October 24th, 2019
The Steel Dynamics  Keith E. Busse
Alumni Center
WELCOME ABOARD
MISSION STATEMENT

The Alliance is a community of educators committed to the celebration, development, and elevation of a diverse culture of teaching at Purdue Fort Wayne and in our region. We seek to enrich teaching and learning by fostering a collaborative community to serve faculty, staff, and students dedicated to the pursuit of authentic learning. The Alliance promotes creativity, boldness, enjoyment, and growth as pathways to excellence in teaching and learning.

VALUES

• Collaboration
• Boldness
• Diversity and inclusion
• Enjoyment
• Meaningful work
• Mutual service and support
• Creativity
• Organizational Structure
1. Michael Kirchner, Ph.D.
Assistant Professor, Organizational Leadership, Department of Organizational Leadership in ETCS
Improving Students’ Training and Leadership Competence Through Applied Research: An Interdisciplinary Approach

2. Natalie Neuenschwander
Junior, Elementary Education
Jeong-il Cho, Ph.D.
Associate Professor, College of Professional Studies
Investigation of Learning Environments for Students at Purdue University Fort Wayne

3. Sue Mau, Ph.D. & Yvonne Zubovic, Ph.D.
Associate Professor, Department of Mathematical Sciences
Terri Swim, Ph.D.
Professor, School of Education
The Great Windows Inspection

4. Naomi Gurevich, Ph.D.
Assistant Professor, Communication Sciences & Disorders (CSD)
Creative opportunities for student research involvement: Sharing the research experience with students at all levels

5. Dina Mansour-Cole, Ph.D.
Associate Professor, Organizational Leadership, Department of Organizational Leadership in ETCS
Passionate Poetry and Leadership Podcasts? It’s Collaborative Active Learning!

6. Andres Montenegro, M.F.A.
Associate Professor, Department of Art and Design
Creating and implementing the use of visual metaphors to teach new media in Virtual Reality and Augmented Reality

7. Matthew Perkins Coppola, Ph.D.
Assistant Professor of Science Education, School of Education
Improving Communication: Integrating Google Voice into Practice

8. Behin Elahi, Ph.D.
Assistant Professor, Department of Manufacturing, Construction, and Engineering Technology (MCET), School of Polytechnic
A Successful Project-Based Learning Experience: Case Study of Fort Wayne Metal Research Project in “Measurement and Evaluation in Industrial Technology” Course (IT 507)
IGNITE TALKS 6:15 - 7:00

1. Daniel Boylan, Ph.D.
   Assistant Professor, Accounting, Department of Accounting
   Does Course Syllabus Affect Student Grades

2. M. Gail Hickey, Ph.D.
   Professor, Educational Studies, College of Professional Studies and PFW Director, Scholarship of Service-Learning
   Connecting Campus and Community through Service-Learning Experiences

3. Sarah Symonds LeBlanc, Ph.D.
   Assistant Professor, Communication, College of Arts and Sciences
   Connecting to the Material Through Collaboration on Case Studies: How PBL is Going CBL

4. Jack Li, Ph.D.
   Assistant Professor, School of Polytechnic
   Summarizing Material to Help Students Learn Quickly

5. Matthew Perkins Coppola, Ph.D.
   Assistant Professor of Science Education, School of Education
   Learning and Teaching in Physics – Training TA’s, LA’s, and Tutors
CONVERSATION WITH AWARD WINNING TEACHERS 7:00 - 7:30

1. Mark Masters, Ph.D.
   Chair and Professor, Physics
   Featured Faculty for Teaching

2. Jane Leatherman, Ph.D.
   Associate Professor and Program Director, Education
   Friends of the University Outstanding Teaching

3. Luke Rodesiler, Ph.D.
   Assistant Professor, Education
   Leepoxy Award for Excellence in Undergraduate Teaching

4. Rama Cousik, Ph.D.
   Associate Professor, Education
   Naomi Gurevich, Ph.D.
   Assistant Professor, Communication Sciences & Disorders
   Excellence in Online and Hybrid Teaching Award

5. Zesheng Chen, Ph.D.
   Assistant Professor, Computer Science
   Sigma Xi 2019 Science Teacher of the Year Award

6. Lee Roberts, Ph.D.
   Associate Professor, International Language and Culture Studies
   FACET
Syllabus

Making connections: make sure students can contact you in a variety of ways. Office or cellphone (if you accept text or not); course Blackboard, PFW email, course websites.

Don’t make syllabus and handouts in fancy fonts; difficult to read for some students and electronic readers have difficulty with some fonts.

   CELT offers syllabus templates for in-class or online

   https://www.pfw.edu/offices/celt/online-teaching/index.html#planningforanonlinecourse

   UDL syllabus suggestions: http://udloncampus.cast.org/page/planning_syllabus

Participation in class discussions

1. Allow think-pair-share first, then ask for volunteers to share for the whole class.

2. In small groups, assign students roles such as scribe, class presenter, etc. that way even shy or student who have a difficult time speaking in groups can have a job and can participate in the group discussion.

3. Provide discussion questions in advance so students who need more time to prepare their answers are ready.

4. Use electronic clickers for responses. If not available, use colored post cards for quick reference if students are getting the concepts. Assign meaning to colors; ie yellow = still fuzzy, or green = yes, or blue = A or B depending on the question.

   https://cft.vanderbilt.edu/guides-sub-pages/setting-up-and-facilitating-group-work-using-cooperative-learning-groups-effectively/#look Cooperative learning ideas

Suggestions for discussions that may be emotionally charged or difficult to navigate because of beliefs, culture or religion.

   https://provost.tufts.edu/celt/teaching-resources/difficult-dialogues-hot-moments-classroom/
Present materials in a variety of ways

Powerpoints with and without narration posted online; short videos that students should access before class; podcasts on different topics related to class discussions; supplemental texts that expand on certain topics; ppt online from other universities.

For more ideas about presentation of materials

http://www.ldonline.org/article/Accommodations_and_Compliance_Series%3A_Employees_with_Learning_Disabilities

https://cft.vanderbilt.edu//cft/guides-sub-pages/making-better-powerpoint-presentations/

Study Skills

All students can use ideas to improve their study skills http://www.ldonline.org/indepth/study

Time management skills https://chadd.org/for-adults/organization-and-time-management/

How to study http://www.howtostudy.org/overview.php

Assignments

For multiple step/component assignments use a checklist for students to make sure to include all components

Allow multiple ways to show mastery of subject matter: test, written narrative paper, speech (written or oral), drawing, video or audio with demonstration and understanding of concepts

UDL means of expression: http://udlguidelines.cast.org/action-expression

Other Resources

CELT Teaching Resources: https://www.pfw.edu/offices/celt/teaching-resources/

PFW Services for Students with Disabilities https://www.pfw.edu/offices/disabilities/faculty-resources.html

Universal Design for Learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn.

UDL websites of interest

http://www.cast.org/about

http://udloncampus.cast.org/home

Some adults may not know their best way to learn new material. Tips about how to improve learning, i.e. if a visual learner.

The Writer’s Memo

Karol Dehr
Department of English & Linguistics

When students turn in a polished draft for a grade, they are asked to submit this self-assessment memo (or cover letter). It allows them to both identify what they’ve done to improve upon and revise their paper and also provides insight into what they deem important in their writing process and the rhetorical choices they made. I read this Memo before I read their final draft for grading and it assists me in streamlining the process.

Writer’s Memo Guidelines (for students):
For each of your major writing assignments, I will ask you to include a Writer’s Memo, which details one or two of the major revisions you made when completing the final draft of your major writing assignment. The memo should be at least one bigger paragraph of at least 1/2 or 2/3 page and should be submitted as you turn in your draft.

Please answer these three questions:

1. WHAT major revisions did you make in completing the assignment?
   ➢ For our purposes, “major” revisions means what we have called “Higher Order Concerns” (HOCs) or significant changes you have made in content to your draft: organization; thesis statements; introduction and/or conclusion; inclusion of a particular source; documentation decisions, etc. It does not mean what we have called “Lower Order Concerns” (LOCs), such as grammatical issues, editing, and surface level matters.

2. WHY did you make these revisions?
   ➢ Your reasons could address the feedback you received from your peers and me, and your own critical thinking process. This part of the memo might address what was incomplete or weak in your writing and/or what was missing in an earlier draft that has now been added.

3. HOW did these revisions improve your paper?
   ➢ In this part of your response, you can address how these changes improved or enhanced your paper and brought it closer to meeting the demands of the rhetorical situation (the assignment’s guidelines). You can refer to the criteria listed on the assignment sheet and/or the grading rubric for specific items. In other words, you are to address how your paper is now clearer, more organized, analytical, etc.
Improving Student Training and Leadership Competence Through Applied Research: An Interdisciplinary Approach

Michael Kirchner, Ph.D., Assistant Professor of Organizational Leadership
Purdue University-Fort Wayne

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### Project Description

- Semester-long project with local employer
- "Training and HRD Process Model" guides the course/project (see adjacent image)
- Needs analysis begins with instructor meeting company representatives prior to start of semester
- Students listen to audio recording of initial meeting
- Students continue training needs analysis by meeting with company representatives on campus
- Follow-up tour of facility
- Follow-up surveys and interviews conducted with employees
- Diagnosis of training needs
- Development of a training program identified through needs analysis
- Student-facilitated training on-site to partnering company employees
- Evaluation of training

### Challenges/ Limitations

**Challenges:**
- Employer support & communication
- Student schedules
- Student buy-in
- Social loafing

**Limitations:**
- One semester timeframe (start to finish)
- Time distribution between lecture and group work on project
- Group sizes
- Local employer interest

### Outcomes/Impact

- Students hear and observe the many challenges plaguing today’s organizations
- Students receive first-hand opportunity to develop, provide, and assess training
- Resume-builder
- Increase community engagement
- Builds brand awareness of degree program/campus
- Multiple students have received job offers as a direct result of project participation
- Replicable across disciplines, including education, business, engineering, and healthcare

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### Needs Analysis Meeting

**Background**

- OLS 475: "Human Resource Development"
- Primarily juniors and seniors
- Class size—up to 24 students
- Course content: (1) HRD process, (2) employee development, (3) career development, (4) organization development
- Two partner companies per semester
- Two teams per company
- Partner companies have included: Fort Wayne Metals, OmniSource, Ultra Electronics, Gladieux Refinery, Franklin Electric, Rea Magnet Wire

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### Training and HRD Process Model

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Design</th>
<th>Implementation</th>
<th>Evaluation</th>
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<tbody>
<tr>
<td>Assess needs</td>
<td>Define objectives</td>
<td>Select evaluation criteria</td>
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<tr>
<td>Prioritize needs</td>
<td>Develop lesson plans</td>
<td>Conduct evaluation of programme or intervention</td>
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<td></td>
<td>Develop/acquire materials</td>
<td>Conduct design of programme or intervention</td>
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<td></td>
<td>Select methods and techniques</td>
<td>Interpret results</td>
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<td>Schedule the program</td>
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INVESTIGATION OF CLASSROOM ENVIRONMENTS FOR STUDENTS AT PURDUE UNIVERSITY FORT WAYNE

Natalie Neuenschwander, Elementary Education Major Student and Jeong-il Cho, Ph.D., School of Education, Purdue Fort Wayne

Abstract

An ethnographic essay was developed by a student in an elementary education major and an honors program. The classroom environments at Purdue University Fort Wayne were evaluated based on her two years of experiences. The observational data on multiple views toward the Purdue FW's classroom environments were gathered from faculty and students in three months as the student researcher participated in university events with other students, faculty, and staff at Purdue FW. The results show a discrepancy between the established socio-emotional, behavior, physical, teaching, and evaluation/grading environments and environments students want. The current presentation shared adaptation and improvement ideas.

Literature Review

- College students learn better when their physical classroom reflects the culture of the class itself. For example, students prefer having bold wall colors that reflect their learning excitement and experience (Cotterill, 2015).
- Students began to feel pressure from their classes when they are overloaded with many assignments, tests, and dates that are close to one another (Rathmann, Herke, Hurrelmann, & Richter, 2018).
- Students who learn new material in a student-centered learning environment are more likely to remember the material and then recall it on their tests. (Kearney, Smith, & Maika, 2016).
- A study conducted among special needs students of the most effective strategies that they believed helped them succeed in their classes. The strategies include assistive technology, direct assistance, and strategy instruction (Zeng, Ju, & Hord, 2018).

Model: The Systematic Approach for Adapting the Learning Environment (SAAL)

It is not what we teach, but how we teach that opens doors for students who learn differently. Universal Design of Learning (UDL) and identification of “mismatches” are key points.

Three Major Environments

I. Learning Environment
   1. Socio-emotional
   2. Behavioral
   3. Physical
II. Teaching Environment
III. Evaluation and Grading Environment


Method

- Participant and Setting:
  - The researcher is a student in the Elementary Education major at Purdue University Fort Wayne (PFW) and she is also pursuing an honors program certificate. She evaluated the classroom environments at PFW based on her experiences for two years as a student and developed an ethnographic essay.

Results - Issues

Socio-Emotional Environment
- Job demands on top of schoolwork
- PFU Events are not well communicated to students
- Different set of policies for each class based on professor
- Strict attendance policy only a few absences for each class
- Professors moving too quickly and using complicated language
- Professors being unfamiliar with how to work with students with special needs

Physical Environment
- Large tables make it difficult to place laptops and other materials on
- Wall colors vary in each classroom
- Smaller desks make it difficult to place laptops and other materials on
- Neutral wall colors in classrooms

Teaching Environment
- A set list of rules for all classes provided by the university
- Professors adhering to rules specific to their class
- Policy where professors cannot give absences for factors that the student does not have a control over
- Student-Centered Learning where students help teach the lessons
- Assistive technology for students with special needs

Evaluation and Grading Environment
- Practice quizzes for students
- Final grades based not only on assessments, but other activities

Limitations and Implications

- In order to triangulate the views, interviewing other students on classroom environments would be needed in the future ethnographic essay.
- With the gathering and knowledge of these different learning environments through the perspective of both the faculty and students, the student researcher was able to better understand the PFW environment and support the faculty advisor to adapt each of the environments to students.
- By knowing unique needs of students, the student researcher could understand how the classroom effects students and adapt the classroom environment so that college students can stay engaged and understand what they are being taught.
- Through a research focusing on PFW environment, the student researcher in the elementary education major could reflect on effective learning environment for elementary school students with and without disabilities.

Conclusion

Students at PFW need various supports for their learning. The classroom environments (socio-emotional, physical, behavioral, teaching strategies, and evaluation/grading) that are critical for the learning of K-12 students are also key success factors for college students.

Classroom environments affect students’ learning experiences at Purdue University Fort Wayne no matter their race, age, grade, or the diagnosis of a disability are.

By recognizing students’ needs and possible adaptations to meet these needs, we can change our perspective of how we teach which can then help our students to succeed in their academic life in college.

2019 Alliance Faculty and Student Showcase
Student involvement in research transforms the static nature of reading about research into the active and dynamic nature of creating research. The researcher and the student both benefit from such a relationship. But are these opportunities afforded to all students?

Opportunities abound for academically successful honors students and motivated self-learners. Desire or motivation can be fostered to grow the number of students who would benefit from hands-on mentorship and participation in scholarly exploration.

- Make the process accessible to students with a range of academic skills and goals.
- Share your love & enjoyment of the research process with undergraduates who never saw themselves as potential researchers.
- Focus on individual ways to provide a positive learning experience, breaking projects into manageable tasks.
- Reduce anxiety and self-doubt and help inspire student participants to be invested in the outcome and to get excited about how their project will shape future decisions and clinical practice.

No thesis: no honors; transfer student can’t fit this in schedule; out of reach and complex; no opportunities.

No problem: participate in stages, learn about the full process from own contribution.

**Student Projects**

**Student 1**
- Prior research: Important, but out of reach
- Project title: Barriers to Recruitment of Racial Minorities into Communication Disorders
- Involvement: Research question and design development, literature review, data collection and interpretation, dissemination (poster preparation)
- Timeline: > 1.5 years

**Student 2**
- Prior research: None
- Project title: Barriers to Recruitment of Racial Minorities into Communication Disorders
- Involvement: Data entry and analysis; potentially data collection and interpretation
- Timeline: 1 semester (possibly 2)

**Student 3**
- Prior research: General interest but no time, no opportunities

**Student Stories**

*Students can be inspired by their own potential…*

"I’m interested to know the findings and I would love to continue to be part of research to create new knowledge"  
"Believe research allows us to challenge and test new ideas, and new possibilities”  
"It can be challenging, but it’s rewarding”  
"Hope that we will be able to expand this research in the future, because it is such an important topic”  
"I do find myself thinking about how this research is related to other questions in the field”

"I think my lack of interest in research came from a lack of experience”  
"I really help being so fascinated with what we’re doing! I haven’t second-guessed my decision to start this research with you”  
"Before working with you I would have assumed my lack of academic excellence would exclude me from working on research with a faculty member”  
"Working on this research opens up academic avenues that were otherwise closed off to me”

*...and help inspire us*

**Student outcomes**

**Managability of project:** very, but does require active balance of school and work  
**Interest level:** extremely interesting; addicting; important work

**Generalizing the work:** interest in eventual results; implications for the field & impact on health of patients; thinking about bigger pictures and future research questions relevant to current work

**Dissemination:** student-authored posters (2); contributions to manuscripts, acknowledgements

(Concrete things learned: expanding interest in sub-areas in our field & commitment to CSD; learning to manage time; learning to see patterns in data)

**Specific benefits:** practice transcription; increase vocabulary; master academic exploration.

**Future involvement:** would like to continue involvement in this project; will look at future opportunities
Reading Poetry- In your discipline?


Zapruder tells us that to learn to read poetry is to forget many incorrect things you learned about it, particularly what poetry is in favor of why poetry is written and what it does. This idea is similar to how we talk to leadership students about reading and consulting previously published change models. In the senior level OLS 49600 Leadership Theory and Change class a collaborative assignment requires three successive parts throughout the semester. I had students first review previously published poems or song lyrics that provided information and emotional connection to the change process. Students are expected to include more than implementation issues and address the external environment, fairness and justice, multiple stakeholder needs and more. Using the same 10 questions I use when I grade the student group’s original models, my collaborative groups answered these 10 questions for a change embedded in the poem or other previously recorded work about change. How? By creating their own Podcast. The podcast is a relaxed presentation environment that requires students to think about the issue (in this case, song lyrics or poem) and how it relates to organizational change. Original model podcasts were due October 18 (so see if you want to hear them) and include a melting wax candle metaphor and a multiple bolder model.

Student Reaction

In semesters where I provided poetry (or song lyrics- thank you Nobel Prize winners Tagore and Bob Dylan) the original models provided by students were more creative and included a more detailed look at poetry. Students outcome would include poetry of course, but also change models looking like cartoons or song lyrics among other art forms. The best project to date is a 3 Person Play which was acted out in class. It included many of the items we want in a good-change model, and provided a memorable way to begin to think about planned and unplanned change. A single parent comes home to her son who is on the floor playing with a jack-In-The-Box. She is having a tough time making the transition from her organization where they are facing several changes (some large and some minor) to home. As she allows a moment, her son seems surprised and eventually delighted. She then begins to see that each change could be visualized as a cranking and then pseudo-surprise entry of Change Implementation... I guess, younger.

Writing Poetry in OLS?

Leadership students need to find ways to influence others. In OLS 35000 I always include creative ways to write for influence. I had students in the class collaboratively write a poem.

How? Since they were not English majors, this could have been a hard sell. I began by appointing one student facilitator who has a list of 8 questions. She has classmates consider the questions, one at a time, and write the answers to each question. For the example in this poem, after she asked the first question, our facilitator had the class go outdoors and fly kites that had purchased at a ‘dollar store’. After we came in, each student contributed a line from their answer set and we wrote a poem that included every student’s comments. Finishing off with additional lines and rearrangements of course, we titled the poem. Every semester the students are so impressed with the results of their own writing – in the example poem they wanted to have the poem published (so I did enter it into a small competitive process - with English majors and even English professors- but they did not place!!)

The American poet and insurance executive Wallace Stevens wrote about the role of the poet. “What is a function? Certainly it is not to lead people out of the confusion in which they find themselves. Nor is it, I think, to comfort them while they follow their readers to and fro. I think that his function is to make them imagine their ideas and that he fulfills himself only as he sees his imagination become the light in the minds of others. His role, in short, is to help people to live their lives.” When commenting on the Stevens description of a poet’s life, Zapruder reminds us that poets take familiar language and use it to build space of both contemplation and collaboration-experiencing “a great attention charged with the possibility of new and elusive connections.” (quote on page 84).

Our OLS students are not poets, but they do not only write instruction manuals either. Their objective is often to individually or collectively encourage others around them to critically think and come up with conclusions that fit various environments or situations. The creative stories, poems, plays and other art pieces they write similar to their arguments, cases and position papers- can and do influence the thinking of others... as they should.
THE IMPLEMENTATION OF AUGMENTED REALITY AS A LEARNING AND TEACHING EXPERIENCE

A metaphor that epitomizes a direct augmented reality experience is the "image target." 3D content is linked to a physical object or image to be overlaid or displayed digitally in the real world.

"THE IMAGE TARGETS"

Augmented reality requires 3D models. In order to produce a meaningful experience, the user has to manipulate the model. The model must have a low poly count in order to display an effective interaction.

"THE OVERLAY" 3D MODELS

The most important component for a dynamic visualization in augmented reality is the texturing and UV map deployment. All interaction creates a compelling experience due to the realism of the models.

"THE SURFACE." MAPPING AND TEXTURING

Augmented reality allows the use of multiple "subsets," and its organization can be displayed through a hierarchical order.

TEACHING RESOURCES UTILIZED: IMAGE TARGET AND ANIMATION

THE USE OF VIRTUAL REALITY AS AUGMENTING AND TEACHING EXPERIENCE

The virtual reality project "The Wedding Chamber" is a research/creative endeavor instance where teaching has obtained a direct benefit from the active deconstruction of its components. A number of metaphors have surfaced as a result of the application of 3D modeling and mapping to display the content of the fresco. The most outstanding ones are: "The open room," "The Vaulted Ceiling," "The Small Models," "The Piazza," and "The Inspector."

These metaphors have a double value:

- Facilitate the understanding of the historic context of the fresco.
- Enable the configuration of a virtual space to teach the composition of the fresco.

A virtual reality immersive experience can be implemented through these metaphors as building blocks of meaningful experience. The students will then approach a future project or content by:

- Laying out the conceptual and abstract artistic language into a 3D space.
- Using concrete objects to convey complex computing language and functions.

3D models emerge when a device mounts the cylindrical camera or sensor spots the image target.

"THE OPEN ROOM"

This metaphor was conceived to understand the architectural component of the myth narrative associated with the events taking place in the main fresco. This can be understood as a teaching device where the 3D models can be studied in an immersive space. In the open room the user can move or teleport to study each element.

TEACHING RESOURCES UTILIZED: TELEPORTING AND PHYSICAL MANIPULATION


THE IMPLEMENTATION OF METAPHORES TO ACHIEVE LEARNING EXPERIENCES

Viewers are used to manipulating intuitively common computing metaphors such as Windows, Desktop, or Recycle Bin among others. However, the creation of brand new metaphors will customize learning experiences through a hierarchy of navigation. In this specific case the contact with the subject is very close, in which then the object will display call outs, tooltips, roll overs, and visual cues as hyperlinks.

TEACHING RESOURCES UTILIZED: INTERACTABLE OBJECT AND HAPTICS

"THE INSPECTOR"

This is a standard user interface metaphor in computer graphics, however it can be used in multiple functions to display levels of content.

"THE PIAZZA"

In this case the metaphor is based on a rotary action. Users can appreciate precise details.

"THE MINIATURES"

In this case the metaphor is activated by the interactive object status of the small models.

References:

A Successful Project-Based Learning Experience: 
Case Study of Fort Wayne Metal Research Project

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Introduction

✓ Project-based learning is an instructional approach planned to provide students with the opportunity to develop knowledge and skills through engaging projects set around the challenges and problems they may tackle in the real world.

✓ Such a technique presents opportunities for deeper learning in context and for the development of important skills tied to college and career readiness (Shaffer et al., 2014; Alves et al., 2012).

✓ Students’ involvement in research projects is attracting more attention in the last decade (Shaffer et al., 2010; Harrison et al., 2011; Gavin 2011).

✓ Such experience allows students and instructors to collaboratively bridge the research and classroom and provide research experiences for students relative to traditional individual mentored research.

✓ Students who are engaged in research projects report cognitive gains such as a) learning to think and analyze, b) affective gains such as delight, c) psychosocial gains such as belonging to a team, identifying as an effective engineer, and d) behavioral gains such as motivations to pursue graduate education or careers in engineering (Downing et al., 2011; Anamou and Chemit-Bekadih 2018; O’Sullivan 2013).

Objectives

- Improve the students’ self-efficacy (like self-confidence and responsibility)
- Improve the students’ attitude towards measurement techniques
- Enhance the students’ understanding of the relevance of subject matter to life and society
- Improve the student’s ability in decision making, problem solving skills, and applying concepts
- Enhance the ease of learning the subject matter for the students
- Enhance team working for the students

Second Project: Students focused on an innovative idea to design, make, and test 3D printed fabrics to be used as a flexible skin for future spacecraft, spacesuits, or for deployable antennas.

Study Area & Problem Definition

✓ In Spring 2016, faculty asked students to apply one of course techniques on a numerical example as a course project while in the Spring 2018 the faculty decided to engage students in a real research project to apply an effective technique “Design of Experiment (DOE)” to solve a real problem in industry.

✓ Graduate student involvement in a research project to improve cold drawing process in an Auto-glass manufacturing company in IT 507 (Measurement and Evaluation in Industrial Technology) course in Spring 2018.

✓ The research projects provided an opportunity for the students to work in teams, enhance professionalism, and knowledge of contemporary issues – creating ‘well rounded’ and ‘job market-ready’ engineers upon graduation. The research projects somehow improved students’ understanding of measurement techniques, making up some other approach.

First Project: Cold drawing is widely used metal forming process with integral advantages such as closer dimensional tolerances, better surface finish and improved mechanical properties as compared to hot forming processes. A team planned to focus on improving the ultimate tensile strength of L-605 ® wire by determining significant factors. L-605 ® wire has a number of applications in the aerospace industry and medical industry due to the fact that it maintains moderately high strength even in high temperatures. The cold drawing process has many variables that should be controlled to produce consistent wire properties. Their research focused on evaluation of the effect of speed, tension, and lubrication temperature on the ultimate tensile strength of the cold drawn L-605® wire via the design of experiment technique. The data analysis verified that speed and tension factors, along with the interaction of speed and temperature, have significant effects on the ultimate tensile strength of the drawn L-605® wire.

Results, Discussion, & conclusion

Table 1. Post Survey Comparison between Course Offerings (Scale Likert 4 points)

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<th>Course Offering</th>
<th>Before Spring 2016</th>
<th>Before Spring 2018</th>
<th>Spring 2016</th>
<th>Spring 2018</th>
<th>Holm Roy O. Test Result</th>
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<td>Measure</td>
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<td>3.95</td>
<td>3.69</td>
<td>3.62</td>
<td>3.62 Accepted</td>
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<tr>
<td>Single/Double</td>
<td>4.00</td>
<td>3.80</td>
<td>3.67</td>
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<tr>
<td>Tension</td>
<td>4.00</td>
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<td>Speed</td>
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<td>3.62</td>
<td>3.62 Accepted</td>
</tr>
</tbody>
</table>

Selected References:


HEALTH AND WELLNESS NEEDS
- Student Assistance Program (SAP)
- Counseling Services
- PFW/ Headwaters Counseling
- Child Care - The Learning Community
- Safe Zone
- Campus Health Clinic
- University Police

ACADEMIC SPECIAL PROGRAMS
Honors
International Programs
- International Education, Office of Student Exchange Program
CO-OP Program
- Office of Academic Internships, Cooperative Education and Service Learning, OACS Internships (OACS)

ACADEMICS SUPPORT
- Math and Science Tutoring Center
- Writing Center
- Tutoring Center - Library
- Help Corner - Engineering
- Foreign Language Lab

TEACHING SUPPORT
- CELT
- The Alliance
- FACET

RESOURCES FOR SPECIFIC GROUPS
- Center for Women and Returning Adults
- Services for Students with disabilities
- Diversity and Multicultural Affairs
- TRIO - diverse students particularly first generation
- Office of International Education
- Mastodon Academic Performance Center (Athletes)

STUDENT RESOURCES
QUICK GUIDE 2019