



Treatment Materials

# THE EFFECTS OF SELF-REGULATED LEARNING STRATEGIES IN ONLINE HIGH SCHOOL SCIENCE

By Luke M Southard  
Great Lakes Learning Academy  
6-12 Online School, Michigan  
July 2022



Abstract & References



Master of Science in  
Science Education

## Introduction & Background

- Great Lakes Learning Academy (GLLA): 6-12 online public charter school in Michigan
- 100% online, asynchronous curriculum; live lessons are optional
  - Students given from 8/30/21 – 7/29/22 to complete 12-16 classes
  - Reasons students may choose fully online school
    - Working, apprenticing, or are involved in time consuming extra curriculums
    - Young parents or other extenuating life circumstances (care for elder, etc.)
    - Students with anxiety, learning disabilities, or other in-person barriers
    - Those looking expedite high school, take AP classes, explore new possibilities
  - Program offers a great amount of autonomy to students

Table 1. GLLA Student Ethnicity

GLLA Students	
White	67%
African American	16%
Hispanic/ Latino	8%
Two or More Races	7%
Asian	1%
American Indian/ Alaska Native	1%

Table 2. GLLA Grading Systems

Grading Systems	Electives (Traditional)	Core Classes (Standards)
Lessons	Points	Practice
Workbooks	Points	Practice
Checkpoints	Points	Practice
Projects	Points	Practice
Summative Assessments	Points	Performance

Table 3. GLLA Population

Great Lakes Learning Academy	
Student Population	1229
Staff Population	69

Table 4. GLLA Demographics

GLLA Students	
Economically Disadvantaged	61%
Students with Disabilities	15%

## Conceptual Framework

- History of Online Learning
- Online learning = most common/ popular form of distance education
  - 2020 COVID-19 virus forced instruction online
  - Emergency remote teaching ≠ online learning
    - Online learning = planned, researched, and chosen by educators and families
    - Emergency remote teaching = not planned, not researched, not chosen
- Characteristics of Online Learning Environments
- Group and individual communication
  - Students have 24/7 access, from any location, when most prepared to learn
  - Computer mediation → customization, differentiation, collaboration, and access
- Benefits and Challenges of Online Learning
- Benefits – flexibility, student choice, and appeals to a diverse array of students
  - Challenges – less social interaction, technology issues, and self-regulation
- Self-Regulated Learning Strategies (SRLS) for Fully Remote Online Learning
- SRLS – strategy used to seek info to achieve goals based on educational interests
  - No teacher physically present to guide/ monitor
  - Use of SRLS has been linked to academic success in online learning environments

## Methodology

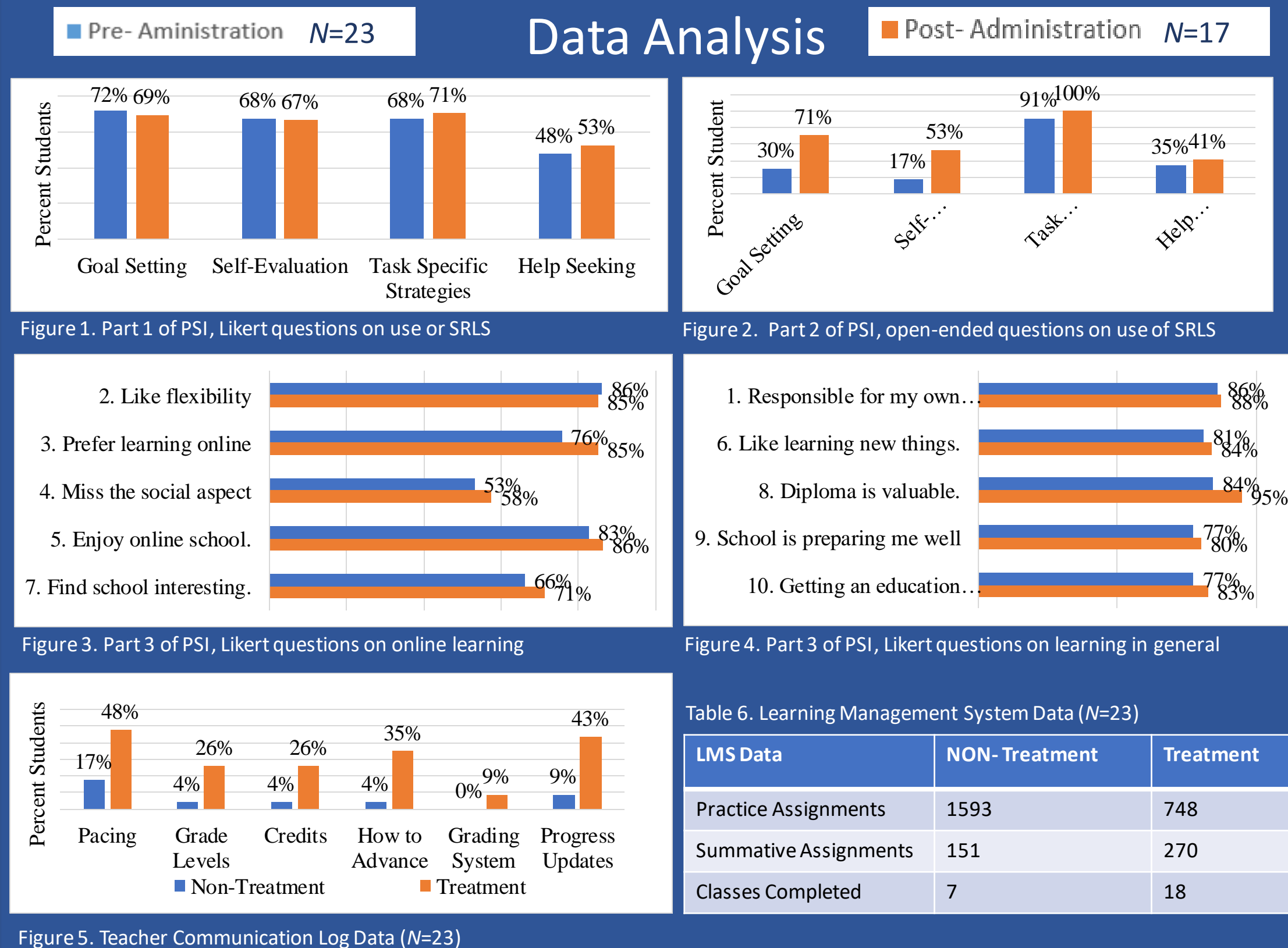
- Treatment – 50 day data collection period
- Students participated in the pre-admin of the Personal Schoolwork Inventory
  - Students engaged in 2 videos teaching SRLS reinforced by teacher interactions
    - Goal setting and planning, self-evaluating and monitoring, task specific strategies, and help seeking
  - Students readministered the Personal Schoolwork Inventory (PSI)
- Data Collection and Analysis Strategies
- 50-day Non-treatment followed by 50-day treatment period
  - Personal Schoolwork Inventory
    - Part 1: 14 Likert-scale questions on students' use of SRLS
    - Part 2: Open response section on students' use of SRLS
    - Part 3: 10 Likert-scale questions on students' attitudes towards online school and learning
  - Analyzed for frequency and distribution of responses
  - Learning Management System (LMS) Data
    - Number of assignments and classes completed
  - Teacher Communication Notes and Logs
    - Analyzed for patterns, themes, and trends

## Triangulation Matrix

Table 5. Data Triangulation Matrix

Research Question	Data Collection Methods		
Effect of SRLS on fully remote HS students...	Source 1: 3-Part Personal Schoolwork Inventory (PSI)	Source 2: LMS Data Collection Tools	Source 3: Teacher Journal - Communication/ Progress Logs
... use of SRLS	Parts 1 & 2	Assignment completion	Notes and trends
... classwork completion	Parts 1 & 2	Assignment completion	Notes and Trends
... attitudes toward online school and learning	Part 3	N/A	Notes and Trends

## Data Analysis



## Conclusions

- Claims from the study
- Students increased their use of SRLS
  - Students understood more and asked more about the grading system and credits
  - Students improved their attitudes towards online school and learning
  - Advisory teacher is a crucial role to fully remote students
- Value and consideration for future research
- Giving students a toolbox of SRLS is imperative
  - Different students need different SRLS and supports
  - Begin the academic year with creating a student tracking calendar
  - Capture how and when students revise their work and improve their grades
  - Bring students into the data collection process (student kept logs/ records)
- Impact on research author
- Online teacher, online student, in a digital world
  - SRLS are valuable to anyone in any walk of life
  - SRLS can extend past learning to regulating behaviors, attitudes, and more
  - Teaching SRLS to students sets them up for success

Table 6. Learning Management System Data (N=23)

LMS Data	NON-Treatment	Treatment
Practice Assignments	1593	748
Summative Assignments	151	270
Classes Completed	7	18