A Mixed-Method Approach to Evaluating Themed Learning Communities

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Maui, Hawaii
Presentation Overview

• Institutional Context
• Themed Learning Communities
• Assessment Methods
  – Retention & Graduation rates
  – Grade Point Average
  – Student Engagement
  – Satisfaction & Self-Reported Learning Gains
  – Qualitative Responses
• Implications & Next Steps
Institutional Context

Indiana University-Purdue University Indianapolis (IUPUI)

- Recognized as one of the top 15 Up & Coming Universities & for Learning Communities & the First Year Experience (U.S. News)
- 8th Best Public College in the Midwest (Forbes)
- Large Urban Public Research University
- Student population of just over 30,000 students
- Over 250 degree programs from both Indiana & Purdue Universities, guided by the Principles of Undergraduate Learning
- Majority of students commute to campus (77%) and are first generation college students (56%)
What is a Themed Learning Community (TLC)?

Essential elements of TLCs:

- Cohort of 25 students
- 3 or more linked courses
- Instructional team
- Interdisciplinary theme & connections
- Learning beyond the classroom
# TLCs Program Offerings

<table>
<thead>
<tr>
<th>Category</th>
<th>Courses</th>
</tr>
</thead>
</table>
| Liberal Arts (6) | • Transcending Perceptions  
                    • Writing Women Back Into (Her)story  
                    • International Perspectives        |
| Engineering (3)  | • Global Views Local Solutions  
                    • Motorsports                              |
| Science (3)      | • CSI: IUPUI  
                    • Psychology & Religion                     |
| Education (3)    | • Social Justice Past & Present                                    |
| Nursing (3)      | • So, You Think You Want to Be a Nurse                              |
| Business (2)     | • Classroom to Boardroom                                            |
| Pubic & Environmental Affairs (2) | • Dangerous Minds, Dangerous Policies |
| Herron School of Art (1) | • Ways of Seeing Art & Culture                                      |
| Social Work (1)  | • Smart Helpers of the World                                        |
| Physical Education (1) | • Fit N’ Healthy                                                   |
| University College (9) | • For Love AND Money  
                        • Athletes  
                        • Understanding Social Inequality  
                        • African American Perspectives  
                        • Multicultural Perspectives  
                        • Health Professions Programs |
Experiential Learning Examples
Assessment Methods

• Employ Mixed-Method designs using qualitative and quantitative methods.
• Attempt to understand how TLCs influence students’ success levels (e.g., retention rates, GPAs).
• Administer end-of-course questionnaires (designed to provide information on students’ perceptions of course benefits, learning outcomes, satisfaction levels, why decided to enroll)
• Conduct focus groups and individual interviews.
• Collect direct measures of student learning (e.g., embedded course assessment as part of the 2012 Reaccreditation efforts)
National Literature

• Learning communities have been advocated as effective interventions for enhancing:
  – Student Retention (Tinto, 2003)
  – Engagement levels (Yancy, Sutton-Haywood, Hermitte, Dawkins, Rainey, and Parker, 2008; Zhao and Kuh, 2004),
  – Student learning and academic success (Hegler, 2004; Henscheild, 2004; Kuh, 2008; Stassen 2003),
  – Opportunities for service learning (Oates and Leavitt, 2003),
TLCs and Retention

“While improved retention is a welcome consequence of learning-community work, it has never been its aim. In the push to improve student retention, it is easy to overlook what research tells us: Students persist in their studies if the learning they experience is meaningful, deeply engaging, and relevant to their lives” (Lardner & Malnarich, 2008)
# Impact on First Year Retention

## 2005

<table>
<thead>
<tr>
<th></th>
<th># of Students</th>
<th>Retention Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>338</td>
<td>70%</td>
</tr>
<tr>
<td>Non-TLC Participants</td>
<td>1211</td>
<td>65%</td>
</tr>
</tbody>
</table>

*Comparison group – students who participated in a freshman seminar or learning community.*

## 2006

<table>
<thead>
<tr>
<th></th>
<th># of Students</th>
<th>Retention Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>377</td>
<td>70%</td>
</tr>
<tr>
<td>Non-TLC Participants</td>
<td>1779</td>
<td>67%</td>
</tr>
</tbody>
</table>

*G.P.A. adjusted to control for significant covariates including: course load, gender, ethnicity, SAT scores, high school percentile ranks, units of high school math, and first-generation students.*

## 2007

<table>
<thead>
<tr>
<th></th>
<th># of Students</th>
<th>Retention Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>565</td>
<td>76%</td>
</tr>
<tr>
<td>Non-TLC Participants</td>
<td>1690</td>
<td>67%</td>
</tr>
</tbody>
</table>

*Bolded items are significant p<.01*
Indianapolis First-Time, Full-Time Cohort Retention
TLC Participants vs. Non-Participants

<table>
<thead>
<tr>
<th></th>
<th>Initial Totals</th>
<th>1 year</th>
<th></th>
<th>2 years</th>
<th></th>
<th>3 years</th>
<th></th>
<th>4 years</th>
<th></th>
<th>5 years</th>
<th></th>
<th>6 years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% retained</td>
<td>% graduated</td>
<td>% retained</td>
<td>% graduated</td>
<td>% retained</td>
<td>% graduated</td>
<td>% retained</td>
<td>% graduated</td>
<td>% retained</td>
<td>% graduated</td>
<td>% retained</td>
<td>% graduated</td>
</tr>
<tr>
<td><strong>Fall 2003 Cohort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLC Partic</td>
<td>138</td>
<td>75%</td>
<td>0%</td>
<td>64%</td>
<td>0%</td>
<td>59%</td>
<td>1%</td>
<td>54%</td>
<td>19%</td>
<td>51%</td>
<td>40%</td>
<td>49%</td>
<td>42%</td>
</tr>
<tr>
<td>TLC Non-Partic</td>
<td>2017</td>
<td>66%</td>
<td>0%</td>
<td>55%</td>
<td>1%</td>
<td>48%</td>
<td>3%</td>
<td>47%</td>
<td>17%</td>
<td>43%</td>
<td>30%</td>
<td>41%</td>
<td>34%</td>
</tr>
<tr>
<td>Total</td>
<td>2155</td>
<td>67%</td>
<td>0%</td>
<td>56%</td>
<td>1%</td>
<td>49%</td>
<td>3%</td>
<td>47%</td>
<td>17%</td>
<td>44%</td>
<td>31%</td>
<td>42%</td>
<td>34%</td>
</tr>
<tr>
<td><strong>Fall 2004 Cohort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLC Partic</td>
<td>253</td>
<td>71%</td>
<td>0%</td>
<td>60%</td>
<td>0%</td>
<td>52%</td>
<td>3%</td>
<td>49%</td>
<td>20%</td>
<td>46%</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLC Non-Partic</td>
<td>1833</td>
<td>66%</td>
<td>1%</td>
<td>54%</td>
<td>1%</td>
<td>49%</td>
<td>3%</td>
<td>46%</td>
<td>18%</td>
<td>42%</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2086</td>
<td>66%</td>
<td>0%</td>
<td>54%</td>
<td>1%</td>
<td>50%</td>
<td>3%</td>
<td>46%</td>
<td>18%</td>
<td>42%</td>
<td>26%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Graduation figures include bachelor’s, associate degrees, and certificates awarded. Retained includes students awarded a degree or certificate or students who have re-enrolled.
## Impact on GPA

### 2005

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Adjusted GPA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>280</td>
<td>2.65</td>
</tr>
<tr>
<td>Non-Participants</td>
<td>1026</td>
<td>2.43</td>
</tr>
</tbody>
</table>

Comparison group – students who participated in a freshman seminar or learning community.

### 2006

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Adjusted GPA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>312</td>
<td>2.75</td>
</tr>
<tr>
<td>Non-Participants</td>
<td>1324</td>
<td>2.53</td>
</tr>
</tbody>
</table>

*G.P.A. adjusted to control for significant covariates including: course load, gender, ethnicity, SAT scores, high school percentile ranks, units of high school math, and first-generation students.

### 2007

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Adjusted GPA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC Participants</td>
<td>535</td>
<td>2.79</td>
</tr>
<tr>
<td>Non-Participants</td>
<td>1499</td>
<td>2.55</td>
</tr>
</tbody>
</table>

Bolded items are significant $p<.01$
2008 Themed Learning Community Impact on First-Year 
GPA: ANCOVA Results

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Avg. Cumulative GPA</th>
<th>Avg. Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC</td>
<td>590</td>
<td>2.70</td>
<td>2.69</td>
</tr>
<tr>
<td>Non Participants</td>
<td>1577</td>
<td>2.59</td>
<td>2.59</td>
</tr>
<tr>
<td>Overall</td>
<td>2167</td>
<td>2.62</td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** Bolded items are significantly different based on ANCOVA Results ($p < .05$). Covariates included the following: H.S. GPA, SAT score, and gender.

**Note 2:** Comparison group includes only students enrolled in First-Year Seminars. Students who were Administratively Withdrawn or Withdrew are excluded.
### 2009 Themed Learning Community Impact on Fall Semester GPA: ANCOVA Results

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Avg. Fall GPA</th>
<th>Avg. Adjusted Fall GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLC</td>
<td>695</td>
<td>2.84</td>
<td>2.87</td>
</tr>
<tr>
<td>Non Participants</td>
<td>1403</td>
<td>2.81</td>
<td>2.79</td>
</tr>
<tr>
<td>Overall</td>
<td>2198</td>
<td>2.82</td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** Bolded items are marginally significantly different based on ANCOVA Results ($p = .06$). Covariates included the following: H.S. GPA, SAT score, First-Generation, and gender.

**Note 2:** Comparison group includes only students enrolled in First-Year Seminars. Students who were Administratively Withdrawn or Withdrawn were excluded.
## 2008 Bridge-Themed Learning Community Impact on Fall Semester GPA: ANCOVA Results

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Avg. Fall GPA</th>
<th>Avg. Adjusted Fall GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Bridge-TLC</td>
<td>207</td>
<td>2.89</td>
<td><strong>2.79</strong></td>
</tr>
<tr>
<td>All Others</td>
<td>2005</td>
<td>2.66</td>
<td><strong>2.67</strong></td>
</tr>
</tbody>
</table>

Note 1: Bolded items are significantly different based on ANCOVA Results ($p < .05$). Covariates included the following: H.S. GPA, SAT score, gender, and age.

Note 2: Comparison group includes only students enrolled in First-Year Seminars.
Hierarchical Regression Results: Program Type and Fall Semester GPA

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Unstandardized Beta Weight</th>
<th>SE</th>
<th>Standardized Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>H.S GPA</td>
<td>.94</td>
<td>.05</td>
<td>.43*</td>
</tr>
<tr>
<td></td>
<td>SAT</td>
<td>.00</td>
<td>.00</td>
<td>.06*</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>.18</td>
<td>.04</td>
<td>.09*</td>
</tr>
<tr>
<td>Step 2</td>
<td>H.S GPA</td>
<td>.94</td>
<td>.05</td>
<td>.43*</td>
</tr>
<tr>
<td></td>
<td>SAT</td>
<td>.00</td>
<td>.00</td>
<td>.06*</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>.17</td>
<td>.04</td>
<td>.09*</td>
</tr>
<tr>
<td></td>
<td>SEMINAR</td>
<td>.21</td>
<td>.09</td>
<td>.10*</td>
</tr>
<tr>
<td></td>
<td>LC</td>
<td>.32</td>
<td>.10</td>
<td>.12*</td>
</tr>
<tr>
<td></td>
<td>TLC</td>
<td>.41</td>
<td>.10</td>
<td>.16*</td>
</tr>
<tr>
<td></td>
<td>SB-TLC</td>
<td>.36</td>
<td>.10</td>
<td>.11*</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>.06</td>
<td>.11</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>WK SB</td>
<td>-.03</td>
<td>.20</td>
<td>-.00</td>
</tr>
<tr>
<td></td>
<td>ONLINE</td>
<td>-.03</td>
<td>.12</td>
<td>-.01</td>
</tr>
</tbody>
</table>

$R^2 = .22$ for Step 1: $\Delta R^2 = .018$ for Step 2 (p < .001).  *p<.05
Limitation

- A noteworthy limitation of these investigations is that students self-select into TLCs and selection bias may have affected the internal validity of this study. Thus, the ability to make causal inferences based on the information is limited.
- It is possible that the positive effects of TLCs on academic performance are due to the fact that students who decide to enroll may have differed in substantial ways from students who decided not to enroll and these differences (not TLCs) may have caused the positive outcomes.
- Although important variables were treated as covariates in the statistical models, it is difficult to adjust for all possible self-selection factors using traditional statistical techniques and when experimental designs using random assignment are not employed.
2008 National Survey of Student Engagement

Significant differences between TLC students (144) in comparison to IUPUI non-TLC students (375) and notably different compared to NSSE Peer Institutions group:

**Diversity**
- Included diverse perspectives in class discussions or writing assignments
- Institutional emphasis on encouraging contact among students from different economic, social, and racial or ethnic backgrounds
- Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
- Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values
- Learned something that changed the way you understand an issue or concept

**Interdisciplinary Learning**
- Put together ideas or concepts from different courses
- Worked on a paper or project that required integrating ideas or information from various sources

**Service & Out of Class Learning**
- Worked with classmates outside of class
- Participated in a community-based project
- Community service or volunteer work

**Academic Challenge**
- Worked harder than thought they could to meet an instructor's standards or expectations
- Made class presentations

**Supportive Campus**
- Overall higher quality of relationships with other students
- Overall higher quality of academic advising
- More institutional emphasis on providing the support students need to help them thrive socially
NSSE Benchmarks: TLC Students Higher than IUPUI Students and Peer Institutions

- Active and Collaborative Learning
- Enriching Academic Experiences
TLC Questionnaire Results 2009 (N = 563)

• 72% reported that they were “Satisfied” or “Very Satisfied” with their TLC Experience.
• 68% reported that they participated in a community service or volunteer activity.
• 76% reported that they participated in a campus activity or event outside of class.
• 54% reported that they participated in an activity or event in the Indianapolis community.
• 66% reported that they understood connections between different disciplines and courses “Much” or “Very Much.”
## Top 5 Self-Reported Benefits of 2009 TLCs Rank-Ordered by Mean Value

<table>
<thead>
<tr>
<th>Benefit</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formed one or more friendships that I will maintain after the semester.</td>
<td>560</td>
<td>4.20</td>
<td>0.99</td>
</tr>
<tr>
<td>Understood connections between different disciplines and courses</td>
<td>562</td>
<td>3.79</td>
<td>0.87</td>
</tr>
<tr>
<td>Exchanged ideas with student whose views are different from my own.</td>
<td>560</td>
<td>3.74</td>
<td>0.98</td>
</tr>
<tr>
<td>Applied what I learned in one course to another course in my learning community.</td>
<td>563</td>
<td>3.67</td>
<td>0.95</td>
</tr>
<tr>
<td>Became more effective with communicating my thoughts in writing.</td>
<td>561</td>
<td>3.66</td>
<td>0.98</td>
</tr>
</tbody>
</table>
## Lowest Rated Items Related to Making Connections with Faculty

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made connections with faculty outside of class.</td>
<td>558</td>
<td>3.04</td>
<td>1.19</td>
</tr>
<tr>
<td>Discussed connections between any TLC courses with faculty.</td>
<td>561</td>
<td>2.97</td>
<td>1.14</td>
</tr>
</tbody>
</table>
Please describe how your TLC experience contributed to your learning:

N= 509
Contributing to Learning: College Transitions and Adjustment

- “It helped me transition from high school to college.”
- “It helped me adjust to college.”
- “Helped me adjust.”
- “It helped me adjust to classes.”
- “My TLC experience made it is for me to transition from high school to college. The TLC made me feel comfortable.”
- “I became more at ease with the IUPUI campus. I feel better prepared for upcoming classes.”
- “It helped with the transition from high school to college giving me useful and applicable tools for my education.”
- “It eased me into my 1st semester rather then throwing me into the deep end like most college freshmen.”
Contributing to Learning: Making Connections and Forming Friendships

- “Making new friendships.”
- “Met new people.”
- “I gained many friends.”
- “Classes with friends made me want to go to class.”
- “It allowed me to meet new friends and get involved.
- got to meet people, was able to ask peers for homework help.”
- it helps you make friends easier and takes away the stress of not knowing people. I loved it”
- “TLC was a fairly good experience, it was exceedingly easy to create new friendships, and doing so let me meet people taking my other classes whom I could study with.”
Contributing to Learning: Integrative Learning Experiences

• “Everything was connected which made it a lot easier.”
• “The 3 classes built on each other.”
• “Every class was connected so it helped with retaining the material.”
• TLC contributed to my learning because what you learned in one class you use in the others.”
• “Having classes that were connected to each other helped me to focus better on the theme of our TLC.”
• “Connecting all of my classes together showed that connections to exist in courses.”
Contributing to Learning: Networks of Support

• “The TLC gave me support because I met people who were in the same situation.”

• “Having friends in every class helped me stay on top of my work. It made me more comfortable with college life and provided kind of support group.”

• “Learned to not just depend on my teacher to help, but to get classmates to help as well.”

• “Helped me with classmates with whom I had fun, studied asked them questions and had them answer mine. It really helped me in all of my classes.”

• “Having the same people around everyday made me more comfortable in being myself & asking questions made connections with people in my same classes for help to create a network.”
Contributing to Learning: Became More Comfortable and Confident

• “It made me feel more comfortable.”
• “It helped create a comfortable learning environment.”
• “Allowed me to feel more comfortable in classes.”
• “It made me feel more comfortable in asking questions & studying with my peers.”
• “My TLC experience made me feeling much more comfortable in the college atmosphere.”
Contributing to Learning: Deep Learning and Meta-Cognition

• “I believed it has improved my overall learning ability.”
• “It helped me think more effectively.”
• “It helped me learn more.”
• “Helped me develop more skills like analyzing and research.”
• “It contributed to my learning by making me think more in depth.”
What specific suggestions do you have for improving the Themed Learning Communities?

N=449
Suggestions for Improvement: More Group Activities and Discussions
• “More activities.”
• “Discuss more topics.”
• “I would say more activities for the group.”
• “More project involving classmates.”
• “More structured discussion.”
• “More-in class discussions about the issues talked about in class.”
Suggestions for Improvement:
General Positive

• “Good job!”
• It’s good to me :).”
• “It was really helpful and nothing to change.”
• “It was all a Great Experience.”
• “I very much enjoyed and appreciated the way this class was run. It was very helpful.”
Suggestions for Improvement: More Integration

• “More course parallels.”
• “Integrate more ideas relating to all classes.”
• “Have the classes work more closely together.”
• “More conversation between teachers, more connected assignments.”
• “Better communication between teachers on common projects.”
• “Be more specific in intertwining class assignments.”
• “Make sure the classes work more closely together so that there are not a mess of assignments due on the same day.”
Suggestions for Improvement: More Outside Class Activities (Field Trips)

• “Field trips.”
• “To make meetings out of class.”
• “Have more activities outside of school.”
• “More visits to different career departments.”
• “More activities w/ class. Maybe go as a class to a school event.”
• “I suggest that there be required study tables w/ the students of that class together. Field trips would be great too!!”
Suggestions for Improvement: Less Boring, Repetitive, Uninteresting (Busy Work)

- “More exciting.”
- “Make class more interesting/less boring.”
- “Make the class less repetitive.”
- “More variety in TLCs”
- “Spice it up a little, to repetitive.”
- “Try to make some topics more interesting.”
- “More learning and less busy work, more quality assignments.”
- “Don't give so much busy work!”
Please describe the reason(s) why you enrolled in a TLC. Why, specifically, did you choose this TLC?

N=529
Why enroll?

• **Meet Friends / Develop Connections**
  • “I chose TLC to be able to meet people.”
  • “To get to know IUPUI better, and make friends.”
  • “I knew I needed help meeting new people.”
  • “I chose the TLC to make close connections.”

• **Was Recommended / Referred**
  • “It was recommended by a college advisors & I liked the description.”
  • “It was advised by my advisor at orientation.”
  • “The advisor at orientation said it would be a great idea.”
Why enroll?: Related to Major/Career

• “It helped with my intended major.”
• “It was directed towards my major.”
• “It was centered around nursing.”
• “I am a business major and wanted to make connections.”
• “Geared towards intended major, social work.”
• “I chose this TLC, because I was interested in anthropology.”
• “I was going in a science based field.”
• “I wanted the chance to learn about social work and make connections with people.”
Why Enroll: Required or Thought Required

- “It was a requirement.”
- “I actually had to for a scholarship.”
- “I thought I had to but I am very glad I came.”
- “Honestly, it was a requirement.”
- “I was placed in it because I am a student athlete.”
- “Required; most interesting & relevant to my major.”
Why Enrolled Based on Satisfaction with Experience in a TLC

Satisfied-Very Satisfied: 407 (72%)
1. Meet Friends / Develop Connections
2. Related to Career or Major
3. Was Recommended

Dissatisfied to Very Dissatisfied 45 (8%)
1. Required (Thought was Required)
2. Was Recommended
3. Interested in Course Theme
Implications

- Students seem to react positively to TLC interventions that facilitate positive connections, interactions, equip them with skills necessary to effectively adjust to college, and help them make connections between courses.
- TLCs students report high engagement levels.
- TLC faculty have developed pedagogical strategies that foster engagement and positive learning experiences.
- The collective impact of TLC courses may be greater than any one course or intervention.
- Programs that are tailored to meet the diverse needs of students are optimal.
- TLC interventions can have positive long term impacts.
Next Steps

• Continue to develop assessment techniques and methods to investigate impacts of TLC interventions.
• Comprehensive study of integrative learning.
• Focus groups or individual interviews with previous TLC students to enhance understanding of their experiences.
• Continue to develop pedagogical strategies that strengthen the positive effects TLCs.
• Use more methods to assess direct learning outcomes (e.g., examine and discuss student work and integrative assignments)