ALG Adaptive Learning Pilot for Introduction to General Psychology

Final Report

To submit your Final Report, send this completed form in an email to Jeff Gallant ([jeff.gallant@usg.edu](mailto:jeff.gallant@usg.edu)) and Tiffani Reardon ([tiffani.reardon@usg.edu](mailto:tiffani.reardon@usg.edu)).

You can submit the following in this email **optionally**:

* Files with the data behind your Quantitative and Qualitative Measures narrative. These data files **will not be made available to the public** but may be provided to researchers in an anonymized version upon request.
* Your final invoice for the second half of the award: $1,000. Some institutions can send this early, while others will have to confirm that you sent in the Final Report before creating an invoice. Either way works for us.

Based on receipt of this report and your invoice (either with this form or submitted later), ALG will process the final payment for your grant. ALG will follow up in the future with post-project surveys and may also request your participation in a publication, presentation, or other event.

Please delete the descriptive text in italics when you fill out this form.

# General Information

**Date:** December 10, 2021

**Institution Name:** Clayton State University

**Participant Name:** Antoinette Miller (in concert with Mark Daddona, Nichelle Gause, and Chizara Jones)

**Total Number of Students Affected During Project:**

325

**Cost of Materials Replaced by Lumen Waymaker:**

$64.30-$82.85

**Estimated Textbook Cost Savings Per Year (cost of previous materials minus cost of Waymaker):**

* Switch to Waymaker ($35.71 as listed at campus bookstore)
* 325 students in Fall 2021
* Original cost: $20,887-$26,926
* New cost (with Waymaker): $11,605
* Savings: $9,282-$15,321
* Avg savings per student: $28-$47

**Are you going to continue the use of Lumen Waymaker in your General Psychology course after Fall 2021?:**

This was a department-wide adoption for the Fall 2021 semester (all sections of the course including those NOT taught by the pilot team have used the Waymaker). We will be continuing to use it through Summer 2022 at least, and revisiting this in Spring 2022 prior to the Academic Year ending.

# Narrative

Over my 20 years with Clayton State we’ve used a variety of textbooks, and in more recent years adopted those with third-party course management systems (such as Launchpad and Mindtap) to facilitate student learning especially in the online classes. The great majority of my own teaching has been in entirely online classes, delivered asynchronously. The Waymaker was a definite improvement over those third-party systems that we were previously using, if only for the simple matter that it was resident inside of D2L and did not require synching with a separate external system or students to create accounts on that system.

There was a bit of a culture shift for some students in the class who had either been used to hard-copy texts or the third-party systems that may have been used in other classes, but students did engage with the Waymaker relatively quickly. I did track student progress through the various Study Plans, and made their completion a required part of my course (in addition to the quizzes and discussions). Our department did deploy a survey to all PSYC 1101 students (across all sections including those not taught by the pilot team), and those results mirrored my observations in my sections specifically (that students used the self-check questions most heavily).

In other of my online classes I have used the Intelligent Agents available in D2L, and was curious about the impact of the auto-emails that Waymaker could send to students based on quiz performance. I deliberately use the “Academic Coach” more informal voice to better mirror other communications with the classes, and received multiple replies from students to those emails; most of these were positive in tone (one or two were a bit surprised that I somehow ‘knew’ they had completed a quiz at an odd hour…) and this is something that I plan to continue using in future terms with Waymaker.

Having the on-board analytics was also helpful to me both as an instructor and as the department chair responsible for drafting our annual assessment reports. I have been in contact with Lumen regarding obtaining more detailed outcome reports for that purpose, and they have been incredibly helpful and willing to work with me on that (and I am hopeful that this will also be of benefit to other instructors should Lumen make this a regular offering of their Waymakers).

Having the reduced cost for the materials, particularly for our student population which is majority Pell-eligible (see details in the Measures section), is very important for supporting our student success. Our textbook store does mark up materials (see the cost of the Waymaker listed as $35.71, where the original cost from Lumen is $25) but even with this markup it still meets the low-cost definition set by the USG. It is important to note that only the quizzes actually required the students to purchase the access; I do like that the rest of the Waymaker is open and available even without the activation code.

Possibly the only issue (beyond those that are department-wide, described in section 4 of this report) I have with Waymaker is that the quizzes are not individually controllable with respect to deadlines/due dates – unless I am missing something (and I have asked Lumen about this as well) the only way to set due dates for them is using the tools inside of Content in D2L to do this, and it really can’t be done on an individual basis (re-opening a quiz for a small number of students who might have a legitimate need for an extension) without an intricate process using various aspects of D2L that aren’t typically within the skillset of instructors. Because my class is asynchronous online, I rely heavily on weekly deadlines to keep students on track and having the flexibility to be able to modify those due dates where needed would be a marvelous addition to this tool.

Another challenge presented by the format of the quizzes inherent to Waymaker is the inability for students to review the scored quizzes. This is something that I encourage my students to do in other classes using the D2L-delivered quizzes (although they are typically set only to release questions answered incorrectly *without* the correct answer to encourage students to then review the text again), which required I modify my usual study suggestions for students as they prepared for their exams.

We had previously utilized the Open Stax text in our PSYC 1101 (years ago) but because of the lack of the adaptive quizzing and other interactive materials that were offered by the larger publishers (in addition to fewer instructor ancillaries) we had gone back to the larger publishers for years prior to this pilot. The Waymaker did fill that gap, quite well. Additional faculty resources including the NOBA materials and additional assignments for potential inclusion did provide more support than we had access to with the Open Stax alone.

I will be spending time over the holiday break between terms digging into the detailed outcome data I reference above (provided by Lumen) to see if there are patterns in Study Plan utilization related to student performance on other things in the course as well as other potential engagement markers available in D2L, but this will not be done in time for the deadline of this report.

# Quotes

* I would most definitely like to use Waymaker in my near future with classes. It's very convenient and its low cost and way more efficient when having reality still around you.
* In my opinion, everything in Waymaker is perfect. I can check my answer right or wrong immidiately. However, I hope Waymaker platform will improve the smoothness of it.
* In the beginning of the course using Waymaker was quite difficult, but as time progressed I began to maneuver much better throughout the site.

# Quantitative and Qualitative Measures

## Uniform Measurements Questions

**Student Opinion of Materials**

**Was the overall student opinion about Waymaker used in this course positive, neutral, or negative?**

Total number of students affected in this project: 325 (201 returned surveys)

* Positive: 92.04 % of 201 respondents
* Neutral: 3.48 % of 201 respondents
* Negative: 4.48% of 201 respondents

**Student Learning Outcomes and Grades**

**Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?**

Choose One:

* XX Positive: Higher performance outcomes measured over previous semester(s)
* \_\_\_ Neutral: Same performance outcomes over previous semester(s)
* \_\_\_ Negative: Lower performance outcomes over previous semester(s)

**Student Drop/Fail/Withdraw (DFW) Rates**

**Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?**

\*\*note: I am addressing this both from a department-level standpoint (across all sections of PSYC 1101) and in my own two sections specifically.

* Department-wide: 31.5% of students, out of a total 325 students affected, dropped/failed/withdrew from the course in the final semester of implementation.
* In my OWN sections: 35.25% out of a total 84 students affected, dropped/failed/withdrew from the course in the final semester of implementation (although distinct differences between the two sections included).

Choose One:

* \_\_\_ Positive: This is a lower percentage of students with D/F/W than previous semester(s)
* XX Neutral: This is the same percentage of students with D/F/W than previous semester(s)
* \_\_\_ Negative: This is a higher percentage of students with D/F/W than previous semester(s)

It is difficult to definitively state that this is a neutral or negative result given the significant differences in our proportion of online course sections delivered vs. pre-COVID. However, from a departmental standpoint this is considered a neutral result (given the various confounding factors). In my own specific sections, this also is a neutral result (even taking into consideration the significantly higher DFWI rate in my second section).

## Measures Narrative

To address this, first see below historical DFW data (past 2 years) in our PSYC 1101 across various course modalities. There is a confound beginning in March of 2020, where all of our sections were abruptly shifted to online due to the pandemic. Since then the great majority of our PSYC 1101 sections have been online (although not all asynchronously) including during this pilot period. Previous to the pandemic we would have greater numbers of in-person (hybrid or seated) sections vs. online (at that time all asynchronous) sections.

Historical data from past 2 years, broken down by course modality:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Course modality | # Sections | # Students | %ABC | %DFWI |
| Hybrid | **6** | **249** | **78.56%** | **21.44%** |
| Fall 2019 | 3 | 129 | 80.33% | 19.67% |
| Spring 2020 | 3 | 120 | 76.78% | 23.22% |
| Online | **23** | **849** | **74.79%** | **25.21%** |
| Fall 2019 | 2 | 73 | 75.53% | 24.47% |
| Spring 2020\* | 2 | 75 | 81.20% | 18.80% |
| Fall 2020 | 11 | 388 | 72.02% | 27.98% |
| Spring 2021 | 8 | 313 | 76.81% | 23.19% |
| Seated | **6** | **221** | **82.55%** | **17.45%** |
| Fall 2019 | 3 | 126 | 82.55% | 17.45% |
| Spring 2020\* | 2 | 76 | 94.89% | 5.11% |
| Fall 2020 | 1 | 19 | 57.89% | 42.11% |
| Grand Total | **35** | **1319** | **76.76%** | **23.24%** |

\*all classes switched to entirely online in March 2020 due to pandemic

Fall 2021 %ABC/DFWI rates:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Course Modality | # sections | # students | %ABC | %DFWI |
| Hybrid | 1 | 38 | 68.42% | 31.58% |
| Online | 7 | 257 | 67.35% | 32.65% |
| Seated | 1 | 30 | 76.67% | 23.33% |
| Grand Total |  |  | **68.50%** | **31.50%** |

Our department adopted the Waymaker program-wide for PSYC 1101, and while the above DFWI data may upon first glance indicate that student success was not as robust this term, it’s important to unpack this a bit more.

My own two sections (below) showed a wide divergence in DFWI rates, although there were no differences in course design or communications. What did differ is that the second section was added quite late to the Fall class schedule, and may likely have captured more students who were late-comers to our University as well as potentially not as thoroughly prepared for online learning as in my first section. This is only speculation based on communications with the students and patterns that I noted, but it does indicate that we need to take this into account when delivering future sections with the Waymaker.

|  |  |  |
| --- | --- | --- |
| Course Sections | %ABC | %DFWI |
| Miller Section 1 | 80.85% | 19.15% |
| Miller Section 2 | 48.65% | 51.35% |
| Grand Total (across both) | **64.75%** | **35.25%** |

In the previous section I discussed the DFWI rates both for the Department and for my own specific sections in Fall of 2021. Below are more specific DFW data for my sections (only) from the past three semesters:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| All sections | #Sections | #students | %ABC | %DFWI |
| online | **3** | **130** | **81.48%** | **18.52%** |
| Fall 2019 | 1 | 35 | 80.00% | 20.00% |
| Fall 2020 | 1 | 45 | 84.44% | 15.56% |
| Spring 2021 | 1 | 50 | 80.00% | 20.00% |
| Grand Total | **3** | **130** | **81.48%** | **18.52%** |

My historic DFWI rate across these terms was 18.52% (ranging from 15.56% to 20%); in Fall of 2021 One of my two sections was in line with these numbers (19.15%) although the other was significantly higher (51.35%). As discussed above, the only distinguishable difference between these two sections was the time they were placed on the schedule (the higher DFWI section was added late in the term, capturing many of our late-admitted or late-registered students).

However, if I disaggregate and look at the % of each grade (A, B, C, D, F, W, WF) in each term, a pattern does emerge. A greater number of As were earned in Fall 2021 (even taking into account the divergence of the sections as noted above) than in previous terms and fewer Ds. The uptick in Fs in fall 2021 (in section 2) is carried primarily by students who essentially stopped-out and disengaged from the course overall. I don’t link this to the Waymaker specifically but rather to other characteristics not captured by this analysis.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester | % A | % B | % C | % D | % F | % W | % WF | % I |
| Fall 2019 | 31.43% | 25.71% | 22.86% | 11.43% | 5.71% | 2.86% | 0.00% | 0.00% |
| Fall 2020 | 46.67% | 22.22% | 15.56% | 4.44% | 8.89% | 2.22% | 0.00% | 0.00% |
| Spring 2021 | 32.00% | 30.00% | 18.00% | 4.00% | 10.00% | 6.00% | 0.00% | 0.00% |
| Fall 2021 (1) | 53.19% | 14.89% | 12.77% | 4.26% | 12.77% | 2.13% | 0.00% | 0.00% |
| Fall 2021 (2) | 24.32% | 16.22% | 8.11% | 2.70% | 32.43% | 16.22% | 0.00% | 0.00% |

Unfortunately I do not have the ability at this time to disaggregate and look at how different student characteristics (such as Pell eligibility, Part-time vs. Full-time enrollment) may relate to specific student performance in this class, however below can present overall characteristics of the students in PSYC 1101 in Fall 2021. This is drawn in part from available institutional data and also from a survey we conducted in our PSYC 1101 sections near the end of the term.

**Fall 2021 PSYC 1101 Demographics**

*Per Institutional data*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Modality | % Pell Eligible | % Full Time Enrollment | Average Institutional GPA | Average Overall GPA | Total  # Students |
| Hybrid | 63.2% | 14.72% | 2.64 | 2.36 | 38 |
| Online | 58.8% | 75.76% | 2.60 | 2.60 | 257 |
| Seated | 53.3% | 9.52% | 2.82 | 2.80 | 30 |
| Grand Total | **58.7%** | **71.1%** | **2.63** | **2.61** | **325** |

*Student Survey data:*

|  |  |  |
| --- | --- | --- |
| Age Range | % of total | Choice Count |
| 17 and under | 21.32% | 42 |
| 18-25 | 67.51% | 133 |
| 26- 39 | 8.63% | 17 |
| 40-65 | 1.52% | 3 |
| 66+ | 1.02% | 2 |
|  | **Total** | **197** |

|  |  |  |
| --- | --- | --- |
| Gender | % of total | Choice Count |
| Female | 76.88% | 153 |
| Male | 23.12% | 46 |
|  | **Total** | **199** |

|  |  |  |
| --- | --- | --- |
| Race/Ethnicity | % of total | Choice Count |
| African | 2.78% | 5 |
| Asian/Asian American | 11.67% | 21 |
| Biracial | 2.78% | 5 |
| Black/African American | 64.44% | 116 |
| Hispanic | 2.78% | 5 |
| Indigenous | 0.56% | 1 |
| Latinx | 2.22% | 4 |
| Multiracial | 1.11% | 2 |
| Other\* | 0.56% | 1 |
| West Indian | 1.11% | 2 |
| White/Caucasian | 0.56% | 18 |
|  | **Total** | **180** |

*\*Other= one respondent identified as “human”*

*\*\* Responses of N/A, None, etc. omitted, total of 17.*

|  |  |  |
| --- | --- | --- |
| Please select the category that best describes your student type | % of total | Choice Count |
| Dual-Enrollment (Currently in high school) | 27.14% | 54 |
| New Freshman | 36.18% | 72 |
| Native student (started as freshman and continuously enrolled) | 25.13% | 50 |
| Transfer student (not the 1st semester at Clayton State) | 11.56% | 23 |
|  | **Total** | **199** |

|  |  |  |
| --- | --- | --- |
| Please select the category that best describes your current semester enrollment. | % of total | Choice Count |
| Part-time student (taking 9 or less credit hours) | 31.34% | 63 |
| Full-time student (taking 12 or more credit hours) | 68.66% | 138 |
|  | **Total** | **201** |

|  |  |  |
| --- | --- | --- |
| If you work, how many hours per week do you typically work? | % of total | Choice Count |
| I do not work | 47.00% | 94 |
| 20 or less hours per week | 15.50% | 31 |
| 20 hours or more per week | 37.50% | 75 |
|  | **Total** | **200** |

|  |  |  |
| --- | --- | --- |
| Which of the following best describes this course? | % of total | Choice Count |
| Fully seated course, meet multiple times per week | 12.44% | 25 |
| Fully seated course, meet 1 time per week | 3.98% | 8 |
| Hybrid course, half online and meet 1 time per week | 2.99% | 6 |
| Fully online, no in class meetings | 80.60% | 162 |
|  | **Total** | **201** |

Our measures also include student evaluation/perception of the Waymaker on a number of dimensions including usability, comparative quality to other textbooks (if they had experience with other textbooks), how the Waymaker was actually used by the student, and overall experience with the Waymaker in the course.

Per the survey, the great majority of students read the modules as assigned (and not ahead of time), heavily utilized the self-check questions, and did not utilize the technical support from Lumen.

**Questions related to student usage:**

|  |  |  |
| --- | --- | --- |
| Which of the following is MOST TRUE for you? | % of total | Choice Count |
| I read modules as assigned to prepare for class | 72.64% | 146 |
| I read ahead of schedule (ahead of the assigned readings for the upcoming week) | 15.92% | 32 |
| I only read the textbook right before the exam | 6.47% | 13 |
| I do not read the textbook | 4.98% | 10 |
|  | **Total** | **201** |

|  |  |  |
| --- | --- | --- |
| Which of the following resources did you use/review, in addition to the textbook? Check all that apply | % of total | Choice Count |
| Videos | 13.93% | 28 |
| Recommended Readings | 6.47% | 13 |
| Try It Questions | 11.94% | 24 |
| Self-Check Questions | 64.68% | 130 |
| I did not use any outside resources | 2.99% | 6 |
|  | **Total** | **201** |

|  |  |  |
| --- | --- | --- |
| Did you use technical support for the platform? | % of total | Choice Count |
| Yes | 11.94% | 24 |
| No | 88.06% | 177 |
|  | **Total** | **201** |

**Student perceptions and impressions of Waymaker:**

Overall impressions of the Waymaker’s quality were positive, students were likely to recommend others to take PSYC 1101 with Waymaker, and that it was at least as easy to use as other texts with which students had experience.

|  |  |  |
| --- | --- | --- |
| Now that you completed a course using the Waymaker, how likely are you to recommend a friend enroll in PSYC 1101 based on your experience with the learning resource? | % of total | Choice Count |
| Very likely | 65.00% | 130 |
| Somewhat likely | 16.50% | 33 |
| Likely | 14.00% | 28 |
| Not very likely | 4.00% | 8 |
| Not likely at all | 0.50% | 1 |
|  | **Total** | **200** |

|  |  |  |
| --- | --- | --- |
| How would you rate the quality of the Waymaker resource as compared to books and/or resources used in other university classes? | % of total | Choice Count |
| This book is the same quality as other books I have used | 75.00% | 150 |
| This book is of poorer quality than other books I have used | 3.00% | 6 |
| I have not used the book for this course | 4.50% | 9 |
| I have not used other university text books so I cannot compare | 17.50% | 35 |
|  | **Total** | **200** |

|  |  |  |
| --- | --- | --- |
| How would you rate the ease of use for this low-cost learning resource compared to other online resources? | % of total | Choice Count |
| This low-cost book is the same quality as other books I have purchased | 70.15% | 141 |
| This low-cost book is of poorer quality than other books I have purchased | 2.99% | 6 |
| I have not used the low-cost book for this course | 6.97% | 14 |
| I have not purchased other university text books so I cannot compare | 19.90% | 40 |
|  | **Total** | **201** |

|  |  |  |
| --- | --- | --- |
| My experience with the Waymaker resource was positive | % of total | Choice Count |
| Strongly agree | 69.15% | 139 |
| Somewhat agree | 22.89% | 46 |
| Neither agree nor disagree | 3.48% | 7 |
| Somewhat disagree | 2.49% | 5 |
| Strongly disagree | 1.99% | 4 |
|  | **Total** | **201** |

# Future Instruction Plans

As noted previously, we will be continuing as a department with the Waymaker through Summer of 2022 (with a discussion in Spring of 2022 as a department regarding continuing into the next Academic Year). I personally teach 3 courses a year as department chair, and at least 2 of those are PSYC 1101 each year – my intention at this time is to continue with Waymaker however this is a department-level decision and not mine as an individual.

Our primary issue as a department with the Waymaker was the comparative lack of material/content/focus on multicultural aspects of the field vs. our most recent text. Our faculty with content expertise in the area have worked to pull together additional material and activities for the Spring 2022 semester, and we have also been in communication with Lumen regarding other improvements that may be possible to the Waymaker product itself and other resources that Lumen may be able to incorporate from other texts/courses they offer.

If a textbook version of Waymaker is published in the near future, it will allow students the option to also purchase the book. It seems that many of our nontraditional students like to read from an actual textbook. Although OpenStax publishes a similar version, it does not completely match the Waymaker online text.

At this time, there are also some faculty exploring using the Waymaker for Developmental Psychology, but this is very preliminary and no further details are available as of now.

# Future Scholarship Plans

At Clayton State University, our team of four faculty who piloted Lumen Waymaker this semester obtained Institutional Review Board (IRB) approval to survey our own students about their experience with Lumen Waymaker. Although plans are not definite at this time, we would like to submit a conference proposal at an appropriate upcoming conference. In addition, we might prepare and submit a paper for publication to share our experiences and findings from our student surveys.