

ACE Academy: A work of progress

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Starting last September, a selection of high school juniors intermittently disappeared from their Centennial, Parkrose, Gresham, Reynolds and Barlow high schools. Student testimony states they had been transported to a place where every student receives a laptop, participates daily in hands-on group projects, has no homework, goes on plenty of field trips and is not marked by failure. Investigation into each of these claims reveals less reason for parents to pause and more incentive to question the effectiveness of the traditional education system.

Last semester, these 120 juniors entered the Willamette Carpenters Training Center as the pilot class in an innovative learning program designed to build a more advanced design/build workforce. Located on the second floor of the center, 4222 N.E. 158th Ave. between Sandy Boulevard and Airport Way, the ACE Academy charter school prepares students for a future in architecture, construction or engineering by integrating hands-on applications with scholastic concepts. How it incorporates foundational instruction with design/build applications is completely unique in the way it weaves together the responsibilities of the three disciplines and enrolls the assistance of industry partners.

"There is not exactly a model like ACE yet in other places," Karen Natzel of K Communications, who handles marketing and development for ACE, said.

As an industry-specific charter school, ACE offers a limited curriculum to junior and senior high school students on a shared-time basis with partner school districts. Forging the relationships with these schools has demanded strategic coordination of schedules and grade requirements; though ACE welcomes students from beyond their partnerships, special arrangements need to be made to ensure compatibility. For example, Centennial, Gresham, Parkrose and Reynolds districts operate on an alternating A-day/B-day schedule in which students attend a selection of classes on A-day, and a different selection of classes on B-



Willamette Carpenters Training Center apprenticeship program instructor Doug McCarver (white hardhat), teaches proper framing techniques to Architecture, Construction & Engineering Academy (ACE) students, from left, Nick Moore, Aaron Hughlett, Steven Wainwright, Travis Preciado, Abel Almasan (hidden) and Alex Tarkovskiy. ACE Academy is located in the WCTC at 4222 N.E. 158th Ave. in east Portland.

Submitted Photo

day. ACE students enrolled in these schools differ from their peers only in that the alternate day's classes take place at ACE. Students hailing from Sandy, who lack this class distribution model, attend ACE every morning five days a week for a half-day program. Whatever the schedule, two years at ACE earns a student one credit of math, one credit of science, two credits of English and up to five credits of Career/Technical Education that attribute to the graduate requirements for their "home" schools.

Some interdisciplinary programs resemble segments of ACE's compounded whole. The difference exists in that ACE Academy attempts to replicate the expectations of the working world as closely as possible. Instead of segregating life's puzzles into the departments of English, science and math taught in isolation — expecting students to later independently apply those foundations in specialized disciplines — ACE uses the actual applications practiced in the fields of architecture, construction and engineering to illustrate concepts in English, science and math, fusing all concepts simultaneously and vesting students of varied career paths with a comprehensive perspective of the field.

At ACE, when a student submits a lesson, teachers in each discipline rate the student's aptitude in subjects within the whole, resulting in multiple grades per assignment. Three common-sense categories serve as ACE's grading system: Proficient (done well), Sufficient (done) and Incomplete. An Incomplete grade doesn't simply fall into the bucket to weigh down a student's GPA; it suspends the student in a state of grade purgatory until he or she demonstrates comprehension of the material. With this method, an insufficiency is identified in its own right, enabling teachers and students to target areas for improvement.

"I'm less concerned about what happens today than I am about where that student (is) going to be in 18 months," ACE Academy Director Michael Taylor said. "What have I done today that will change the outcome 18 months from now? I can get all wrapped around the axle because this kid did this today, but if what I do, and what he does, and what we do institutionally doesn't change his behavior 18 months from now, then my program isn't set up right."

ACE Academy students learn in groups that resemble teams on the jobsite but with rotating responsibilities. In addition to the basics like blueprint reading, building code compliance and framing, students construct simple machines, learn the principles of bridges and trusses, wire light switches and gradually work toward a major project called the ACE Village, which takes students through the process of building a two-story mixed-use structure with complete rainwater collection.

"Every time we do a lesson we say, how can we make that real? How can we make it kinetic?" Taylor said. The Academy has panoply of resources at their disposal. Parented by the Oregon Building Congress, ACE Academy industry patrons are only too glad to help enlighten their future workforce. "One of the things we are looking at is asking, where can industry support that?" Natzel said, "(We ask) if they think there would be value in doing a site visit or having a guest speaker or whatever that might be. We try to look for ways to fit that into it."

As of this writing, students have visited 22 job sites and utilized trade-specific equipment at ACE Academy's partner training centers, which include NECA-IBEW Electrical Training Center, the Northwest College of Construction, HVAC (Heating, Venting and Air-conditioning) & Metals Institute, the Oregon and Southern Idaho Laborers-Employers Training Center and the Willamette Carpenters Training Center, which is ACE's home base.

In addition to opening their doors, industry partners donated a windfall to the new school, from the \$200,000 Mt. Hood Cable Regulatory Commission grant for laptops and software, to the Associated General Contractors Educational Foundation's largest one-time grant ever: \$30,000 for National Center for Construction Education and Research textbooks and tools. Other donors include the Sheet Metal and Air Conditioning Contractors of North America, the NECA-IBEW Training Center trustees, the Portland General Electric Foundation and the American Council of Engineering Companies of Oregon.

However, as anyone in the design/build industry would attest to, even the best-drawn plans can go awry. ACE's launch didn't lack the kinks that tend to beset any new venture, especially one so singular. ACE passed 13 weeks without a solid grade-tracking program in place. "There (are) no grade book programs that teachers use that allow multiple teachers to have input on a single assignment. It took us quite a while to find the system that could be adapted so a student could turn in a single assignment online and multiple teachers can go to that assignment and score it based upon their content," Taylor said.

Though ACE is committed to its content and focus, the schedule and delivery remain flexible, at least for the first year. The collaborative process for creating the lesson plans demands it.

"We have a board in the other room, which is our curriculum board, which is like a map. It has time in it, each unit and each teacher's assignment. Sometimes it is individual, sometimes it is team-taught, sometimes everyone teaches the same thing and sometimes everybody is teaching a different issue. (It) depends on how the content flows. We build the content first, and then we put in our teachers and resources," Taylor continued.

The industry sponsors, whose facilities and expertise lend ACE students the advantage over other programs, are also responsible for throwing a few wrenches into this process.

"We have to stay behind their schedule, so for a facility that schedules six months ahead, if we tell them then, we can have it," Taylor said, noting that some other facilities book a year ahead. This required ACE administrators to secure outside equipment and instructors first, and then strategize how to work up to the material internally. ACE's alternating A-day/B-day schedule with schools further complicates matters by requiring at least two consecutive days at a site in order to educate all students. Because some facilities can only accommodate 15 students per instructor, some segments call for even more time.

As necessary in a prototype program, ACE Academy closely monitored the effectiveness of its ideas in action over its premier semester, tweaking when needed. During a survey of

initial impressions, Natzel said she encountered some tempered responses from students.

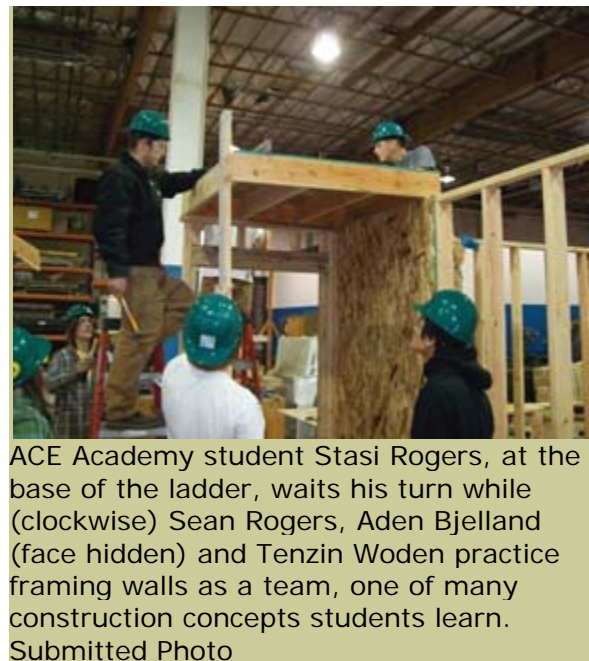
“They said it was pretty challenging at first. The hardest part was that the learning model was so different and they kept saying, ‘we get treated like adults here.’ They are responsible for their own learning. That must have really been a challenge.”

“Every other day they go back to their different schools — structured in a certain way — then they come here, where at first it doesn’t look like it’s structured, but it is,” Natzel said. “It just doesn’t have the same structure (as the school of origination). A couple students said in three to four weeks they got the rhythm of it. One student said she didn’t think she wanted to stay at first, and I asked her if she wanted to stay now. She said now that she understands it, got her arms around it, she really likes it.”

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ACE Academy: A work of progress (continued)

Students and administrators both learned to alter their expectations. The ACE Academy initially intended to organically promote cooperative workplace practices within the lessons. Administrators later found it deserved designation as a separate grading category. “Unless kids see it with some external consequence, they don’t grasp that it has meaning,” Taylor said. ACE Academy administrators valued those skills to such a degree they felt they deserved more attention. “It starts to teach them what the expectations are in the real world,” Natzel said. “In construction, they demand a pretty strong work ethic. It’s hard work, it’s teamwork, the schedule is critical, being on time for things (and) being accountable is huge. There is no real room for excuses.” Now students must demonstrate their workplace skills and be graded accordingly.



ACE Academy student Stasi Rogers, at the base of the ladder, waits his turn while (clockwise) Sean Rogers, Aden Bjelland (face hidden) and Tenzin Woden practice framing walls as a team, one of many construction concepts students learn. Submitted Photo

Though both students and staff found adapting to the new program problematic at first, from an outsider’s perspective, administration had a harder go. “One of the things you need to learn for management is that you have to come up with a new management system,” Taylor said.

“I don’t know how we could have done it without the team that has been assembled,” Natzel said. “Mike (Taylor) has (an) enormous amount of experience with the superintendents. If he didn’t have that intimate knowledge with the school districts, I don’t

know if we could have pulled it off.

Fulfilling their role, the industry sponsors also helped raise the bar for ACE. "Being in this environment, being close to our industry and business partners every day, we are always under the microscope. That constant relationship with them is what has made us aware," Taylor said. "The directors that I see once a week are quick to tell me what is successful out there. They are very demanding, and that's what will make us strong."

ACE's current condition of flux may in some ways be inherent to its model in that it mirrors the ever-changing working world.

"This is unique," Taylor said of the program. "Some kids go really well with it, some kids need more structure, some kids don't like so much emphasis in the design/build industry so we can size to demand. We can be bigger or smaller, but we will create a quality program, and a quality program isn't the same for every kid. This is quality for those kids who want to be here." ACE Academy students comprise a wide range of backgrounds, talents and GPAs at their "home" schools, but at ACE they all share a common interest.

The challenge now is to build on the skills learned in the first half of the year, refining leadership roles and demonstrating concepts learned in a real-world environment. "We are looking for projects that we can turn into learning projects, like gazebos in the park or storage units in public facilities," Taylor said. "The facility that we build it for can get something built for the cost of materials, and it gives us a real job for a real product for a real client."

Looking forward to next year, the school has recently added seven new classrooms to make way for the incoming juniors. During spring break, the school will host a "taste of ACE" experience to introduce interested sophomores to their concept.

For current students, ACE is busy lining up summer internships and refining the senior program, which will be dominated by the capstone project but will also feature college credit options for the Oregon Institute of Technology and Mt. Hood Community College.

Still in development is ACE's mentoring program, an intention that has both earned enthusiastic responses and raised logistical issues. "What we were challenged with was getting each student a mentor," Taylor said. "That would have meant that we would have had to put 120 students out on the street with 120 people." After brainstorming, ACE decided to continue the multidisciplinary collaboration concept by pairing a group of representatives from each discipline (architecture, construction and engineering) with eight to 12 students comprising each discipline as e-mail pen pals. Teachers provide topic questions and, like an online bulletin board, kids learn both from mentors and from peers' exchange.

Constructing the ACE educational model from concept to execution required a group of dedicated individuals of diverse backgrounds and fields of expertise to unite under one cause with open minds, a willingness to adapt, and if necessary, the capacity to make a

course correction. Some elements remain on the drawing board, but the first semester demonstrates that collaboration, far from diluting responsibility, reinforces it when all involved understand how their roles pertain to the whole. "I'm pretty pleased with the way it has all worked out. Kids speak well of their experience. We have overcome some difficulties with that, (and) kids are clearer about what they are doing. I think that has been a big measure," Taylor said.

Regarding the scheduling headaches and loose ends still to be tied, Taylor remarked optimistically, "Next year when we do it, we will have things in place that will make it better. It would have been great to have those things in place before, but again, (there are) just some things you learn from experience." Owning that philosophy will help ACE in aiding Oregon industries to build a more constructive community.