

Sobrino claims that such a relationship with the poor and marginalized is not one-sided. And this is where salvation through the poor and marginalized comes in. He is convinced that there are certain truths that are simply inaccessible apart from this relationship. He argues, for example, that the poor and marginalized give us new eyes to see. They enable us to see the truth of our society which was before us all along, but were unable to see. They help us identify society's and our own real interests and values, not the ones we prefer to tell ourselves. They offer insight into what poverty and powerlessness actually do to people and what their opposite does to us and how they are linked. We are forced to come to terms with the root causes of oppression. And the responsibility to address them becomes less of an intellectual exercise and more of a pressing moral challenge which we avoid at a great price. In addition, in relationship with the marginalized, genuine opportunities emerge to be enlisted in their struggle to reclaim the life and dignity that belongs to them. Sobrino, again drawing on the experience of his fellow Jesuits, claims that they found new energy, discovered new talent, and even recovered the meaning and depth of a faith they thought they had lost or never knew possible. In short, our relationship with the poor and marginalized offer genuine opportunities that can be salvific for ourselves and our society.

At the end of a semester I find myself saying that the students who travel in the vans with me week after week are in a "different place" intellectually, politically, and religiously than they were when they began the course. They have seen the underside of what was once a thriving industrial city: the sinking homes of Logan, blocks terrorized by drug lords, sweatshops two blocks from the church, adults with high school diplomas who read on a fourth grade level and can't multiply 6 x 3, and women--TANF's so-called "success stories"--holding down two jobs still begging for bags of groceries at the rectory door. There is no more powerful text. No politician can convince my students, after just one semester in Logan, that faith-based initiatives or a thousand volunteer hours can possibly take the place of the "urgent,

massive national commitment against racism, unemployment and poverty," in our nation's inner cities that the Kerner Commission called for thirty years ago. And no one can tell them that there is no such thing as structural and systemic sin or that Christians individually and collectively have no role in or responsibility for shaping the public and political life of our nation. Ronald Marstin captures why my students and I go to St. Gabriel's each week; he writes: "companionship with the poor is not a rampart we are called to storm: it is a grace to which we are invited to open ourselves" (131).

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Engineering in a Third World Country

Engineers are called upon every day to serve society by solving problems, developing new technologies, and building structures that contribute toward the greater good of society as a whole. One of the greatest challenges in engineering education is to complement the standard dissemination of technical knowledge with an appreciation and understanding of the global society that we as engineers serve. Even in baccalaureate programs where there is a strong liberal arts curriculum component, there is often no direct link that allows the engineering student to apply his or her technical ability to satisfy a real social need.

Over the past three years, we have had the good fortune as Civil Engineering faculty to be involved in a relationship with a home for abandoned boys in Honduras. This relationship has allowed us to develop a program for educating engineers that are both well educated and socially conscious.

Amigos de Jesus (Friends of Jesus) is a Catholic home that serves as a refuge for abused and abandoned boys in Honduras, one of the Western Hemisphere's poorest countries. The orphanage was founded in 1998 by Sister Teresita, S.S.N.D., a Honduran nun, Rev. Dennis O'Donnell, then rector of the Malvern Retreat House in Malvern, PA, and Anthony Granese ('90 CE) and his wife, Christine. In December 1999, the Graneses approached the College of Engineering with the idea of developing a relationship between the College and Amigos de Jesus. First, they proposed the idea of having Villanovans design and build a 25-foot tall reinforced concrete cross for the orphanage. The cross would sit at the top of a large hill and would serve as a reminder of the presence of God and as a symbol of eternal hope for the children of Honduras.

At that time, we saw the possibility of incorporating the design and construction of the cross into our senior-level Capstone design course. At the first class meeting, we discussed this potential project with the students. The schedule would be demanding because the design would have to be completed in only six weeks, but the students enthusiastically welcomed the challenge. Four of the seven seniors enrolled in the course volunteered to accompany us to Honduras over their spring break to work on the actual construction of the cross. Shortly thereafter, we found four juniors to complete the group of ten that would travel on a mission trip to Honduras to build the cross. The four juniors were enrolled in the introductory-level Structural Design course, a prerequisite for the senior-level Capstone course.

The ten of us spent an incredible week in Honduras that first year. In five days, we worked hand in hand with local workers to cut and bend

steel reinforcement, construct scaffolding, build formwork, and on the final day, make the concrete for the cross. But the trip was about far more than the physical labor; we interacted with each other, the boys at the orphanage, and the local workers. We learned much about ourselves and about a Third World country and its people.

As a result of positive feedback from the students, as well as our own satisfying experience, we decided to return to Honduras in the Spring of 2001 and again in the Spring of 2002, to work on a 30 foot by 60 foot split-level chapel-guesthouse structure. In a fashion similar to the cross project, the design of the chapel was incorporated into the senior Capstone course. Several students enrolled in the Capstone course and the prerequisite junior course traveled to Honduras to participate in the construction of the chapel. Over the first three years of this partnership, more than twenty different students have accompanied us to Honduras; several students have gone more than once.

Students in the capstone design course are not required to go on the mission; the trip is instead maintained as an optional service-learning component of the course for which students do not receive additional academic credit. In order to ensure that all students enrolled in the course engage in some aspect of non-technical learning, students are required to study how geographic, social, and economic factors affect their design. Speakers are also brought in to discuss history, society, and politics of Honduras, as well as to provide more information on the organization of Amigos de Jesus. Students that do not go on the mission trip are also required to work in groups with students that travel to Honduras.

Students who do participate in the mission trip to Honduras are required to engage in a variety of activities to prepare them for the trip, including weekly meetings outside of class. While in Honduras, the students are required to participate in a variety of reflections on the meaning of their service. Reflection activities include nightly group discussions and keeping personal journals. Students also create a web

site to document their progress while in Honduras. The web site allows friends and family to check on the group during the week of the mission trip, and serves as a mechanism for the students to celebrate their service.

Over the past three years, we have developed technical and non-technical learning objectives for the course and trip, and have formalized ideas so that the students can get the maximum benefit out of their experience. Technical course objectives include the application of knowledge gained in previous courses and developing an appreciation for how real world constraints such as cost, scheduling, and material availability affect a project. Non-technical course objectives include developing an appreciation for service-related activities, developing a better understanding of oneself and others, and developing a greater sense of global awareness.

What we as faculty are perhaps most proud of is that the course, trip, and relationship with Amigos de Jesus have fostered a learning environment where students are able to simultaneously apply their technical skills, directly serve others in need, and continue their own personal development and growth as members of a global community. This combination of themes is consistent with the mission statements of both the University and the College of Engineering.

Feedback from students has been incredibly positive. Students who enrolled in the Capstone course have indicated that the course fulfills all of its technical objectives. Students who have participated in the trip have also indicated that the non-technical objectives have been met. The outcomes of the course and trip are perhaps best summarized by one senior who was involved in the design and construction of the cross the first year:

"From an engineering standpoint, it was extremely valuable. Normally, you would work on engineering-related projects and that's where it

stops. You never get to see things take physical shape. The construction helped us better understand what we were doing and made us realize what kind of considerations you might never have thought of if you did only the design work.

The personal side of the experience was by far the most valuable part of the trip. The work we were doing was something that had value in the real world. Travelling to a country far different from our own, and working with people so different from others whom we deal with everyday, was a unique experience."

We feel truly blessed to have been a part of this educational experience in which engineering students develop themselves as total people. We have learned much about ourselves in the process as well. Plans are to continue the relationship with Amigos de Jesus. Future work may involve the design and construction of a new residential structure for additional boys. We will also be continuing to refine the course and trip objectives and seek new ways of supplementing the technical course content for those students who do not accompany us on the mission trip.

We extend our sincere gratitude to the all who have helped, both in spirit and through donation of time or money, to sponsor the course and associated mission trip. Special thanks to the Dean's Office of the College of Engineering, the Department of Civil and Environmental Engineering, VITAL, Noreen Cameron, Campus Ministry, and the Engineering Alumni Society.

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