Effects on Teaching of an Intensive Summer New Faculty Workshop

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Recommended Citation
Gatch, Delena Bell; Cawthorn, Michelle; and Darley, Joy W., "Effects on Teaching of an Intensive Summer New Faculty Workshop" (2013). SoTL Commons Conference. 1.
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Effects on Teaching of an Intensive New Faculty Workshop

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley
Georgia Southern University
Think–Pair–Share

- If you were going to conduct a new faculty workshop on your campus, what would be the learning outcomes for your workshop?

- What challenges would you face in implementing a new faculty workshop at your institution?
Summer Workshop

- Participants: New faculty to the College of Science and Mathematics at Georgia Southern, 8 participants

- When: 4 Weeks in July, Monday – Friday

- Goal: Guide faculty through the process of course development while sharing best practices in teaching and learning

- Product: Fully developed semester course including: syllabus, schedule, lectures, activities, and assessment materials
Filling Up Your Pedagogical Toolbox: How to Excel at Teaching and Learning

- Week 1: Engaging Learning Experiences
- Week 2: Classroom Assessment Techniques
- Week 3: Technology in the Classroom
- Week 4: Presentation of Lessons Developed by Participants
Data Collection

- Surveys about course preparation
  - Pre and post for participants
  - At the end of one semester of teaching for participants and non-participants
  - Likert scale and free response questions

- Pre and post surveys about knowledge and comfort with different pedagogical tools (participants only; Likert scale)
Data Collection

- At the end of one semester of teaching for participants and non-participants
  - Video Classes and Analyze
  - Survey Students
    - One Minute Paper Summaries of Class
    - Likert Scale Questions Pertaining to Workshop Goals
Participants Previous Teaching Experiences

- How many year(s) have you taught in higher education?
  - All Participants listed 2–6 years experience as Graduate Teaching Assistant
  - 2 Participants had experience teaching courses Part Time
  - 3 Participants had taught 1 year as Visiting Professors
Participants Previous Teaching Experiences

Have you ever attended a seminar(s) and/or workshop(s) about teaching?

- 5 Participants had previously attended workshops
  - Higher Education Teaching Certificate (9 credit hours)
  - NSF Faculty Institute for Reforming Science Teaching (70 hours)
  - Various Teaching Assistant Workshop offered by Centers for Excellence in Teaching on local campus
  - Process Oriented Guided Inquiry Learning (POGIL) Workshop
How would you go about planning and developing a new course?

![Bar chart showing the comparison of planning and development of a new course among Pre-Workshop Participant (N=8), Post-Workshop Participant (N=7), Post-Semester Participant (N=6), and Post-Semester Non-Participant (N=5).]
Engaging Learning Experiences

- Writing Course Learning Outcomes
  - Backward Course Design
  - Bloom’s Taxonomy

- Designing a Student Centered Classroom
  - Active Learning
  - Cooperative Learning
  - Inductive Teaching and Learning
  - Flipping Your Classroom

- Building a Syllabus and Schedule

- Studied from
  - Dee Fink’s *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*
  - Barkley’s *Student Engagement Techniques: A Handbook for College Faculty*
What is student centered teaching?

![Bar Chart]

- Correct:
  - Pre-Workshop Participant (N=8)
  - Post-Workshop Participant (N=7)
  - Post-Semester Participant (N=6)
  - Post-Semester Non-Participant (N=5)

- Somewhat Correct:
  - Pre-Workshop Participant (N=8)
  - Post-Workshop Participant (N=7)
  - Post-Semester Participant (N=6)
  - Post-Semester Non-Participant (N=5)

- Incorrect:
  - Pre-Workshop Participant (N=8)
  - Post-Workshop Participant (N=7)
  - Post-Semester Participant (N=6)
  - Post-Semester Non-Participant (N=5)
Classroom Assessment Techniques

- Designing Formative and Summative Classroom Techniques
  - Concept Maps
  - Creative Exercises
  - Rubrics
  - Performance Assessments
  - Multiple Choice Questions

- Building a Classroom Assessment Plan and Developing Assessment Materials for One Unit

- Studied from Angelo and Cross’s *Classroom Assessment Techniques: A Handbook for College Teachers*
How will you determine whether or not your students are learning?

- Pre/post test
- Exams
- Quizzes
- In Class Assignments
- Class Discussion
- Homework Assignments
- Surveys

- Formative Assessment
- Clicker Questions
- Performance Task
- Concept Maps
- System Diagraming Exercises
- Assess Group Work
- Evaluate Critical Thinking Skills & Higher Order Thinking Skills
- Ability to Apply, Analyze, and Evaluate Scientific Information

Pre–workshop Participants

Post–workshop participants
Technology in the Classroom

- Investigated Technology Best Practices in the Classroom
  - WINGS Training
  - Google Training
  - IClicker2Training
  - Desire2Learn Training
  - Audio & Video Capture Training

- Building Technology Components of Course

- Studied from Manning and Johnson’s *The Technology Toolbelt for Teaching*
Do you plan to incorporate technology into your new classroom? If so, how?

- Course Management Systems
- Discipline Specific Software
- PowerPoint Presentations
- Clickers
- Videos

- Google Chat for Office Hours
- Google Drive for Drawing System Diagrams
- Course Management Systems for Just-in-Time Teaching
- Concept Maps on Bubbl.US
- Podcast
- Web-quest
- PhET Simulations

Pre-workshop participants and Non-participant

Post-workshop participants
How well prepared were you to teach your course(s) at the beginning of the semester?

- Participants
- Non-participants
What was your level of stress due to course preparation at the beginning of the semester?

![Bar chart showing stress levels](chart.png)

- **Participant**
- **Non-participant**
Student Responses to Questions about Faculty

Participants (N=345)  Non-participants (N=332)

Likert Scale Value

Engaged in class  Engaged outside of class  Frequency of assessment  Technology used beneficially

*
Unexpected Value Added

- Interdisciplinary Research Collaborations Emerged among Workshop Participants

- Workshop Participants were viewed as more Research Productive during First Semester at GSU

- Less Complaints were Elevated to Department Chairs concerning Workshop Participants Teaching Styles

- Workshop Participants were Involved in CTLS Activities on Campus
  - Reading Round Tables
  - Faculty Learning Communities
Know chemical formula, bonding type, and physical characteristics of ten rock-forming minerals

Laboratory Exercises 1.1 and 1.2

Earth Materials: Minerals

Mineral Building Blocks
- Crystallization
- Cations and Anions
- Atoms
- Bonds

Physical Properties of Minerals
- Cleavage
- Fracture
- Crystal Habit
- Streak
- Luster
- Density
- Hardness
- Color

Foundational Knowledge

Chapter 3 Earth Materials: Minerals and Rocks
Earth Materials: Minerals
For your information

Atomic Structure
http://www.youtube.com/watch?v=IP57gEWcisY
http://phet.colorado.edu/en/simulation/build-an-atom

Cations and Anions
http://phet.colorado.edu/en/simulation/build-an-atom

Chemical Bonding
http://bcs.whfreeman.com/thelifewire/content/chp02/02020.html

Mineral Crystallization Video
http://www.youtube.com/watch?v=Jd9C40Svt5g

Physical Properties of Minerals
http://www.galleries.com/Mineral_Properties
Think–Pair–Share

- If you were going to conduct a new faculty workshop on your campus, what would be the learning outcomes for your workshop?

- What challenges would you face in implementing a new faculty workshop at your institution?

- How would you address the challenges to ensure your learning outcomes are addressed?
Anticipated Changes to Schedule

- An Hour Added to Each Day allows for No Friday Sessions,
  - Encouraged to Focus on Research Establishment

- Structured Afternoon “Working” Sessions
  - Ensure Full Development of Course Materials
    - Participants will set daily goals
    - Scheduled breaks will be taken
    - Participants will evaluate daily goals
Conclusions

- New Faculty Exited Workshop with
  - Syllabus
  - Course Schedule
  - Classroom Activities
  - Lectures
  - Assessment Materials
  - Classroom Technology Skills

- Participants were Equipped to
  - Develop a Student Centered Classroom
  - Utilize Formative & Summative Assessment Techniques
  - Creatively Incorporate Technology into their Courses
Thanks to the COSM Dean’s Office for Financially Supporting the Workshop
**Week 1: July 9-13, 2012**

**Objectives/Goals:** Presentation of Pedagogical Toolbox

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Location</th>
</tr>
</thead>
</table>
| Monday     | 9 am - Noon| Introductions / Ice Breaker
Broad Overview of Workshop / Expectations
Pre-Assessment                             | Joy Darley, Michelle Cawthorn, Delena Bell Gatch                           | Math/Physics Rm 2023              |
|            | 1 pm – 4 pm| Presentation of Pedagogical Toolbox: The Many Faces of Inductive Teaching   | Delena Bell Gatch                     | Math/Physics Rm 2023              |
| Tuesday    | 9 am - Noon| Creating Significant Learning Outcomes to Support Student Learning
(Backward Course Design, Bloom’s Taxonomy & Student Learning Outcomes) | Judith Longfield                    | Math/Physics Rm 2023              |
|            | 1 pm – 4 pm| Departmental Meetings
(Presented with Schedule, Textbooks, Other Instructor Resources, Departmental Syllabi and Policy, Departmental Learning Outcomes for Necessary Courses, and Information on Common Exams) | Department Chairs (or Designated Person) | TBA                           |
| Wednesday  | 9 am - Noon| Introduction to Students at GSU
Learning Styles                                                             | Chris Caplinger, Delena Bell Gatch   | Math/Physics Rm 2023              |
|            | 1 pm – 4 pm| Building a Syllabus and Schedule
One Hour from My Class                                                       | Delena Bell Gatch, Jim Reichard       | Math/Physics Rm 2023              |
| Thursday   | 9 am - Noon| Google Training (Mail, Calendar, Documents, Sites, and Google Plus)          | Daniel Rivera                        | COE Rm 2151  |
|            | 1 pm – 4 pm| Independent Development of Syllabus and Course Schedule                      |                                       |                 |
| Friday     | 9 am - Noon| Course and Lesson Design (Dee Finkle’s “Creating Significant Learning Experiences”) | Cynthia Alby                         | Math/Physics Rm 2023              |
|            | 1 pm – 4 pm| Flipping the Classroom
Student Engagement
What Can I Do Besides Lecture                                                  | Cynthia Alby                         | Math/Physics Rm 2023              |
### Week 2: July 16-20, 2012

**Objectives/Goals:** Formative and Summative Classroom Assessment Techniques

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Monday, July 16</td>
<td>9 am - Noon</td>
<td>Continued Independent Development of Syllabus and Course Schedule</td>
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<tr>
<td></td>
<td>1 pm – 4 pm</td>
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<tr>
<td>Tuesday, July 17</td>
<td>9 am - Noon</td>
<td>Reflection on Syllabus and Schedule Overview of Formative and Summative Classroom Assessment Techniques Rubrics Performance Assessment</td>
<td>Delena Bell Gatch Michelle Cawthorn</td>
<td>Math/Physics Rm 2023</td>
</tr>
<tr>
<td></td>
<td>1 pm – 4 pm</td>
<td>Levels of Assessment Across the University Developing Questions Item and Exam Analysis</td>
<td>Joy Darley</td>
<td>Math/Physics Rm 2023</td>
</tr>
<tr>
<td>Wednesday, July 18</td>
<td>9 am - Noon</td>
<td>Folio (Desire2Learn) Basics, Video &amp; Audio Capture (using a headset, camera, SMART phone), and Uploading Files to YouTube and Folio</td>
<td>Daniel Rivera</td>
<td>COE Rm 2151</td>
</tr>
<tr>
<td></td>
<td>1 pm – 4 pm</td>
<td>Continued Investigation of Audio &amp; Video Capture and Uploading</td>
<td>Daniel Rivera Michelle Cawthorn Joy Darley Delena Bell Gatch</td>
<td>COE Rm 2151</td>
</tr>
<tr>
<td>Thursday, July 19</td>
<td>9 am - Noon</td>
<td>Independent Development of Classroom Assessment Plan</td>
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<td></td>
<td>1 pm – 4 pm</td>
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<tr>
<td>Friday, July 20</td>
<td>9 am - Noon</td>
<td>Classroom Assessment Techniques Introduction to Book (Classroom Assessment Techniques)</td>
<td>Cynthia Alby</td>
<td>Math/Physics Rm 2023</td>
</tr>
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<td></td>
<td>1 pm – 4 pm</td>
<td>Authentic Assessment</td>
<td>Cynthia Alby</td>
<td>Math/Physics Rm 2023</td>
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</table>
### Week 3: July 23-27, 2012

**Objectives/Goals:** Technology in the Classroom

<table>
<thead>
<tr>
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<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>9 am - Noon</td>
<td>Cognitive Learning Group Work</td>
<td>Joy Darley, Delena Bell Gatch</td>
<td>Math/Physics Rm 2023</td>
</tr>
<tr>
<td></td>
<td>1 pm - 4 pm</td>
<td>Policies, Procedures, and Methods that Enhance Student Academic Behaviors</td>
<td>Marshall Randson, Michelle Cawthorn</td>
<td>Math/Physics Rm 2023</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9 am - Noon</td>
<td>Assessment Practices in the College Science Classroom (Concept Maps, Creative Exercises, and Flow Charts)</td>
<td>Jessica Orvis</td>
<td>Chemistry Rm 2241</td>
</tr>
<tr>
<td></td>
<td>1 pm - 4 pm</td>
<td>One Hour from My Class Reflection on Assessment Techniques Overview of Technology Best Practices in the Classroom</td>
<td>Jeff Orvis, Michelle Cawthorn, Joy Darley</td>
<td>Chemistry Rm 2241</td>
</tr>
<tr>
<td>Wednesday</td>
<td>9 am - Noon</td>
<td>Folio (Desire2Learn) Intermediate, IClicker2, and Specific Course Management Systems</td>
<td>Daniel Rivera</td>
<td>COE Rm 2151</td>
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<tr>
<td></td>
<td>1 pm - 4 pm</td>
<td>Independent Development of Classroom Instruction Plans and Activities</td>
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<td>Thursday</td>
<td>9 am - Noon</td>
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<td>1 pm - 4 pm</td>
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<tr>
<td>Friday</td>
<td>9 am - Noon</td>
<td>Encouraging Students to Read Assigned Texts</td>
<td>Cynthia Alby</td>
<td>Math/Physics Rm 2023</td>
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<tr>
<td></td>
<td>1 pm - 4 pm</td>
<td>Improving Discussions Reviewing</td>
<td>Cynthia Alby</td>
<td>Math/Physics Rm 2023</td>
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### Week 4: July 30 – August 3, 2012

**Objectives/Goals:**

<table>
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<tr>
<th>Day</th>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Monday July 30</td>
<td>9 am - Noon</td>
<td>Independent Preparation of Active Learning Lessons</td>
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<td></td>
<td>1pm – 4 pm</td>
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<tr>
<td>Tuesday July 31</td>
<td>9 am - Noon</td>
<td>Teaching Portfolios</td>
<td>Judith Longfield</td>
<td>Math/Physics Rm 2023</td>
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<td></td>
<td>One Hour from My Class</td>
<td>Delena Bell Gatch</td>
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<tr>
<td></td>
<td>1pm – 4 pm</td>
<td>Continued Independent Development of Classroom Instruction Plans and Activities</td>
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<tr>
<td>Wednesday August 1</td>
<td>9 am - Noon</td>
<td>Presentations of Active Learning Lessons</td>
<td>Workshop Participants</td>
<td>Math/Physics Rm 2023</td>
</tr>
<tr>
<td></td>
<td>1pm – 4 pm</td>
<td>Continued Independent Development of Classroom Instruction Plans and Activities</td>
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<tr>
<td>Thursday August 2</td>
<td>9 am - Noon</td>
<td>Presentations of Active Learning Lessons</td>
<td>Workshop Participants</td>
<td>Math/Physics Rm 2023</td>
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<tr>
<td></td>
<td>1pm – 4 pm</td>
<td>Continued Independent Development of Classroom Instruction Plans and Activities</td>
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<tr>
<td>Friday August 3</td>
<td>9 am - Noon</td>
<td>WINGS Training</td>
<td>Valerie Kasay</td>
<td>Math/Physics Rm 2023</td>
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<td></td>
<td>1pm – 3 pm</td>
<td>Post Assessment of Workshop</td>
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<td>Grant Writing</td>
<td>Karin Scarpinato</td>
<td>Math/Physics Rm 2023</td>
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