Leveraging Impact Analysis to Optimize Student Outcomes

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What if we focused on graduating more humans committed and equipped to contribute to the social good?

At the University of Central Oklahoma, college is about more than a degree. That’s why we created STLR.
Transformative Learning at UCO
About STLR
STLR Student Mobile App
UCO STLR Analysis Goals

Student Transformative Learning Record (STLR) is designed to improve student success and retention, especially among those in the target group (low income, first generation, and non-majority).

1. Understand the impact of STLR upon our students (i.e. STLR vs. non-STLR; target vs. non-target).

2. Compare the impact of two programs on campus (i.e. STLR participants vs. Enrollment Central participants) to understand and compare their potential outcomes.

3. Leverage timely analysis that meets What Works Clearinghouse standards -- needed for decision-making and grant reporting.
Analysis Overview
Examining Impact by Student Group

Nine separate analyses were run to look at impact on term to term persistence for STLR only and a Double Dose (both STLR and Enrollment Central) compared to No Dose and EC only. Results were run Overall and for Target and Non-Target populations.

<table>
<thead>
<tr>
<th>No.</th>
<th>Student Group</th>
<th>STLR Participant</th>
<th>Enrollment Central Participant</th>
<th>Target</th>
<th>Non-Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STLR Overall</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>2</td>
<td>STLR Target</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>STLR Non-Target</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>4</td>
<td>Double Dose Overall vs. No Dose</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>5</td>
<td>Double Dose Target vs. No Dose</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>Double Dose Non-Target vs. No Dose</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>7</td>
<td>Double Dose Overall vs. EC Only</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>8</td>
<td>Double Dose Target vs. EC Only</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>9</td>
<td>Double Dose Non-Target vs. EC Only</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>
Impact Analysis

To understand the impact of a program, initiative, or service (such as STLR) Civitas Learning uses PPSM (prediction-based propensity score matching) to create a control group where one did not exist. To do this, students are matched on two dimensions:

- persistence prediction
- propensity score

This two-dimensional matching ensures that the matched pair of students is similar in both their persistence likelihoods and their propensity to participate in the initiative and controls for selection bias. The impact of the initiative is then calculated by measuring the overall difference between the persistence rate of the students who participated (received an outreach) vs. matched students who did not.

UCO STLR Prediction Matching

Before Matching (Similarity = 84%)

Comparison of initiative participants and eligible comparison students

After Matching (Similarity = 98%)

Comparison of matched initiative participants and comparison students

Note: before and after matching pattern similar for overall, target, and non-target analyses. All charts are viewable within Illume Impact.
UCO STLR Propensity Matching

Before Matching (Similarity = 63%)

Comparison of initiative participants and eligible comparison students

After Matching (Similarity = 97%)

Comparison of matched initiative participants and comparison students

Note: before and after matching pattern similar for overall, target, and non-target analyses. All charts are viewable within Illume Impact.
Program Results
Results by Student Group

Lift in persistence measured by comparing participating student persistence rates to those of comparable students, matched on prediction and propensity scores. Note: Positive but lower statistical significance (.06 p-value) for Non-Target STLR participation. Higher threshold of p-value of .05 is used in this analyses.
Overall Results: Lift in Persistence

Positive, statistically significant lifts for STLR participants overall and, in particular, Target students. Largest lifts for students who have a “Double Dose” – those who participate in BOTH STLR and Enrollment Central when compared to students with Enrollment Central only or neither.

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Overall</th>
<th>Target</th>
<th>Non-Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>STLR</td>
<td>+3.1% (pp)</td>
<td>+3.0% (pp)</td>
<td>+2.3% (pp) - .06 p-value</td>
</tr>
<tr>
<td>Double Dose vs. EC</td>
<td>+6.2% (pp)</td>
<td>+7.3% (pp)</td>
<td>+5.3% (pp)</td>
</tr>
<tr>
<td>Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Dose vs. No</td>
<td>+6.9% (pp)</td>
<td>+7.4% (pp)</td>
<td>+6.9% (pp)</td>
</tr>
<tr>
<td>Dose</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All results on this page (other than noted) reach a statistical significance of at least .05 p-value. Most results reach the level of <0.01 p-value or 99.9% confidence. NSS stands for “not statistically significant”.
STLR: Larger Lifts

Largest impacts for first term, FTIC, and those with the lowest likelihoods to persist.

Lift in persistence measured by comparing participating student persistence rates to those of comparable students, matched on prediction and propensity scores. Note: All results on this page in blue meet the .05 threshold for statistical significance.
Double Dose: Larger Lifts

Lift in persistence measured by comparing participating student persistence rates to those of comparable students, matched on prediction and propensity scores. Note: All results on this page in blue meet the .05 threshold for statistical significance.

Huge +21.1% (pp) lift for students with lowest likelihood to persist.
STLR: Increasing Gains

Larger impacts in most recent term. 5.4% (pp) lift in Fall 2016 for Target population!

Lift in persistence measured by comparing participating student persistence rates to those of comparable students, matched on prediction and propensity scores. Note: All results on this page in blue meet the .05 threshold for statistical significance.
Impact on Scale & Decision-Making
What’s Next For UCO

• Added Parent Orientation during New Student Orientation -- included messaging about how to support their students because we know these students need their full network available.

• Institutionalization of STLR. Grant funding ends in Sept. 2019, and this analysis is exactly what UCO leadership needed to know that we need to continue the program.

• Statewide leadership opportunities with Board of Regents for continued higher ed innovation and beyond
Scaling STLR

- 10 other institutions across the world are in various stages of adopting / adapting STLR.

- Western Carolina University used STLR as part of institutional re-accreditation (SACS), and it was included as their quality enhancement plan.

- Transformative Learning Conference will include pre-conference session STLR Institute for institutions interested in / adopting STLR.
Contacts

- Transformative Learning Conference: [www.uco.edu/tlconference](http://www.uco.edu/tlconference)
- UCO STLR Website: [http://sites.uco.edu/central/tl/stlr/](http://sites.uco.edu/central/tl/stlr/)
- Email Jeff: JKing47@uco.edu
- Email Civitas: partnerships@civitaslearning.com