

# Self-Regulated Strategy Development (SRSD) on Academic Writing for ELL Graduate Students

Ruihui (Ava) Zhao  
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# The Problem: Academic Writing Struggles for ELL Graduate Students

*ELL graduate students face 4 challenges:*

## Language Barriers

- Academic English syntax and vocabulary
- Complex disciplinary content

## Genre Unfamiliarity

- Conventions of argumentation, hedging, and citation

## Identity & Self-Efficacy

- Avoidance behaviors and shallower revision strategies
- Doubt academic voice

## Reactive-Only Support

- Lack of systematic strategy instruction and support for academic writing



# Who Experiences It: ELL Graduate Students



## Triple Burden

simultaneously

**First-Generation  
International Students**



## Strong Content

weak convention

**English Language Learners  
(ELLs)**



## High Stakes

less scaffolding

**Graduate-Level  
Academic Writers**

L1 transfer patterns

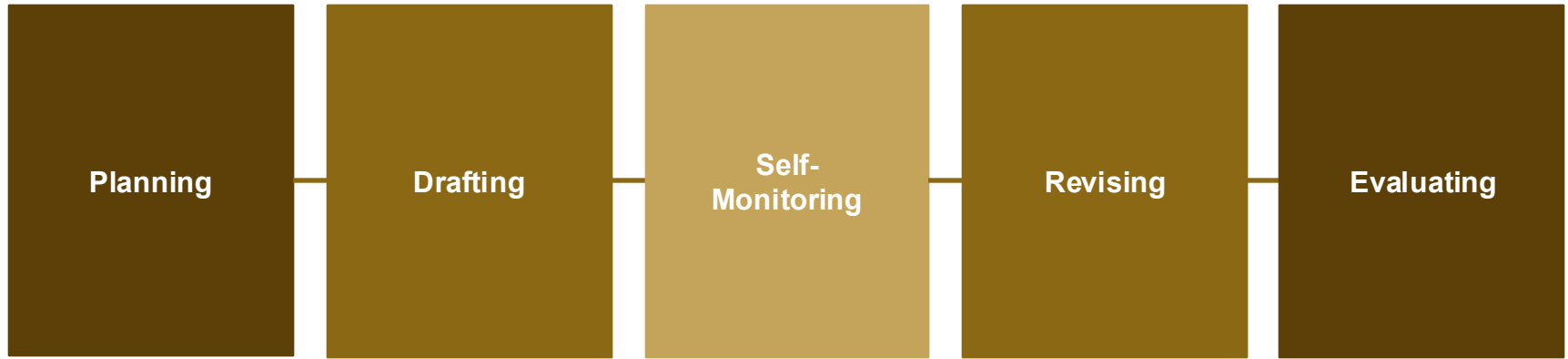
Informal register

Citation gaps

Limited lexical variety



# The Learning Process: Self-Regulated Academic Writing



## What SRSD Teaches

- Explicit planning with PLANS and REVISE mnemonics
- Goal-setting and self-monitoring checklists during drafting
- Structured deep revision using the REVISE framework
- Self-assessment and performance graphing for motivation
- Gradual release: I do → We do → You do



# The Environment

## Writing workspace

Each tool action is captured as a discrete event. Pauses between keystrokes are measured automatically and stored as `pauseSeconds`. Type in the editor to fire `WriteText` / `ReviseText` events.

### SRL Tools

- Set goal
- Plan outline
- Search resource
- Open resource
- Highlight text**
- Check rubric
- Self evaluate
- Request feedback
- Tag sentiment

End session

Goal: write a 4 part climate change essay

Climate change is one of the most serious challenges facing the world today. Rising temperatures, stronger storms, melting ice caps, and more frequent droughts are clear signs that the Earth's climate is changing.

33 words · 213 chars · pause 39s

Session S1\_sess4

### Last 8 events

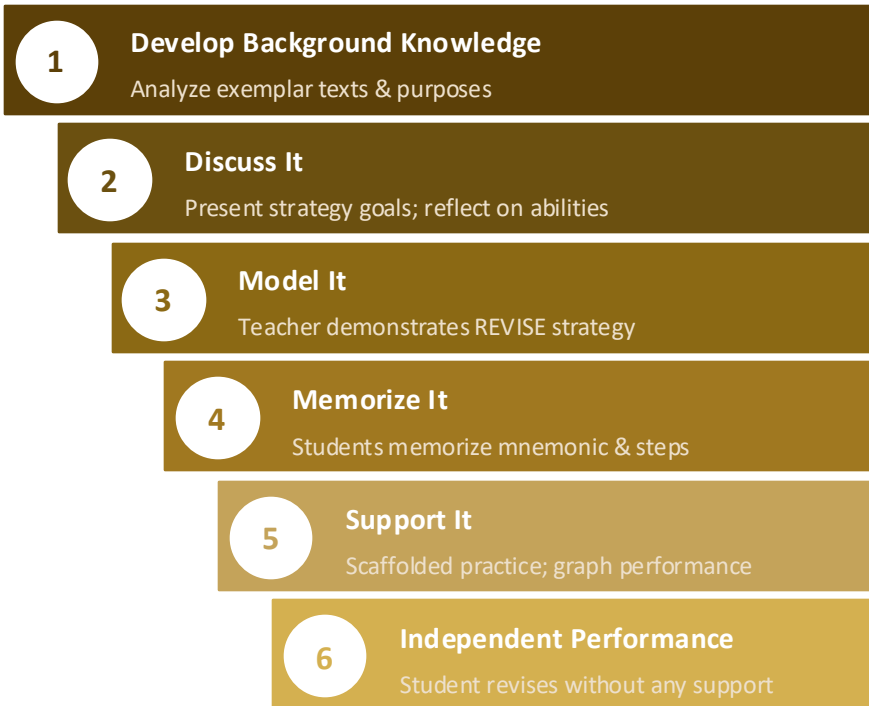
- HighlightText** 18:57:34  
Highlighted selection in draft
- HighlightText** 18:57:29  
Highlighted selection in draft
- WriteText** 18:57:18  
Typed: "of the most serious challenges..."
- ReviseText** 18:56:36  
Deleted 1 character
- ReviseText** 18:56:36  
Deleted 1 character
- ReviseText** 18:56:36  
Deleted 1 character
- WriteText** 18:56:35  
Typed: "r..."
- WriteText** 18:56:34  
Typed: "a..."



# Theory That Describes the Process: SRSD & SRL Frameworks

## SRSD Six-Stage Model

Harris & Graham, 1996 · Gradual Release: I do → We do → You do



## Self-Regulated Learning (SRL) Cycle

Zimmerman, 2000 · Maps directly onto SRSD stages



# Capturing the SRSD Writing Process in Logs

## ELL Writing Log — Student Dashboard (S1, Session 1)

|                    |            |
|--------------------|------------|
| PlanningScore      | 2 ✓        |
| TranslationFluency | 12.4 wpm ✓ |
| RevisionScore      | 3 chars ⚠  |
| MetacogScore       | 2 ✓        |
| SocialSupportScore | 1 ✓        |

## What Is Captured

- SetGoal / PlanOutline events
- Write Text with chars count and pause duration
- Revise Text depth (chars deleted)
- CheckRubric self-evaluation ratings
- RequestFeedback social interactions
- SentimentTag (positive / frustrated / neutral)



# Data Structure

Planning Writing Revision Metacog Social

| timestamp            | studentID | sessionID | eventType       | eventDetail                          | charCount | pauseSeconds | sentimentTag |
|----------------------|-----------|-----------|-----------------|--------------------------------------|-----------|--------------|--------------|
| 2026-04-10T20:00:00Z | S1        | S1_sess1  | StartSession    | Start of writing session S1_sess1    |           |              |              |
| 2026-04-10T20:01:20Z | S1        | S1_sess1  | SetGoal         | Write a 4-part outline for essay     |           | 80           |              |
| 2026-04-10T20:03:40Z | S1        | S1_sess1  | PlanOutline     | Intro, Causes, Solutions, Conclusion | 42        | 140          |              |
| 2026-04-10T20:04:20Z | S1        | S1_sess1  | SearchResource  | climate action plan                  |           | 40           |              |
| 2026-04-10T20:04:30Z | S1        | S1_sess1  | OpenResource    | Opened EPA climate report            |           | 10           |              |
| 2026-04-10T20:05:20Z | S1        | S1_sess1  | WriteText       | Typed: 'Climate change is key...'    | 28        | 50           |              |
| 2026-04-10T20:06:50Z | S1        | S1_sess1  | WriteText       | Typed: 'Effects include floods...'   | 29        | 90           |              |
| 2026-04-10T20:08:10Z | S1        | S1_sess1  | ReviseText      | Deleted 'the'                        | -3        | 30           |              |
| 2026-04-10T20:08:25Z | S1        | S1_sess1  | HighlightText   | Highlighted 'climate change impact'  | 15        |              |              |
| 2026-04-10T20:08:35Z | S1        | S1_sess1  | CheckRubric     | Organization: 4                      |           | 10           |              |
| 2026-04-10T20:09:05Z | S1        | S1_sess1  | SentimentTag    | User sentiment: positive             |           | 30           | positive     |
| 2026-04-10T20:10:45Z | S1        | S1_sess1  | RequestFeedback | Requested feedback from peer         |           | 100          |              |
| 2026-04-10T20:13:50Z | S1        | S1_sess1  | EndSession      | Final essay: 'In conclusion...'      | 64        | 185          |              |



# Logic of ELLs Writing Center

Each metric is computed from the raw log. When thresholds are triggered, the system surfaces targeted, SRSD-aligned interventions.

## PlanningScore:

Number of SetGoal + PlanOutline events per session

IF PlanningScore < 2 → Prompt student to set explicit, measurable goals before drafting begins

## TranslationFluency:

TotalWords / TotalWritingTime (words/min)

IF fluency < 8 wpm → Suggest strategy: freewriting in L1 first, then translate core ideas

## RevisionScore:

ABS(  $\Sigma$  negative charCount in ReviseText events )

IF RevisionScore < 20 → Tutor alert: student likely making only surface-level edits; introduce REVISE mnemonic

## MetacogScore:

Number of CheckRubric + HighlightText + SelfEvaluate events

IF MetacogScore = 0 → Surface rubric checklist automatically; prompt one self-assessment step

## SocialSupportScore:

Number of RequestFeedback + ReceiveFeedback events

IF score = 0 across 3 sessions → Recommend peer review or writing center appointment



# Analytics Rules

ELL Writing Center

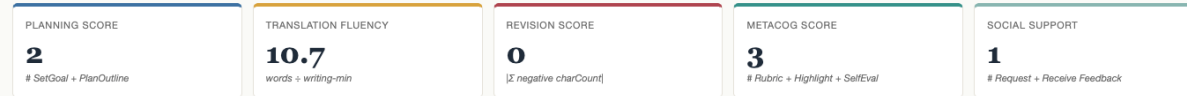
SELF-REGULATED WRITING · PROCESS & OUTCOME ANALYTICS

Not signed in

- 1. Sign in
- 2. Writing workspace
- 3. Live event log
- 4. Analytics dashboard**

## Analytics dashboard

Process and outcome metrics computed live from the event stream using the formulas defined in your analytic-rules slide.



## Writing-quality metrics



## Session timeline



# User-Facing Product: Mock-up of Solution

## Student: S1 — Session 1

|                    |          |                      |
|--------------------|----------|----------------------|
| PlanningScore      | 2        | 2 goals set ✓        |
| TranslationFluency | 12.4 wpm | Smooth ✓             |
| RevisionScore      | 3 chars  | Surface only ⚠       |
| MetacogScore       | 2        | Rubric + Highlight ✓ |
| SocialScore        | 1        | Peer request ✓       |

## Tutor Reasoning Guide

### ⚠ Low Revision (Score: 3)

S1 deleted only 3 characters (likely surface edits only). Introduce REVISE mnemonic. Ask student to evaluate one paragraph against rubric before next draft.

### ✓ Strong Planning (Score: 2)

2 goal-setting events recorded. Reinforce this pattern. Connect goals explicitly to the rubric criteria at the start of next session.

### ✓ Social Engaged (Score: 1)

1 peer feedback request made. Ask: did student incorporate the feedback? Discuss revision decisions in next tutoring session.

