

Project Name :

Aligning 3D Drafting to Industry

Grant Type :

Professional Development

Start date:

Monday, September 10, 2018

End date:

Monday, April 29, 2019

Project Manager:

Nathalie Tambay

E-mail address:

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School Board / Organisation:

Western Quebec School Board

School:

Western Quebec Career Ctr.

Function:

Teacher

Number of substitution days/teacher:

6.00(max 6)

TEAM MEMBERS:

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PROJECT DESCRIPTION:

In brief- the purpose of the project was to kickstart the alignment of our 2D Drafting program to a 3D Industry. The Drafting Program offered at WQCC is only 3 years running and has yet to reach out and establish ties. Fostering a collaborative relationship with local companies and increasing our internship and graduate-to-job success stories is crucial for a new program that has little or no reputation. The goal of the project was to create alliances and partnerships that normally take years to establish and develop while creating consistent and sustainable positive experiences.

Our team worked very well together – sharing a passion for current technology and innovation in our fields as well as having very business minded entrepreneurial spirits – we were able to really use design-thinking to tackle the issues we were facing as a new department in a little-known school within an English School Board in a predominantly francophone community.

We used industry favorable trade shows to go out and network for our school while scoping out new trends in our fields. We used the recently finished open-house post-mortem to analyze the return on investment (ROI) of trying a second one and concluded our efforts would be better served in different ways.

When faced with the challenges of 2 smaller businesses being incapable of accommodating students due to lack of space or workstations but not lack of work and projects – we created telecommuting internships with on and offsite resources and interactions/supervision for them. We were able to demonstrate support to small businesses while gaining powerful experiences for our students.

We reached out and managed to create new relationships which were met with success beyond expectations in terms of quality. Our goal moving forward will be to build on the successes and the insights that this time and research has provided us.

JOURNAL ENTRIES AND SYNTHESIS -

Day 1 – September 27th –

Though intending to have our first official meeting we had discussed game plans over the summer we decided to rethink our approach to outreach. We learned of a new cohort beginning in late September and took advantage of the Ottawa Fall Home Show 2018 - featuring many local companies that could become ideal partners to both expose the students to potential hiring companies and also to present ourselves to local vendors and companies to establish a network.

Very successfully – I presented our school and tried to pave potential internship / collaboration to project initiatives. I got a lot of positive feedback from those I spoke to.

Day 2 – October 12th -

1. Phase 1. Market Recon and Reality
2. Phase 2. Programs, students and admin profiling against the market reality
3. Phase 3. Deduction based on debate and acquisition

Luc's market Study – we discussed the initial feedback – we discussed approaches, questions, the survey methods he was using. We scrapped the open house for a few reasons:

- a. the Return on Investment did not justify a second attempt within 6-7 months of the previous one – We hosted an open house post applying to this grant and prior to receiving grant approval – and were met with minor success. We had much lower than hoped for turn out and did not have metrics to analyze the reason or how to improve.
- b. The School was slated to host a big 25th Anniversary Event in the Fall – so we would benefit from placing our efforts in getting the entire School noticed – while inviting a potentially larger audience to tour our department- discussions for this event started in May and overshadowed a Drafting only Open House.
- c. The 25th Anniversary event was initially intended to be a very publicized venue enabling us to reach out to the school's existing partners and supporters, but also allowing us to market and invite local businesses of potential interest – the mandate of the venue shifted and this did not end up being a good networking to businesses opportunity.
- d. We ended up attending one industry trade-show that would allow us a much broader networking opportunity Ottawa Fall Home Show 2018– and learned of one coming up in Montreal which would be even more universal in appeal for both Residential and Commercial Drafting Programs.

Day 3 – Nov 13th - Luc Paquette

Several days of shorter logged hours as Luc collected, collated and analyzed findings from the multiple surveys and phone interviews conducted with companies in our field. It was so crucial for us to establish what the market is looking for in graduates. We needed to establish the need our students would satisfy in today's market then create the solution. We would manufacture the solution to an existing void in the field by creating relevant projects to fill portfolios with project able to generate viable leads.

Encouraging diversification while exploring the varying strengths and natural aptitudes of the students – we help them specialize towards their individual goals and career paths. **The obvious benefit is the avoidance of inundating the market with 20 students all capable of identical skills and giving them enough exposure to try different things.**

Day 4 – Nov 14th – Nathalie Tambay and Luc Paquette

Attended ADM Expo in Montreal – What a fantastic networking success this proved to be. The focus of this show seemed to align better to Industrial Drafting – but both programs benefitted. We made some interesting contacts, secured some presenters to come visit the school and give 2 software demos from independent companies. One gave a presentation in March covering new developments and releases coming out for 3D parametric software (Solidworks) and the other (FutureScapes) showed their unique product, expertise and industry leading work-product which collaborates on Aero-space projects and is based on algorithms for structure.

Day 5 – Nov 30th – Nathalie Tambay

Follow up calls, sending out emails, researching the companies whose representatives we spoke with. Created a log and database for future correspondence. Lined up follow up calls, created invitations for companies to come present, speak, send supplier information, samples or catalogues. We created a reference section of product brochures and followed up with a brief presentation to the students of our findings – new technological advances and methodologies of interest.

Company	Name	Title	Website / email	ph	cell	Category	Tour	Internship	Notes
Metric Homes	Shawn Bernier	Vice Pres. - Operations/owner	www.metrichomes.com	613-836-8079	613-301-7792	Custom Home Builder	Fox run...	yes - poss	renderings for his website
Smart Homes	Pat Lambert / Chuck	Head of Construx	www.smarthomesottawainc.ca	613-493-0115		Trailer / moving walls etc...	yes	poss	Potential industry partner
BOLEC	Frederic Morin	Interior Designer	frederic@bolec.ca	819-643-6668		Construction / Reno/ Design		YES	Potential industry partner
Guildcrest Homes	Kristyna Testa	sales/MOREWOOD	ktesta@Guildcrest.com	800-249-1432 x237	613-301-5606	prefab? Homes	yes	poss	she will help us find out about software and tours/int
Mallette Landscaping Design and Construction	Carole Anne Walsh	Lead Designer	mli@mallettelandscaping.ca	613-821-1791		andscape Design - videos using combination with horticulture		indirect/ lead	Possible contact with Quebec Outsourcing company - re-contact for lead info - lead not at show
Aberdeen Development Group	Ken Farquhar	President	ADGroup@bell.net	613-294-0626		Landscape - (Chief Architect software?)		poss	outsourcing etc
James Hutchinson Homes and Renovations	James Hutchinson	Owner / Pres + son	james@huthinsonhomes.ca	613-938-2585	613-978-3974	Design.Build.Renovate		yes	Kemptville
ekoBUILT	Paul Kealey (B.Sc, SBA)	paul@ekobuilt.com	www.ekobuilt.com	613-227-4663	855-890-1222	passivehouse.cool			interesting
Cada Construction	Mary Knox	(controller)	www.cadacon.ca	613-729-1073	613-585-0021	GOHBA contact			knows Deanna - gave us great directories/ resource info
Atelier 139	Martin Carriere / Annick (wife)	Owner	info@atelier139.com	819-598-2636		Industrial furniture/ vintage/weld & wood	yes	yes	Potential industry partner - ID

Day 6 and 7 – Dec 10th - Jan 8th – Luc Paquette

With internships around the corner – Luc logged in several hours to reach out to companies both known to him in the area as well as new potentials. Followed up calls to companies whose contacts he had interviewed or given surveys to. The big push for our senior cohort to land internships in a difficult time of year – post-holiday in the middle of January. Luc's outreach helped create new alliances as well as fortify past clients with assurances of changes implemented since prior graduating classes. The students then reaching out to companies that had been prepped for potential interns were better received – not perceived as cold calling and therefore were given better odds at successfully earning the privilege to interview and potentially win the internship.

Day 8 – Feb 23rd – Luc Paquette –

Finalizing and submission of report and analysis of his findings to the team from the surveys:

for the PDIG, for the sustainability of our department, future reference, future planning and for post-mortem purposes.

Day 9 – Feb 25th – Nathalie Tambay

Discussions about the Report as well as the feedback and responses from returning students having completed their internships. Logging in information about the internships – the companies – feedback for future use and follow-ups. Spent some time discussing with Luc all of the findings.

Day 10 – March 1st – Nathalie Tambay and Luc Paquette

Reviewing the reports – all of the accumulated information – debriefing and conclusions. Getting ready to write the report based on Luc's report, our discussions, our project.

Remaining time – collecting all information and writing the report.

PROJECT GOALS

For the most part the goals were attained with varying degrees of success though carried out with a few differences and challenges to the original vision.

1. We did not host an Open House in Fall/Winter for several reasons – I do go into more detail in the journal entries.
2. We were met with a few hindrances and unexpected downfalls – namely the reality of inviting local businesses to a small school with little known reputation and impact – invitees either didn't respond or were unable to attend - 0/3 attended.
3. Aligning good projects to companies – though a good idea in principle is a little harder to initiate. I was not met with industry willing to send someone over to be a part of ongoing or new school projects and we are still in the process of securing some nice rendering software - 0/6 invited.
4. We have 5 companies we are waiting to solidify plans with for a factory tour – Urban Quarry, Smart Homes, Guildcrest Homes, Bonneville and Lumbec.
5. There is still an ongoing endeavor to archive quality student work to use as marketing resources as well as to demonstrate to potential clients the benefits of engaging one of our students for internship and or employment.
6. It is a high-tech field and so it is often paired with higher sensitivity to intellectual property protection. Being high-tech it is also demanding a more up-to-date competency with current soft wares and high-quality rendering and animation trends and standards.
7. We successfully obtained feedback of a 3-phase market study conducted by the team to answer the question of what businesses are looking for in terms of skills and software – this was overseen by Luc Paquette.
8. We successfully established new contacts at various companies which can in turn be nurtured into sustainable relationships. The successful internships in January of 2019 were our best yet and were a direct result of our reaching out to these local businesses.
9. We successfully created connections with companies that have and will continue to come in to our school and present new industry trends in process, design thinking, management and technology / innovation – which is fantastic.
10. We established an offering of off-site telecommuting option for smaller businesses in the area who were physically unable to accommodate a student or two – this was highly successful in that it enabled the internship of 6 students with highly desirable projects within smaller companies.

REINVESTMENT:

The opportunity to invest our time and expertise into the department in this manner was invaluable. The Study – (Market analysis) – Luc was able to initiate, coupled with the creation of a network of companies now known to us catapulted the department to gain several years of slow accumulation of insight, findings, and resources invaluable to such a competitive and subjective industry. We have gained knowledge so valuable that we will be able to grow from it, add to it and really adjust our projects, curriculum, student appeal and student success.

We feel better connected to the industry with something beyond the experience we bring as industry-active educators. We now have proof and data to corroborate our instincts as to what the industry needs, how are students can meet those needs and be desired resources to companies in the area. We have gained confidence in our teachings, our vision for the department as well as the confidence in knowing we are keeping up with technological advancements critical to granting our students a competitive chance to succeed.

We have already made plans to continue our outreach to local companies – get more involved in community to gain visibility and recognition and visit other schools to see how they maintain their industry standards. Our resource library and now our successful internship counterparts are now part of our growing network. We are now in a position to help local businesses access our student workforce by encouraging these collaborative experiences and opening opportunities with graduates with broad skill sets driven by industry.

Our first official testimonial – direct success from the PDIG – Aligning 3D Drafting to Industry

“Hi Nathalie,

I must apologize for the radio silence, and not getting back to you sooner. We had a major deadline coming up and I barely had any time the last couple weeks to set anything up. We would still like to sit down and have a conversation with you about the future.

I have to say that compared to other schools we have interacted with, we have been impressed with the quality of your students' work. I think Ben and I both agree that the work term should be longer for all parties to get the most out of the experience - 2-3 weeks is far too brief and I feel like we were just getting started.”

---Ted Lougheed – FutureScape

This was obviously music to our ears! We met these guys at the trade show in Montreal though they have a local office. They did a demonstration of their software at our school and took two students on as interns.

FINAL REPORT:

We set out to align our program and our graduates while creating new and vital partnerships with local businesses. The challenge of conducting a market assessment and re-aligning of a curriculum a little left behind was a big one. This industry is now not only predominantly high-tech, but also has ties to animation, kinematics, high-end rendering and simulation. The drafting board is completely obsolete. A new species of drafting graduates versed in many new and versatile skill sets and technology are required to meet the demands of today's market.

We forged new alliances with local 3D drafting companies thanks to the grant and have created new projects to align with the newer software trends that were observed. We were able to obtain authentic, thorough and valuable interviews with companies both pre- and post-internship and have implementing changes to student projects and portfolios to meet these discovered needs.

We are adapting to the reality of the feedback obtained from the extensive market study from sources such as:

- City of Gatineau (Economic Development)
- City of Ottawa (Urban Development)
- BIM institute of Quebec
- ORSA
- Quebec RBQ
- Gatineau Chamber of Commerce
- Ottawa Board of Trade/Commerce Association
- Ottawa Construction Association
- AQAPP/OAQ/OOA/RAIC/OUQ/OIQ/OAGQ
- Urban Planning Institutes of Quebec and Ontario
- Engineering Societies of Quebec and Ontario
- Manufacturing Associations of Quebec and Ontario

Collected in Phase 1 of our internal Report the observations from Q &A of interviewees are:

1. A negative perception of the word "Vocational" (so we will counter-act by teaching BIM, LEED and 3D CAD, animation, simulation and kinematics softwares in concert with progressively graduating even more professional, knowledgeable and skilled students).
2. The term Drafting in and of itself is obsolete – it should now be exclusively 3D Modeling – (So we teach not only the software to model but must teach the why and how of the information produced by the models in order to maintain the technical information to navigate the field).
3. Students MUST know how things are built that they are Modeling (otherwise we are just creating software technicians / users).
4. Knowledge of French is Crucial in our field for interview minimum – work place is not interested in English only candidates – this is a reality – (we must continue to offer bilingual technical term sessions).
5. There are opportunities in unlikely places i.e. Chamber of Commerce can be a great ally for Renderers, Photographers, Visual Arts students as long as they are Canadian – so we must be creative in helping our students see opportunities.
6. The job field, now that they are 3D Modelers, is completely open – From Manufacturing Doors, Windows, playgrounds, gaming environments, Photogrammetry, Geodesic, Furniture, fixtures.
7. Even in construction field – companies need students capable of different skill sets such as graphic design, estimators and Project Managers.

Based on interviews and debriefing sessions post-internship, we have profiled and assessed the 3 main types of employers for our students. They typically fall into one of 3 classes:

1. Level C – Firms who still have one foot in the past – 1984 and up – run on AutoCAD – 2D

Often needs employee still strongly rooted in 2D CAD but with enough Software technician skills that can handle introducing 3D to the firm in the next few years. Usually cannot afford a spare workstation so it is a category of company we are also in a position to help.

2. Level B – Firms that have transitioned from 2D to 3D CADD to Modeling
3. Level C – Firms that have evolved from 3D modeling to BIM – drafting in this field is considered obsolete.

Based on interviews and Q & A sessions:

71% of Job offers to new hires are thanks in part to software proficiency such as:

- BIM 360
- FUSION 360
- REVIT (all disciplines in concert)
- AutoCAD
- 3DS MAX / MAYA
- SKETCHUP
- ARCHICAD
- PHOTOSHOP /ILLUSTRATOR/ BLENDER
- INFRAWORKS
- NAVISWORKS – manage
- INVENTOR / SOLIDWORKS / RHINO
- ALIAS
- PRIMAVERA P6
- POWERMILL

Based on interviews and Q & A sessions firms, builders and manufacturers are looking for HD/ Hybrid quality people:

- Detailers
- Renderers
- 3D modelers and Animators
- Simulators
- BIM operators

The research and networking that we have done - thanks to the PDIG – has created a foundation and a resource that we can use to build on. We have discussed these findings at length, converted the information into a WBS (Work Breakdown Structure) to how to apply these findings to our curriculum and to the projects to benefit the student’s integration into the work force.

Having approached the project as though the Drafting Department were a new business, we were able to assess the market needs, identify the competition, identify the challenges and proceed with a game plan. We now can formulate an evolving networking campaign to align and avail ourselves to open-minded businesses. The result is a “MACRO PLAN” for sustainable success and company involvement.

The gains of this approach were numerous to the student – but were also invaluable to us as educators to recognize opportunity, identify the real challenges and create a plan to overcome them. Looking to the future we would be happy to share and present our findings, our challenges and our successes to other schools while continuing and evolving our own mandates and navigating our successes and challenges.