

# Establishing a Construction Outreach Program

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The ever changing conditions in our communities provide a need for a productive outlet for the youth of our towns and communities. This article examines the procedures for developing a functional construction outreach program that involves local youth and construction management students. There are numerous opportunities to help people in our communities to increase the quality of their residential structures. The development of a construction outreach program will assist participants in learning basic construction skills required to build a safe community and spark their interest in the construction industry. The program will provide the participants with a sense of fulfillment in helping those who need assistance and providing an avenue for them to perform a useful service to the community. A construction outreach program will fulfill the current needs to supply an activity for youth and build connections with the local Habitat for Humanity program. Development of life skills, affiliations and a source for youth to have a constructive outlet is the ultimate goals of the program. The results are presented in two case studies.

**Key Words:** outreach, construction management, building, youth

## Introduction

The construction outreach program's (COP) mission is to provide local youth the skill sets necessary for understanding and building a functional residential structure. It is the goal of the COP that the participants are introduced to four broad concepts which are defining habitats and their functionality, conserving our environment, providing a better way of life for those who need assistance by eliminating substandard housing, and cultivating a work ethic for our youth. By nurturing these elements, the broad spectrum of what comprises our habitat is embraced, and the complexity and fragility of our environment is brought to light. This encompasses all aspects that touch our lives, our homes and communities that we reside within and share with nature. One cannot survive without the other, and it is important to address the interconnectivity of all aspects of nature (Youth Build Programs Summary Report, 2007).

The program offers a unique opportunity to involve construction management (CM) students to work with local youth and improving living conditions for needy community residents. Construction management student volunteers will provide a foundation for the participants of the COP while gaining needed construction management skills in directing the projects. The construction experiences that the CM students provide will formulate the basis for the younger members to learn from and expand their skills. This involvement will stimulate the growth of the community youth and CM students, community service and stewardship. Stewardship is the manner in which we take care of the world that we are entrusted with and to determine a means for humanity to blend with our natural surroundings (Teacher and Youth Leader Resources, 2008).

The formation of a COP will provide direction to the youth in the area serviced by the program. Participation in the program provides an avenue for the youth to develop an interest for the construction industry and a feeder for CM programs. COP can also provide a link from the community based program to the local Technical College or University for formal training. The construction industry gains an avenue for creating their future work force. This engagement forms a powerful link to lessons learned in local schools by applying basic mathematics instructions to the construction industry concepts (Monahan, 2003) and leadership opportunities (Youth United, 2008).

According to Howell and Decker (1999), the increased participation in youth gangs and the increased use of illegal drugs is attacking every community in the United States. Discouraging local youth to join gangs is necessary and that one way to accomplish this task is to provide a method to keep them interested in school and to provide another means for them to focus their energies (Howell and Decker, 1999). There is a predictable need for youth organizations in practically all communities to provide the local youth an outlet to direct their energies in a

constructive manner. The establishment of a civic organization that gives to the community in the form of building assistance provides a foundation for adopting a COP provides participants with a means to assist the community and provide them with a positive focus. Participants will also learn life skills that will benefit them and society (Helping Hands for Habitat, 2008).

### **Problem Statement**

A construction outreach program will provide a community with an avenue for local youth to focus on activities with positive influences. For the COP to function properly it is important to include construction management students. By including CM students, young participants are provided with adult supervision and a chance for them to learn from their educational experiences and construction knowledge. In addition, participants will have the opportunity to work with less fortunate people in the community and assist them to improve their lives. Participants will also learn valuable life skills and to build responsible citizens and to strengthen the community. Currently public school systems do not provide students with the vocational training that they once received. A COP will provide participants the basic skills to build structures and to work around their own homes. Construction skills are taught that will prepare them for a career in the construction industry or to maintain their own structures in the future (Youth Build Programs Summary Report, 2007).

There are four main outcomes that accompany the initial startup of the COP Program:

1. To provide a positive outlet for the participating youth
2. To reinforce basic knowledge learned in public school
3. To provide an environment to learn basic construction skills
4. To provide CM students the opportunity to apply their CM and construction skills

### **Review of the Literature**

The construction outreach program provides the youth of the community an opportunity to help their fellow citizens and to learn the basics of the construction trades. Guidelines to protect the safety of the participants are paramount. Consideration of the participant's age will dictate the types of projects that the participants are able to complete. For on-the-job involvement youth under the age of eighteen years old should not be allowed on a construction site (Russell, 2008). Working with those less than eighteen years old presents a unique opportunity and challenge. The ability to provide youth a program that will allow them to learn basic concepts of the construction industry in a safe and productive manner is governed by a detailed outline of several lessons that they can follow with the direction of competent personnel (Youth Build Programs Summary Report, 2007).

A program must address safety in all aspects as the lessons are developed and implemented. With safety of the participants as the primary concern of the program, a series of lessons is needed to direct the youth by age grouping. A proven age grouping of the participants is provided by Habitat for Humanity International (HFHI) (2008). The prescribed group titles and ages are presented in Table 1.

Table 1

#### **HFHI group titles and ages**

Name	Ages
Trekkers	5 – 8
Street Team	9 – 13
T <sup>2</sup>	14 – 25

For a successful program, certain elements are necessary. First there needs to be a central person that is willing to take charge of the program, in this case a faculty advisor. Having a central person to manage learning activities will provide continuity to the program and insure that the CM students are kept on track and that safety is always in the forefront. The program coordinator works with the CM students to design a “program” of lessons for a group of

participants (Habitat for Humanity Youth Programs, 2008). For this type of involvement it will require someone that is enthusiastic about the program and can bring a willingness to move it forward (Hauslaib, et al, 2001). It is desirable that the original group remain together through the first series of lessons to allow them to develop a team mentality. It is not only necessary for each individual to learn how to perform the work, but also to learn how they work together to achieve the end goal. The lessons should contain several key points. The first and foremost consideration is safety (Hauslaib, et al, 2001). When working with children and young adults, it is necessary to ensure safety through careful planning. When dealing with tools there is always a threat of injury. Proper tool selection and instruction of use will aid in reducing possible injuries. In any learning environment, there should be a logical, sequential order to the expected outcomes. It should be restated that the youth, those under the age of eighteen cannot work on a jobsite. The varying age groups limit activities that the children can perform. The design of the lessons requires an extreme amount of thought and discussion. A committee, directed by the coordinator should settle on a series of twelve (one for each month) lessons for the first year for each of the participating age groups (Russell, 2008).

The development of best practices for the instruction of youth is an important function of the COP. The program provides a series of projects by age grouping to provide for their initial construction education. Each of the four age groupings will have some similarities and differences. Some of the variances are located in the degree of detail that the lessons will achieve. Each of the four levels will provide a greater degree of educational information and with each building an increased knowledge level. The program instructors will provide for a series of monthly lessons to build upon. This ensures an on-going program that will funnel a knowledgeable group of volunteer construction workers into the COP building program once they are over eighteen years of age (Helping Hands for Habitat, 2008). The lessons and projects will vary according to age and abilities with safety as the prime concern.

The development of projects for each of the four age categories will accomplish several tasks. The facilitator can select differing levels of tasks depending upon participant capabilities. Between all four levels there should be a common theme in the progression of the tasks. This is the point where the review of tasks with a competent public school teacher will assist in keeping the project development on track. The second theme is to stress the purpose of COP and how the skills that they learn today will assist others in the near future. Another aspect to include in the lessons is to have the kids of all ages involved with community projects to provide them at an early point in the process with the sense of giving and the fulfillment that comes with working in the community (Youth Build Programs Summary Report, 2007).

Each of the progressive lessons should address some part of previous lessons to reinforce the previously learned skills. Clear and concise written lesson plans are necessary to organize these lessons. The written lesson plans should contain several key elements. Each plan should come from an outline of projects determined during the "Brainstorming" session. These projects should have a particular well thought-out order and purpose. The outline of courses will direct the program of study. The lesson plan should have a title that represents the proper element from the outline of lessons. From this, a purpose of the lesson is needed including measurable outcomes. The next aspect that is needed is a list of tools and materials that are needed (Hauslaib, et al, 2001) (Lesson Plan, 2007).

## **Methodology**

To examine the effectiveness of the chosen method for a construction outreach program, the applicable research methodology is a case study. From the application of the procedures established in the literature review, it is best presented and analyzed through the documentation of actually applying the program. A case study will provide an overview of the objectives, subject matter of the lessons, the effectiveness of the overall plan and the documentation of issues that arise and that are only evident through the practical application of the program (Yin, 1994). The case study will allow for the examination of a pragmatic examination of the initial conceptual idea that will become a practical application (McNamara, 2008).

The case study format is chosen to provide a chronological narrative of the program and the analytical flexibility that the style provides. An outline will provide a baseline for the development and verification of the data collected. The direct observation of the participants will lead to determining if the plans were working or if improvements are needed for the success of the program (Best, 1999). The criteria for evaluating the success of the program are based on the ability of the participants to complete their projects with input from assistants or outside observers. For clarity of the final results, the evaluations should answer pre-determined questions that are derived from the

pertinent questions established at the beginning of the case study. The conclusions must be based upon an analytical strategy (Yin, 1994). The end data can be in the form of statistical analysis or qualitative analysis from interviews and observations (Tellis, 1997) (Warner, 2008).

## Discussion

The discussion consists of two case studies. The case studies describe the details of developing and initiating the COP. The first is involving younger participants and the selection of the group and the outcomes. This group becomes the youth that will move up to the second major group. This is an important step for the participants and the student helpers. For the younger participants this is where the interest in the construction industry is instilled. For the student helpers it provides them a venue to practice their CM skills and learn how to simplify the various tasks that must take place to construct even the smallest of projects (i.e. bird house, etc). The second group consists of participants over the age of eighteen and their outcomes. This is where the participants are permitted to work on a construction site and receive hands-on work experience.

A COP provides an outlet for local young people from 5 to 25 to assist the community through the giving of their time and talents. To bring out natural talents, a skill set that would allow the participants to work efficiently and safely was needed. By working with the youth, a skill set can be developed in an organized and progressive manner to teach them properly how to build a wide range of projects. The projects provided a sense of fulfillment and it was best that the projects allowed participants, at the younger ages, to have a product at the end of each session. The older participants work closely with Habitat for Humanity (HFH) to gain construction experience and to assist the community by providing a functional structure for a needy family. Along the way the students and participants will work closely with the family that will receive the home. The pride and fulfillment will last a lifetime for all involved.

### *Case Study One – Youth Participants*

The initial plan developed in the previous sections was instrumental in initiating a COP in the community. The initiation of a COP was initially made plausible in working with a local organization. The decision to start the program during the summer break for students allowed for flexibility in everyone's schedule. This proved useful for numerous reasons. The selected target group is affiliated with an ongoing summer camp in the community which provides a ready group of participants maintained by a collection of professional child behaviorists. The camp is hosted by an organization known as HIGHTS (**H**elping **I**nspire **G**ifts of **H**ope **T**rust and **S**ervice). HIGHTS services students aging from 5 to 18. This became a perfect group to start with as they, for safety reasons, cannot work with HFH until they are legal adults and can sign a waiver form legally.

The next step was to find some basic building projects that we could start discussing at the next meeting. Providing a baseline of projects worked well as we were able to meet the next week to further discuss the plans and consider other projects. The director, Marcus Metcalf, the Outdoor and Special Events Coordinator, provided an insight to the level of projects and their concern with working with the kids at HIGHTS. Working with HIGHTS provided a group of kids that were already at the camp, and it would also provide them with differing and interesting projects. Mr. Metcalf's background in child development provided the expertise needed to evaluate the projects' fit with the students' needs. During the discussion it was stressed that safety is paramount and is always the prime concern. The other factor that is evaluated with each project is the cost involved. The projects and their design should fit the following criteria:

1. Provide a safe environment
2. The projects were to have a low cost associated
3. Reinforce basic math skills
4. Perform basic building techniques
5. Short term durations for as the younger kids
6. Periodically a project should be for the kids to keep

The initial meetings produced a list of possible projects. Lesson plans were developed for each of the lessons and approved by Mr. Metcalf for suitability and safety. The projects ranged from building bird houses of pre-cut parts to kits donated by Lowe's. The participant's ages ranged from eight to twelve. The participants were excited that they

were chosen and that they were being offered a chance to build. Funds from HIGHTS were used by Mr. Metcalf to purchase each of the participants a seven ounce hammer and a twelve foot tape measure that remain at the center following the COP sessions. These simple tools are sufficient to complete the projects as the participants are not provided any cutting or boring tools that could seriously injure them.

The COP was started at the beginning of the summer session. Each day before a project was started, the participants were gathered around a table for a “project meeting” where a discussion concerning the task of the day was held which included how to accomplish the task, any safety concerns and the overall purposes of the project. This provided a mindset for the participants each day. In presenting the project of the day, the participants were introduced to new terms that pertained to the projects, and the simplest of sub-tasks were emphasized (i.e. how to nail properly, hold the nail until it is fully started to prevent a “fly-a- way”, what the term “flush” means in the assembly of the projects, etc.).

During the daily project meetings the participants start to formulate a mental image of the project and could ask questions to clarify the instructions. The instructions and projects for this age group were kept simple. To keep the projects simple, precutting of the necessary wood parts was necessary before the start of each session. Each session was kept to about one hour. This seemed to be about the extent of their attention span before they want to move on to something new.

The involvement of CM students provides the needed adult supervision and provides the application of the students training in safety and CM skills. The need for additional adults in a program such as this is paramount. One person is insufficient to attend to eight children. At least two adults that have some building skills are needed to manage eight children. Safety is the foremost concern that should be addressed throughout the building projects. The adults assisting the children should nurture the skills and prevent the development of bad habits.

In turn there should be a conclusion meeting at the end of each session to discuss the project, reiterate the meaning of any terms and review how the participants followed the instructions and whether they completed the projects properly. Nobody should belittle any of the participants. It is the purpose of the adult assistants to support the participants, not to discourage them and run them off. It is easy to say the wrong thing and hurt the feelings of children. Leadership and working as a group were important skills that were developed along with the completion of projects.

The speed in which the participants are able to complete the tasks is dependent upon their age and the complexity of the projects. In working with the eight to twelve age group, it was found that the outcomes that were set, in several instances, were above the ability level of the participants. It is in this instance that the adult workers do not need to push, but to monitor and adjust as necessary. The charge is to prevent pushing too hard and making an unsafe environment. Injuries are not accepted. When the participants become injured, they will have a tendency to stray away from the group and the task at hand. It is better to finish the project the following session than to create an unsafe environment. Those who finish early should be asked to assist those still working on their projects. Team building skills are an important aspect of every project. Monitor and adjust is the theme for every aspect of the COP. It is very important to remember at all times that you are dealing with children and young adults and not construction professionals.

At the end of each session it is important to take a moment and review the tasks that were completed during the session and what is to be done during the next session. Inform the participants of what to expect during the next session. This will allow them to think about what they are going to be doing and to build excitement to come back. All of the tasks that were planned were not accomplished. Nor were they accomplished in the order that they were predicted to happen. The initial group of children aged from eight to twelve. They performed lessons using tape measures to measure and layout given lengths on scrap blocks of wood. In the same lesson they were given hammers and nails to learn nailing techniques by placing the nails on measured marks and driving them straight.

The HIGHTS program was funded by state funds. The purpose of the program was to work with elementary school children to improve their educational skills and, through field trips and outside experiences, to engage them in deferring actives to broaden their perspective of the world. Unfortunately this part of the program has fallen prey to the downturn of the economy and has been canceled. We are currently looking for another similar group that we can assist and bring this level (5-18 years old) back to the community.

### *Case Study Two – Eighteen and Above*

The second group consists of fifteen volunteer community youth that are above the age of eighteen. This provided the flexibility to have them on a construction site. For this segment we partnered with the local Habitat for Humanity (HFH). This proved advantageous of all involved. The participants were able to work alongside with local volunteers taking advantage of their years of experience in construction. This segment had a different set of goals and outcomes. The projects and their design should fit the following criteria:

1. Reinforce basic math skills
2. Instruct the participants in basic estimating and scheduling
3. Provide training in using tools safely
4. Work on a Habitat for Humanity jobsite at least one day a week
5. When possible work closely with HFH during a weeklong “blitz build”

The participants were given instruction in a classroom setting in the proper use of the tools that they would see on the jobsite. At the conclusion of the training the participants were given a written and practical test on the proper use of the tools. Safety and construction skills presented by CM students allow them to prepare safety meetings and administer training. The safety meetings include hands-on use of the common tools that they will have contact with on the job site. In this controlled environment the participants can become accustomed to the safety concerns of the tools and are closely monitored for their safety. This upfront training has been essential to the safety of the job site.

There were two faculty members involved as supervisors and safety managers for the entire project. Project responsibilities were distributed to the CM students to enhance their previous classroom training with practical application of their knowledge. This provides the student with a real life experience on a construction site to practice managerial construction skills. The responsibility of ensuring that participants were instructed in safety procedures was given to the CM students. The CM students developed instructional materials and detailed safety check sheets for the lab and on the job. Because of the importance and seriousness of this task, the students were guided by the instructors. For most this was the first time that they were actually managing other people, let alone those who did not have construction experience.

The participants were then allowed on a local HFH jobsite. The CM students and the participants were on site from the layout through the drying in of the 1200 square foot structure. The participants were required to estimate the needed materials for each of the phase of the project. Under the supervision of the CM students, the participants were involved in digging and pouring the footings, they assisted with the masonry foundation (which was later covered with stucco) and the framing. The participants were given detailed safety lessons for each phase of the project. As with the younger participants each day started with a meeting to discuss the upcoming events of the day and a closing discussion at the conclusion of day to review what went right and how they could improve in the future.

The students and the participants were provided the opportunity to frame a residential structure and complete the exterior of the structure. The activities started from working off of a poured slab. The students roughed in the plumbing and formed the slab. The slab was poured and finished professionally, including the installation of the anchor bolts. The project required serious planning and scheduling of activities to ensure that materials were ordered and delivered to the site the week prior to the start of the framing. The students were in charge of receiving the materials, proper handling and inspections. The materials were covered to ensure that they would not become wet if it happened to rain to prevent the growth of mold.

All those involved started the day with a safety meeting to go over the different tools that they would be using and what they should expect to complete during that day. The expectations were referenced to the detailed schedule that the students prepared. This was a good experience for the students for they were able to see that the best of schedules were difficult to maintain. The framing was scheduled for completion in two days. The sheathing of the structure and installation of the tarpaper and house wrap was allotted for day three. The last two days were designated to install the shingles, windows and doors and vinyl siding. The students were responsible during the evenings to update the schedule and prepare a materials list for the following day's activities.

The completion of the interior structure including the wiring and the plumbing was accomplished during the student's class periods in the following weeks after the blitz build. The students and most of the participants,

volunteered on the weekends working alongside of experienced HFH volunteers. This extension of the classroom and previous experiences enhanced the learning activities for all those involved. The instructors worked closely with the HFH volunteers to coordinate the construction of the structure to bring it to completion.

## Conclusion

In this paper, the means and requirements for setting up a construction outreach program were presented for two differing age groups. The program is advantageous to participating CM students and the programs participants. The expected outcomes were met at varying levels. With the younger group, they became comfortable with nailing and basic measurements during the program. This was an important first step. The enthusiasm grew each week as differing projects were provided. Some of the materials were donated by the local Lowe's Building Center, and others were gathered from scrap piles from local job sites. The costs of the projects were minimal. The COP successfully met the four prescribed outcomes set forth in the problem statement.

The participating youth were provided positive experiences through structured plans for each of the sessions and the support personnel that assisted them with their projects. Basic life skills were addressed initially through team building and leadership exercises. Some of the projects were designed in a manner such that the participants had to work in pairs to accomplish their tasks. A bird house project is a prime example as one participant had to hold the various pieces of the box while the other nailed them together. Measuring techniques were practiced at each session. This provided reinforcement of basic knowledge learned in public school classes. Lastly each project focused on basic construction skills. These skills are useful no matter what field they will enter in later life.

The older participants were equally successful in their endeavors. The participants acquired basic skills needed in the construction industry and they each had a sense of success in construction a structure. The tie between the skills acquired in the classroom and the jobsite provided an important link. The participants in the over eighteen group were all enthusiastic about learning more about CM. This spark ignited several to find careers in construction while others went on to complete a CM degree.

The summer program set the stage for initiating a successful construction outreach program. The program can also reach out to other youth in the community to provide them with the same instruction and to get a second group going to perpetuate the program. The expansion of the program to include older participants allows for differing projects and the generation of funds. The older participants can construct utility buildings that can be sold to generate funds to purchase additional materials. The possibilities for the program are unlimited. The program can only grow in the future and will reach more and more youth in the community.

The overall experience was valuable CM training for our students. All of the work was accomplished without any serious accidents. The schedule for the construction of the home did not progress as fast as expected. The roof was completed and the all the vinyl siding installed except for one side of the structure. The students found it slower to install with untrained personnel and maintain the necessary quality standards. Overall the experience was a success with both age groups. It led to several of the volunteers entering into the CM program once they graduated high school to continue their education and start their construction career. The students and participants were invited back for the dedication of the home. This allowed all those involved to see the structure from beginning to completion.

## References

- Best, John W. (1981). Research in Education (4<sup>th</sup> Ed.). Prentice Hall: Englewood Cliffs, New Jersey
- Habitat for Humanity International. (2008). Habitat for Humanity Youth Programs. Retrieved 17 May 2008, from Habitat for Humanity International Web site: <http://www.habitat.org/youthprograms>
- Habitat for Humanity International. (2008). Helping Hands for Habitat. Retrieved 17 May 2008, from Habitat for Humanity International Web site: <http://www.habitat.org/youthprograms>

Habitat for Humanity International. (2008). Teacher and Youth Leader Resources. Retrieved 17 May 2008, from Habitat for Humanity International Web site: <http://www.habitat.org/youthprograms>

Habitat for Humanity International. (2008). What's New?. Retrieved 17 May 2008, from Habitat for Humanity International Web site: <http://www.habitat.org/youthprograms>

Habitat for Humanity International. (2007). Youth Build Programs Summary Report. Retrieved 17 May 2008, from Habitat for Humanity International Web site: [http://www.habitat.org/youthprograms/suppdocs/2007\\_summary\\_report\\_pdf.pdf](http://www.habitat.org/youthprograms/suppdocs/2007_summary_report_pdf.pdf)

Hauslaib, Lara, Thomas, Phaedra & Harris, Nora. (2001). How to Start a Youth Web Advisory Program. U.S. Department of Health and Human Services: Boston, MA.

Howell, James & Decker, Scott. (1999). The Youth Gangs, Drugs, and Violence Connection. Juvenile Justice Bulletin, Department of Justice, 1-9.

Lesson Plan. (2007). How to Develop a Lesson Plan. Retrieved 19 July 2008, from The Educators Reference Guide Web site: <http://www.eduref.org/Virtual/Lessons/Guide.shtml>

McNamara, Carter. (2008). Basics of Developing Case Studies. Retrieved 20 July 2008, from Authenticity Consulting Web site: <http://www.managementhelp.org/evaluatn/casestdy.htm>

Monahan, Susan. (2003) Building a Future in KC's Construction Trades. Ingram's Kansas City's Business Magazine, April 2003 Issue

Russell, Joyce. (15 May 2008). Personal Interview with the Executive Director for Jackson County Habitat for Humanity on the topic of initiating a Youth Build Program in Sylva, North Carolina (Sylva, NC).

Steinbeck, John. (1937). Of Mice and Men.

*Tellis, Winston. (1997). Introduction to Case Study. The Qualitative Report, Volume 3, Number 2, July, 1997. (<http://www.nova.edu/ssss/QR/QR3-2/tellis1.html>)*

Warner, Charles. (2008). How to Write a Case Study. Retrieved 22 June 2008, from Capital PC Users Group's Web site: [http://www.cpcug.org/user/houser/advancedwebdesign/Tips\\_on\\_Writing\\_the\\_Case\\_Study.html](http://www.cpcug.org/user/houser/advancedwebdesign/Tips_on_Writing_the_Case_Study.html)

Yin, R. (1994). Case Study Research: Design and Methods (2nd ed.). Beverly Hills, CA: Sage Publishing.

Youth United. (2008). What is Youth United? Rochester Area Habitat for Humanity; Monthly News Letter, 25 March 2008.