presentation to group	4 hrs/ person
Sept 20	Subgroup project proposal due	1 hr/ person
Oct 11	Subgroup presentation	3 hrs/ person
Oct 25	Subgroup presentation, create brochures	2 hrs/ person
Nov 8	Stroke finalized presentation and all teaching materials	2hrs/ person

These dates are in addition to the IPRO's group schedule. The subgroup presentations are updates on the status of the overall stroke presentation. They have consisted of the subgroup presenting the collected information to the rest of the group for feedback and to demonstrate progress in the project. Changes have been made according to feedback from the team and Professor Meade. The presentation, brochures, and any additional materials should be finalized as it is desired to be presented for educational use by November 8.

4.0 Changes in Task Assignments and Designation of Roles and Team Organization

No changes have been made in the organization of the team. The administrative tasks have worked well with the team. The administrative tasks remain as follows:

- Allison: *Project Manager*: The project manager oversees all of the operations as well as announces daily meeting agendas. The project manager also ensures all administrative tasks are being taken care of as well as informs team members of deliverable deadlines.
- Eduardo: *Content Project Manager*: The content project manager oversees the production of the educational materials as well as instructs subgroups on what is expected of them for each deliverable. The content manager also ensures all deliverables are uploaded to iGroups on time.
- Lydia: *Webmaster*: The webmasters will create a website to make all educational materials available to the public in English and Spanish.
- Ryan: *Vocabulary Manager*: The vocabulary manager will compile the pertinent vocabulary from each of the three subgroups into one easy-to-use note sheet.
- Heather: *Minute Recorder*: The minute recorder will record all group discussions at the meetings as well as post any deadlines that have been decided upon on iGroups.
- Heather & Stefanie: *Poster Designer*: The poster designers will create the poster for IPRO Day and collect all pertinent information from each subgroup.

Three subgroups have been in effect to research and compile the educational modules. Each group has been creating power point presentations as well as pamphlets to effectively convey their research in a way that will be easily incorporated into the lesson plans of teachers at Centro Don Bosco and Joliet Junior College. Each individual group delegated their tasks and created a work breakdown structure that would allow the

effective completion of the educational modules. No major changes have been made in the sub-group organization.

Club Foot

The responsibility of the club foot subgroup is focused on creating an educational module about club foot and its treatments; to accomplish this, the individual tasks are as follows:

- Allison Bagby: Mechanical Engineering
 - Ponseti method of treatment
- Solomon David: Biomedical Engineering
 - Consequences and problems associated with untreated club foot
- Heather Selby: Biomedical Engineering
 - Surgical methods of treatment

The club foot group has remained on or ahead of schedule. The presentation has been finalized. A vocabulary handout will be created to supplement the vocabulary within the presentation. For the remaining time, the sub-group will also help the spinal trauma group complete tasks because they have the most information to cover.

Spinal Trauma

The task of the spinal trauma subgroup is to create effective educational modules regarding spine trauma and its treatments. Individual tasks are as follows:

- Seth Buntain: Aerospace Engineering
 - Breakdown of injury types, anatomy (of spine), Halo and Collar orthotics
- Hua Chen: Biomedical Engineering
 - Mechanisms, TLSOs
- Lydia Bengert: Mechanical Engineering
 - Construction & Biomechanics, breakdown of injuries, TLSOs
- Ryan Yarzak: Biomedical Engineering
 - Vocabulary (stable vs. unstable, compression), incidence (in Colombia/Latin America), Statistics, LSOs,

Because spine trauma is such a large topic to cover adequately in one presentation, we have decided to create two presentations instead. One will focus on upper spine injuries and their treatment, while the other presentation will focus on lower spine injuries. This approach will help to ensure that we are covering an adequate amount of information as well as providing a more logical flow to our presentation. Along with creating two separate presentations we can edit the information, provide simple explanations for some descriptions, and attempt to provide a better understanding of the material. The club foot sub-group will be helping complete the above information by aiding in the completion of the treatments presentation. The LSO and some of the background information slides need some work.

Stroke Work

The objective of the stroke subgroup is to research and present useful information regarding stroke and its treatments. Individual tasks were delegated as follows:

- Eduardo Aramayo: Materials Science and Engineering, Mechanical Engineering
 - Statistics of stroke, risk factors, and spasticity caused by stroke
- Emily Moore: Aerospace Engineering
 - General effects of stroke and paralysis caused by stroke
- Stefanie Rozborski: Art and Architectural History
 - Definition of stroke and paralysis caused by stroke
- Cristina Kovacs: Computer Science
 - Vocabulary associated with stroke and spasticity caused by stroke

Though the topic of stroke is a rather large and broad, we plan to keep narrowing down the research so the emphasis will be placed on orthotic treatment of stroke. Although much of the information we find on stroke is advanced, we will simplify it for the high school student. To tackle the large amount of vocabulary terms that are present, we plan to provide supplemental learning tools such as handouts of all the terms. In addition, we will review the terms throughout the presentation to further emphasize their meaning. A finalized case study will also be added to the presentation.

There has been a slight deviation from the project budget. The club foot subgroup has purchased a teaching tool that shows all of the stages of club foot. This was done to complement the presentation and to show the magnitude of a typical deformity. This is the only deviation from the original plan. It is currently expected that any other orthotic devices used for demonstrations will be donated by hospitals in the area. Any money not used for the production of the modules will be saved to be used to present the modules at Joliet Junior College's orthotics and prosthetics open house in December and general open house in November. The budget is still subject to change to account for any unforeseen expenses or the purchase of any orthotics that are unable to be donated.

5.0 Barriers and Obstacles

The IPRO team as a whole has not had any major obstacles. Everyone has worked well together and had constant communication. Some problems that each of the sub-teams have faced include:

- With the vast amount of information available concerning club foot, spinal trauma, and stroke; targeting our audience of high school students becomes a priority. It's paramount that we provide enough information so that the students understand the pathologies and treatment options, while making sure not to overwhelm them with too much information.
- Along with the amount of information we are delving into, we must consider the number of new vocabulary words we are throwing at the students. Too much medical jargon could cause confusion or perhaps even disinterest in the subject matter. Confusion or disinterest may then lead to a poor understanding of the material. This problem is being dealt with through the use of vocabulary notes sheets to complement the presentations. In addition, we will review the terms throughout the presentation to further emphasize their meaning.

Sub-teams have had a few more specific obstacles that they were able to overcome.

Club Foot

There have been no other major obstacles the sub-group has faced or can foresee. The group had difficulties in choosing which case study to use to compliment the presentation. However, one study was found that showed each stage in the patient's progress and so it was chosen for the presentation.

Spinal Trauma

Spine Trauma encompasses a multitude of injuries and treatment options. This has made researching our topic quite difficult among four people. Trying to pull all the information about such a range of topics into one presentation that flows logically seemed nearly impossible at one point, therefore the group split the presentation into two. With the help of the club foot sub-team, the research will be completed. Splitting the presentation in two (upper and lower spine) will provide the necessary logic and allow for better understanding from the students.

Stroke

One obstacle we have encountered is that stroke has a vast amount of information and it is difficult to sift through the research to find information that can be truly beneficial to the project. Also, it has been difficult to find a case study that is specific to our project and exemplifies the benefits of orthotic devices in stroke survivors. More research is necessary to find a specific case.

The listed barriers and obstacles have not proven overly difficult. They have been dealt with and have been or are in the process of being overcome. Many of the issues were addressed at the beginning of the project, and are no longer relevant. The group work continues to run smoothly. All deadlines will be met at the current pace.

APPENDIX 1: CODE OF ETHICS

IPRO 309 – Fall 2007 Code of Ethics

Over Arching Principle

The main objective of IPRO 309 is to improve the opportunity to learn about orthotics in Latin America. Educational material will be created following the codes and standards of the Orthotic and Prosthetic (O & P) community, maintaining relationships with collaborating institutions, and working together in a professional manner.

Law and Regulation

Principle: Team members' will become aware of HIPAA (national standards to protect the privacy of personal health information) to protect patients' medical privacy. In addition, copyright laws will be followed.

The team could feel pressure due to time constraints put on by deadlines of the group and the IPRO office. These time constraints could lead to cutting corners and jeopardize patient privacy due to lack of consent. This threatens the group's integrity. Copyrights need to be followed as well as all sources need to be cited. The group is legally bound by the standards of the O & P community.

Contracts

Principle: IPRO 309 will uphold the contracts of the multiple collaborating organizations by giving periodic updates and keeping each party informed.

Team members may feel pressure due to multiple obligations of each student within the IPRO and outside. More pressure could arise from being unorganized and falling behind making it more difficult to fulfill the contracts with each institution. This risks IPRO 309 losing contact and cooperation with the collaborating institution. Making sure all duties are upheld is paramount in keeping in contact with collaborators.

Professional Codes

Principle: IPRO 309 students will follow the standards and codes of the O & P Profession. These codes include, but are not limited to: American Board for Certification in Orthotics and Prosthetics (ABC- certification), National Commission on Orthotics and Prosthetic Education (NCOPE-accreditation), and International Society for Prosthetics and Orthotics (ISPO- certification and accreditation). Each student will research the above institutions' codes of ethics and standards. All information will be consistent with these codes.

Pressures include time constraints and lack of awareness. There are many significant risks involved. Without these standards in mind, the main goal of our IPRO will not be fulfilled; the program in Colombia will not become an accredited school. The reputation of the IIT IPRO Program will also be compromised.

Business and Industry

Principle: IPRO 309 will provide materials to the O & P community subject to revision based on feedback from professionals in the field. The students will avoid suggesting that we are trying to give medical advice. The group is solely trying to relay information. Team members will also be aware of the audience that the information is aimed towards, high school level students.

Pressures include scheduling dilemmas among group members and with professionals in the field. Risks include supplying incorrect information and un-reviewed information. Because we are working with professionals, another pressure is creating material that is

too advanced for a high school student. The team then risks not successfully relaying the material.

Community

Principle: IPRO 309 will uphold the standards of the O & P community by keeping the collaborating institutions constantly informed of what we are doing. Students must gain an understanding of these basic standards.

Pressure can arise from lack of cooperation with O & P professionals resulting in the team continuing ahead without full understanding of the standards. This risks the quality of the work of the IPRO. A huge risk is also alienating parts of the community because of the lack of awareness.

Personal Relations

Principle: IPRO 309 will make an effort to understand and take interest in working with outsiders and fellow group members. An emphasis will be placed on mutual respect within the team. The group will regard collaborating organizations and individuals as professionals.

Pressures include balancing personal relationships and professional relationships with regard to the IPRO. Students are faced with other outside academic responsibilities and may be unable to focus and devote appropriate attention to IPRO. These pressures risk the team relationship as well as the group's relationship with the partnering institutions.

Moral Values

Principle: IPRO 309 must give competent information. References will be shown to ensure academic integrity. The Hippocratic Oath is of the utmost importance, with "do no harm" as a basic underlying principle. Each team member will read the oath to gain awareness.

Pressures include trying to get ahead within the IPRO to get a better grade. Team members could also be pressured into unfairly shifting their own responsibilities to another individual. This stresses the relationships within the team and can hinder the productivity and end result. Not following the Hippocratic Oath could endanger the quality of the final product.

Approved by: Kevin P. Meade, Lead Faculty, October 16, 2007

APPENDIX 2: MIDTERM PRESENTATION SLIDES

IPRO309: Orthotics and Prosthetics Education in Latin America and US

Professor Meade
Eduardo Aramayo, Allison Bagby, Lydia Benger, Seth Buntain, Hua Chen, Solomon David, Cristina Kovacs, Emily Moore, Stefanie Rozborski, Heather Selby, Ryan Yartzak

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Problem

- To improve the opportunities to learn about orthotics and prosthetics in Latin America and the United States
- Support development of first Category III International Society for Prosthetics and Orthotics (ISPO O&P Technician) program in Latin America (Bogotá, Colombia)
- Support development of the orthotics and prosthetics technician program at Joliet Junior College (similar to the program in Colombia)

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IPRO 309 History

- First IPRO 309 - Spring Semester 2006**
 - Conference in Bogotá in May 2006 (5 IIT students attended and presented modules)
- Continuation of IPRO 309 in Fall Semester 2006 and Spring Semester 2007**
 - Conference in Bogotá in May 2007 (5 IIT students attended and presented modules)
- Continuation of IPRO 309 in Fall Semester 2007**
- IPRO 309 proposed for Spring Semester 2008** (proposal currently under review)

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Team Organization

- 3 subgroups
 - Club Foot
 - Spinal Trauma
 - Stroke
- Project Manager: *Allison*
- Content Manager: *Eduardo*
- Webmaster: *Lydia*
- Vocabulary Manager: *Ryan*
- Minutes Recorder: *Heather*
- Poster Designer: *Heather and Stefanie*

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Goals

- 3 educational modules:
 - Club foot
 - Spinal Trauma
 - Stroke
- Translate modules into Spanish for use in Latin American schools and Joliet Junior College (JJC)
- Presenting at two open house activities this fall at JJC (recruiting students)

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Progress

- Three educational modules:
 - Club foot: 100% completed
 - Spinal Trauma: 60% completed
 - Stroke: 80% completed
- Guest speaker: Bryan Malas, MHPE
- Case studies presented by: Dr. Kevin Meade
- Met all Deliverable goals to date



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Obstacles

- Broad topic
- High school level
- Vocabulary
- Language Barrier
- Case studies
- Website



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¿Preguntas?

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