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LEARNING FROM THE PROS: INTERSECTING WITH EXPERTS IN THE AUTO INDUSTRY

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Learning from the Pros: Intersecting with Experts in the Auto Industry

For people outside of the automotive industry, it can be difficult to grasp just how huge it is. The world of cars is gigantic with tens of billions of dollars spent solely on domestic vehicles, to say nothing of international sales. On top of what we normally think of with the automotive industry, there are parts manufacturers, aftermarket parts, accessories, performance vehicles, racing, diesel vehicles, commercial vehicles, and vehicle restoration. Although, even with this wealth of opportunity, funding for vocational programs, like automotive technology, has been decreasing in some areas of the United States. These are programs that provide training and opportunities for a wide array of viable career paths within an industry that many feel passionate about. At foundry10, one of our primary goals within our automotive program is to help expand students' understanding of the opportunities available to them within the automotive industry. Many students have their sights set on a job at a local dealership, which can be a great start to a career, however, there are other pathways to viable careers that they either may not have considered, or, if they have, they are often unclear about how to pursue that particular pathway.

Upon surveying students from local automotive programs, foundry10 found that performance vehicles and racing were two areas in which a majority of students had interest, both from a career perspective and a general educational perspective. Students were intrigued not only by the mechanics behind race cars and drift cars, but also by how people ended up working on the pit crews and similar jobs and what types of opportunities are available for students who want to dive more deeply into those areas.

We know from our work in other subject areas that it can be extremely valuable for students to interact with professionals from fields of interest both for clarity and motivation. In this paper, we will explore how a well-structured field trip experience creates value for student learning within the automotive community. We will examine the importance of getting students outside the automotive classroom, the necessity of teacher presence in the design and execution of a trip of this nature, and ways to capitalize on the opportunities of bringing novices and experts together, whether on a field trip, or having someone come into your classroom to visit. We recognize that a field trip of this scope is not feasible for everyone, however we believe that there are important aspects that can be included in a general automotive curriculum through the inclusion of local field trips, experts from the community and building off of student interest.

The importance of getting out of the classroom - how the trip began

Well-intentioned adults, all across the educational spectrum, have invested large amounts of time designing field-trips and projects on behalf of kids. Unfortunately, these activities are not always well received because student voices are often not considered. By surveying students and capturing their thoughts and opinions, we, as educators, can make field-trips and projects that are more likely to connect and align with student interests.

Our trip to Long Beach took this approach. In our early surveys, the students in the auto programs told us that they wanted to watch a Formula Drift race. We had no connections to Formula D at the outset, but we knew from the data we gathered that the high school students in the two automotive programs we support believed it would be the most intriguing event to attend. Based on our findings from the surveys, we used that direct student feedback to reach out to the drift community and begin to formulate the trip itself.

In addition to the initial findings from the large group surveys, and because of the nature of the trip (being out of state, requiring a plane flight, etc.), we wanted to make sure that any student who was truly invested in the idea of drift racing was given the opportunity to go. We consulted student voice again through the trip interview process. Interested students were given the opportunity to write a brief essay expressing their interest in the trip. Then, all students who submitted an essay were invited to join us for an in-person interview to articulate their interest and passion for the event. Whenever possible, we try to allow for students to share their voices in writing as well as in person. We feel it is important to recognize that each type of sharing we use, written and oral, requires different skills and using both is great practice for students while giving them the chance to shine in their own way. Students who are shy about their written skills can verbally share their thoughts and enthusiasm, and students who are a bit shy in person then have the opportunity to shine in written form.

One theme we heard from students in the interviews was really echoed by the teachers themselves. Getting out of the classroom, going into a professional environment and interacting with people who actually do drift as a career was an important aspect of the experience; kids wanted to hear from people who do this for a living. One teacher noted, "It's a fantastic opportunity to travel with students and get them exposed to just another avenue and career opportunity for them."

An interesting aspect of Formula D, perhaps relative to some other types of racing, is its focus on youth culture and its integration of the diverse audience in attendance. Not only did students see people who looked like themselves attending the event and participating on the teams, the cars on display were relatable to the students; the kids were familiar with the models, modifications and designs. In fact, several of the students were currently working on similar modifications to their own cars giving them an inherent understanding of the work done to the cars. The drivers in Formula D often started out their careers in positions similar to the high school students' and worked their way up. The technical staff in the drifting community often attended technical schools, such as the ones these students are enrolling in, and work other jobs that these students would also consider. The drifting environment is more grassroots and accessible than some other styles of racing so the kids could use their voices to connect in meaningful ways with a variety of people present at the event, such as YouTubers and others that they follow and show an interest in, in real-life.

This shift, from the more highly structured classroom environment to the applied setting of Formula D, illuminated interesting connections for students about the types of work they do in class and what that looks like in a specific strand of the automotive world.

Here are a few observations from students:

“Being able to see all these people working together and how much teamwork there is, guiding through the chaos with a leader, helps and shows what you really need to have to be a crew chief. Even be a member of the team...it’s a team; everyone has to get along and work together.”

“In a shop, usually it’s just one person, well there’s a lot of people, but you’re on your own. Being able to see all these people and seeing how much teamwork there is and knowing that there has to be a leader to guide them through all the chaos. It really helps to show you what you need to have to be a crew chief or even just be a member. Everyone has to get along and work together.”

One point was obvious: it is one thing to watch drifting on YouTube, it is another thing to be there, in the environment, talking to people, and getting to see the types of work they do.

In order to maximize this effect we focused our efforts on arranging for some special experiences while the students were in Long Beach. Students were able to go behind the scenes, talk to people on the business side of the event as well as the technical side. Over a couple of days, we were able to meet additional people, from many different technical specialties, who were willing to give a few minutes to interact with students and share stories. We spoke with a technician who works on electronic control units and was able to talk about some of the challenges faced when working on race cars versus street cars. Drivers shared stories about their lives, including work they do on the cars themselves. Other technicians shared how they balance their time on the drift team with their work at other automotive shops and venues.

That type of spontaneous learning opportunity, the chance to chat with someone who is working with a car that just came off the track, is not possible in a classroom setting. Augmenting a more structured classroom experience with an external experience, such as a race environment, gives students a chance to not only see things they are learning applied in a real-life setting, but empowers them to interact with people who can answer questions, give them feedback and demonstrate how these skills might look differently in an applied environment.

Teacher Perspective

When observing teachers in the automotive technology classes, we found it intriguing how they were able to take a variety of scenarios and turn them into impromptu learning opportunities. A fuel line problem becomes a lesson, a student’s mistake on a brake caliper serves as a chance

to discuss organization, or a challenging electrical problem becomes a chance for the team to further dissect wiring.

We felt it was imperative that the instructors not only be involved in our planning and organization of the trip, but that they be active during the trip itself. What we were hoping to see was how the instructors would help make connections and explicit learnings out of the events we saw and people we talked with, and then relate these to the work and problems the students were solving back in the classroom. For example, they were able to leverage discussions students may have had in class about tires into a discussion the larger group was having with a tech from Nexen Tires on-site. This happened frequently, and in addition to the quality of the people speaking at the drift event, and how engaged we were with students on particular topics, the instructors consistently excelled at making the classroom-field connections more clear.

Furthermore, the teachers also had in-depth knowledge about student interest areas and were able to highlight the fact that they were educators, here for an educational purpose, and leverage that to benefit the students. As one teacher noted, about intersecting with teams at events:

"It happens to me at drag races, where people come up and ask questions about the technology that we use or of students or the class and you just start to build an instant rapport. I have found that in almost any racing venue, people are excited to talk about what they do and how they do it. So, my method of trying to get kids in to talk to people was just to go up, recognize what someone was doing and ask them about what they're doing and why they're doing it... how they're doing it.

Just engage in a conversation. *It does help to be somewhat technical because I know a bunch about cars and just go, "oh, hey, I'm here with a bunch of kids, would you mind talking to them?" And then, like I said, everybody at Formula Drift was super open to that idea."*

That partnership between the teachers and us was crucial for the success of our automotive trip experiences. Everyone on the trip was focused on how to make the trip as valuable and beneficial as possible for the students there. Some of the best contacts we had with professionals came from the teachers putting themselves out there on behalf of the group. Finally, in addition to being helpful at the event, teachers were able to make new connections that potentially will positively impact their programs back at home.

Novice versus expert...going beyond the classroom curriculum

An area we have continually found intriguing across all of our programs is when novices have the opportunity to intersect with experts in a field. This is a different type of interaction than a traditional teacher/student conversation, although those obviously have tremendous value. We structure these encounters such that people with a high level of expertise can share exactly what it is they do, how they got to where they are, some of the decisions they made to increase their chances of success, and what life in their particular position is really like.

We cannot stress enough the importance of these interactions, and that the necessity of student voice be a key component of the experience. Having an expert go on and on about what they do is not sufficient. Students need genuine opportunities to observe, ask questions of, and follow lines of thought along with experts. When those conversations can occur in the field, in places where those experts find themselves in a work environment, the impact can be that much more profound, both for students and their instructors.

Here are a few thoughts from students and teachers on the general value of expert interactions:

“What I found the most valuable was being able to talk to people in the Pit Crew, especially the guy from AEM. He was so ready to tell people what was happening and all the really technical stuff, which I thought was really cool. There were opportunities to talk to the President of Formula Drift and that was really nice too.” - Student

“I think the most valuable part of the trip was some of the networking that we did... meeting drivers and crew members and getting the opportunity to talk to them about what they do and the technology in their cars. It was fantastic to meet Jim Liaw for a while and have him walk us around and really give us the full tour and take us up to the judging tour was pretty amazing.” -Teacher

“Being able to interact with more teams and more one on one drivers, that’s also the same theme that I got from my students coming back, that seemed to be the most valuable part was being able to hear from other individuals and how they got where they are and what path they took.” - Teacher

“The most valuable part of the trip was getting to talk to Jim the president of Formula Drift and talking to some of the crews. Beau (from AEM) told me the two most important things to learn if you want to be on a team.” - Student

For students, these conversations were a chance to compare their own goals and perspectives with those of people who have years of experience navigating the terrain of the industry. For teachers, these interactions were opportunities to emphasize the importance of planning steps for students, ways to think about their own network back home, and how to leverage that network when considering career paths. For both students and teachers, it was also a great opportunity to see how varied and diverse the pathways were for the experts in the field of Formula D. It was reaffirming to students on traditional pathways that yes, they would be well-prepared for a career if they attended certain programs. At the same time, it was also reaffirming for students who were selecting alternate pathways to hear how others used their distinctive backgrounds to their advantage.

Another related yet remarkable aspect to the novice/expert connection is the impact it had on expanding students’ understanding of the various career options available to them. For

instance, some students knew that they wanted to pursue automotive career paths but didn't realize that they had an interest in a specific area till they had exposure to it at the event. Here are some reflections from students on the trip:

"Before this trip, I was thinking military... infantry. I kind of thought about being a mechanic in the military, but then going to Long Beach just really showed myself how much I enjoy cars, everything about it, and drifting in general. I'm still really thinking about when [Formula Drift] comes to Seattle and going there and seeing if I can just stack tires and get a foot in the door and help them out." - Student

"After going to the Petersen Museum, I want to become a car designer. I got to see what they were doing and it looked really interesting to be able to draw a car, mold it, and actually print it out and have a copy of something that you designed is really cool." - Student

"First, I didn't know what classes I wanted to take at UTI Arizona. I knew I wanted to do any automotive classes they have, probably more directed towards diesel since you use it in everyday life. I was kind of in limbo about electrical, but the people I talked to at Formula Drift said it's one of the most important things that they do so then I decided to do electrical and fabrication." - Student

Expertise in Another Venue

As noted by one student, in addition to the Formula D event, we also took students to the Petersen Museum in Los Angeles. Last year, when we took students to Laguna Seca, we also took them to the Canepa restoration shop. The purpose of the secondary event is to augment the main focus of the experience and expose students to a different aspect of the automotive industry. It gives them a chance to speak with experts from a totally different field, and to investigate the cars, themselves, through a different lens than just raw function. We think it is important to try to keep a broad perspective about how the students are considering the various interactions with experts as, for example, one student may be interested in learning about suspension, as it relates to drift, while another may find the body components and design a more interesting avenue to pursue. By including an event, such as Formula D, that provides a wide variety of access points and then pairing it with another, albeit smaller activity, that allows for another type of examination of industry, experts, and careers, students can walk away with a pretty powerful package of experiences.

Reflection

This is the second time we have done an automotive trip of this nature and we plan on continuing them in the future. The automotive racing trip experience has continually proven to be a valuable experience for the students as well as the instructors who attend. By asking the students to reflect and do interviews, both pre and post the trip, we are better able to understand what aspects created value and what they were able to walk away with. Through

our work with automotive programs, we strive to maintain connections with teachers so that we can build off of the previous trips, have a gauge for whether one worked better than another, and continue to leverage our partnerships and relationships, within industry, for the benefit of students.

We recognize that a trip of this scope might not be feasible for everyone. However, the key components we want to emphasize do not require a plane trip or elaborate design, they simply require that students have a say in an external event they find interesting, they get a chance to head out of the classroom (even just to a local racing event), and that there has been some thought about how to get them to engage with experts at the event. We have repeatedly found that, when we explain why we have brought students to the event and how much it would benefit the students to even have a few minutes of time to chat, people are amenable to helping out.

Above all, the inclusion and highlighting of student voice is essential. Dragging students to an event they have no interest in, and where there are no opportunities to engage with professionals, will have a limited benefit. It is not so much the event itself, but how students are able to make personal connections to their own lives, interests, passions and potential career paths. We believe that getting out into the field, particularly in automotive, is a great opportunity for students to engage with their learning in an expanded way.