

Project Plan 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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Objectives

Primary Objective

The primary objective of this IPRO 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
- Develop materials covering club foot, spinal trauma, and stroke, and how they relate to orthotics and prosthetics for a two day conference in January at Joliet Junior College
- Work with educators in Colombia to develop a program similar to IPRO 309

Background

There is a strong need for orthotics and prosthetics (O & P) in Latin America; there are approximately 2.5 million people in Latin America who need this type of care. Presently, only one ISPO accredited program exists in Latin America along with two unaccredited programs. Throughout the entire region there are only 50 certified, and 1500 uncertified practitioners. Several institutes have joined to provide education and care to those in need; these institutes are listed below:

- Universidad de los Andes; Bogotá, Colombia
- La Escuela Colombiana de Rehabilitación; Bogotá, Colombia
- Centro Don Bosco, Bogotá; Colombia
- Laboratorio Gilete, Bogotá; Colombia
- Bioconcepts, Inc.; Burr Ridge, IL
- Dynamic Orthotics and Prosthetics; Houston, TX
- Children's Memorial Hospital; Chicago, IL
- Joliet Junior College Tech Prep Program; Joliet, IL
- Northwestern University Prosthetics and Orthotics Center; Chicago, IL
- Illinois Institute of Technology, Chicago, IL

In October of 2004 Centro Don Bosco (Bogotá, Colombia), Don Bosco University (San Salvador, El Salvador), and the Laboratorio Gilete (Bogotá, Colombia) signed an agreement to establish the first accredited O & P education program in Colombia. Since then, Centro Don Bosco has allotted 3500 square feet of space to the program; this, along with their faculty and vocational workspace, allows for the classroom and manufacturing training required for a Category 3 program. Now that the program has been started there is a need to accredit the program by ISPO standards.

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Accrediting the program will allow the students to further their careers. After a student has received a Category 3 certificate from an accredited institution with enough experience the student can also receive a Category 2 certificate. A Category 3 practitioner cannot treat patients; therefore, by receiving the Category 2 certificate the practitioner will then be able to work directly with the patients and more patients can be helped in a shorter amount of time. This impact can be made sooner with the help of the IPRO by creating educational modules necessary for the program to receive ISPO accreditation.

Most importantly Centro Don Bosco has students who are interested in the program. The first class began in February 2005 with ~~seventeen-17~~ students. The impact these students have will be irreplaceable; in one year collectively the students will produce over 200 orthotic/prosthetic devices. The first graduating class will affect a total of over 100,000 patients throughout their careers.

Although the accreditation of the program in Colombia is the main effort the IPRO team's work will serve multiple purposes. The educational modules will also be provided to the Joliet Junior College (JJC), who is also establishing an O & P program. Many of the students at JJC speak Spanish, which further emphasizes the need to translate all educational materials to Spanish. The equivalent to ISPO in the United States is called the American Board of Certification in Orthotics and Prosthetics (ABC), which is independent of ISPO. The ABC standards of accreditation will also need to be taken into account. In addition to its use at both schools, the IPRO team will have the opportunity to see their research in action. In January, a two day conference will be planned at JJC. The IPRO students have been invited to give their presentations at this conference. A pre-test and a post-test will be given to test the efficacy of the educational modules. This will give a first hand evaluation of the modules and the efforts of the IPRO team.

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Methodology/Brainstorming/Work Breakdown Structure

Currently the Category 3 program in Bogotá is not accredited. This poses a problem because without the accreditation there is no opportunity for career advancement. Having an accredited program ensures that the practitioners know everything they should so they can help as many patients as possible.

To assist in the accreditation process IPRO 309 students will be creating educational modules to be used for the classroom portion of the educational program at Centro Don Bosco. Previous IPRO groups have focused on biomechanics, pathologies, common O & P devices, and medical conditions. This semester research continues on common medical conditions and the orthotic devices used to treat them. Educational modules will be created regarding non-surgical treatments for club foot, spinal trauma, and stroke, ~~and their non-surgical treatments~~. These educational modules will be in both English and Spanish so they can be directly useful to by the faculty and students at Joliet Junior College as well as Centro Don Bosco. These modules will be reviewed by practitioners in the industry to provide feedback and advice to ensure the information will help improve usefulness to the program.

Three subgroups have been created to research and compile the educational modules. Each group will be creating computer 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.

Club Foot Work Breakdown Structure

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 have been assigned 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

By dividing the research in such a way, the subgroup will be able to effectively create an educational slideshow along with pamphlets that will compliment the slideshow. Each person will also provide background information on the condition such as causes, statistics, etc. There will be a focus on orthotic treatment of club foot. Emphasis will be placed on the efficacy of each of the treatments and which is the most viable treatment economically.

Spinal Trauma Work Breakdown Structure

The task of the spinal trauma subgroup is to create effective educational modules regarding spine trauma and its treatments. We have delegated individual tasks as follows:

- Seth Buntain: Aerospace Engineering
 - Breakdown of injury types, anatomy (of spine), ~~Halo-halo~~ and ~~Collar-collar~~ orthotics
- Hua Chen: Biomedical Engineering
 - Mechanisms, TLSOs
- Lydia Benger: Mechanical Engineering
 - Construction & Biomechanics, breakdown of injuries, TLSOs
- Ryan Yartzak: Biomedical Engineering
 - Vocabulary (stable vs. unstable, compression), incidence (in Colombia/Latin America), economic impact, ~~Statistics~~statistics, LSOs, ~~TLSOs~~, ~~Halo-halo and-Collar-collar orthotics~~—~~TLSO~~—~~LSO~~

The research has been divided in this way for the initial educational module regarding basic spinal trauma treatments. As the research continues, more focus will be placed on orthotic treatment of spinal injuries. For each section all group members have been assigned specific information to research, similar to the way the research was divided for the initial module. To go along with each module a pamphlet will be constructed providing an overview of the researched information.

Stroke Work Breakdown Structure

The objective of the stroke subgroup is to research and present useful information regarding stroke and its treatments. Individual tasks have been 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

By dividing the research in this way, the subgroup will be able to focus on the very basics of stroke: definition causes/risk factors, effects, and treatment, specifically, orthotic treatment for physical effects. Each individual is responsible for their part of the research, the organization of data collected, and the generation of basic slides to be compiled later for the final presentation. This presentation will then be submitted to and reviewed by the whole group for feedback and further additions and adjustments. Following the completion of our group's final presentation, an equivalent presentation will be made in Spanish and made available for use as an education module in the field of orthotics and prosthetics.

In addition to research assignments, some group members have been assigned an administrative task. The administrative tasks ensure timely deliveries, proper planning and adequate information media. The administrative tasks are 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.

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To further ensure timely completion of all IPRO deliverables the subgroups will report the information requested by the Project Manager and Content Project Manager approximately one week before the deliverable is due. At this time the Project Manager and Content Project Manager will compile the report and allow the advisor and team to review the document. Upon completion of the review the document will be promptly uploaded to the iGroups and iKnow websites.

Expected Results

The primary result of the team's efforts will be the production of three educational modules and corresponding pamphlets. The modules will consist of the researched materials regarding Club Foot, Spinal Trauma, and Stroke; and their orthotic treatment methods. Although these modules will not completely satisfy the needs of the program in Colombia they are another step towards completion. The work of previous IPRO teams as well as the intended work of future IPRO teams along with this semester's work will eventually allow the classroom portion of the program in Colombia to have sufficient learning materials to become accredited. It is also intended to continue working on setting up corresponding IPRO programs at Universidad de los Andes and JJC. With these programs in place the projected results will triple allowing for much faster results regarding the ultimate goal of accreditation.

Project Budget

As it is seen currently there will be no project expenses for this program. The products of the project are solely based on the research labor done by the team members. It is currently expected that any orthotic devices used for demonstrations will be donated by hospitals in the area. ~~Any money~~ Available funds that are not used for the production of the modules will be ~~used to help organize~~ ~~saved to be used towards~~ the conference at JJC to present the modules at the orthotics and prosthetics conference in January. The budget is subject to change to account for any unforeseen expenses or the purchase of any orthotic-related equipments that are unable to be donated. These will only be purchased if seen as necessary for the educational modules.

Schedule of Tasks

To ensure timely completion of the IPRO deliverables the team has set the following deadlines:

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. 10	All subgroup midterm report uploaded	2 hrs/subgroup
Oct. 15	Midterm Report available for review	15 hrs
Oct. 17 Oct. 17	Midterm Report reviewed and uploaded Code of Ethics due	10 hrs 2 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

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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

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On the days subgroup material is to be uploaded each subgroup is to have completed the necessary summaries of their work for each document. The review items are to be 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
Oct 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	2hrs/ person

	materials	
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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 consist of the subgroup presenting the collected information to the rest of the group for feedback and to demonstrate progress in the project. Changes will be 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.

Each subgroup realizes it must meet its deadlines as well as the group deadlines. It is understood that as materials are completed they must be uploaded to iGroups for use by the webmasters to ensure the website is completed by Nov 28th, the day the website is due.