A systematic review on the use of Grammarly in L2 writing contexts

Dr. Gilbert Dizon

Himeji Dokkyo University

Dr. John M. Gayed

Waseda University

grammarly

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What is Grammarly?

- Intelligent writing assistant that provides automated written evaluation (AWE)

- Multiple versions
  - Desktop
  - Mobile
  - Browser

- Free / Premium

Reviews studies on AWE

- **General reviews of AWE:** Fu et al. (2024); Huawei & Aryadoust (2023); Shi & Aryadoust (2024)

- **Review of Criterion, Pigai, & Grammarly:** Di & Zou (2024)

- **Meta-analysis of the efficacy of AWE:** Zhai & Ma (2023)
  - ➢These reviews included research involving <u>L1 English students</u>

- **Research gap:** Specifically examine the <u>L2 writing context</u> and <u>Grammarly</u>

Research Questions

1. What were the trends (publication year, research contexts) regarding Grammarly in L2 English writing between 2009 and 2023?

2. What research methodologies were used in the reviewed studies?

3. What were the research topics in the reviewed studies?

4. What affordances or constraints concerning Grammarly were reported in the reviewed studies?

Methodology

- **Databases:** Scopus and Web of Science

- **Years:** 2009~July 2023

- Search string: "Grammarly" AND "second language" OR "foreign language" OR "English writing"

Inclusion Criteria

1. Published in a peer-reviewed journal

2. Published in the English language

3. Reported primary research

4. Included the use of Grammarly

5. Involved L2 English participants and/or L2 learner-produced text

PRISMA Figure

Coding

- Coded studies according to key aspects related to each publication, i.e., research design, research focus, data collection method, etc.

- Thematic analysis used to synthesize the research outcomes
  - Primarily based on AI-assisted L2 learning framework by Wang et al. (2023)
  - Two additional themes developed by researchers

Results: Trends

Year	#	Participant L1	#	Educational Level	#	Research Location	#
2023	5	Not Specified	6	University	19	Japan	3
2022	9	Chinese	5	Primary	1	Iran	3
2021	4	Indonesian	3	Adults/Mature	2	Indonesia	3
2020	2	Japanese	3	Private language school	1	Saudi Arabia	2
2019	2	Persian	2	University + Adults/Mature	1	Philippines	2
2018	2	Arabic	2			China	2
2017 - 2009	0	Burmese	1			USA	2
		Hungarian	1			Canada	2
		French	1			UK	1
		Cantonese	1			Ecuador	1
		Tagalog	1			Myanmar	1
						Hungary	1
						Afghanistan	1

Results: Methodology & Study Length

Research Methods	#	Data Collection Methods	#	Study Length	#
Quantitative	10	Writing Samples	14	One-time session	7
Mixed-Methods	10	Interviews	10	Two sessions	1
Qualitative	4	Questionnaire	9	2-5 weeks	5
		Pre-/Post-Test	6	6-15 weeks	7
		Stimulated Recall	3	16+ weeks	1
		Video Recordings	2	Not specified	3
		Think-aloud	1		

Results: Sample Size & Modality

# of L2 Participants	#	Device used	#	Version of Grammarly	#
1~10	4	Desktop computer	8	Not Specified	10
11~50	9	Mobile	1	Free	8
51~100	7	Multiple	1	Premium	6
101~150	1	Not Specified	14		
150+	2				
Not Specified	1				

Results: Research Topics
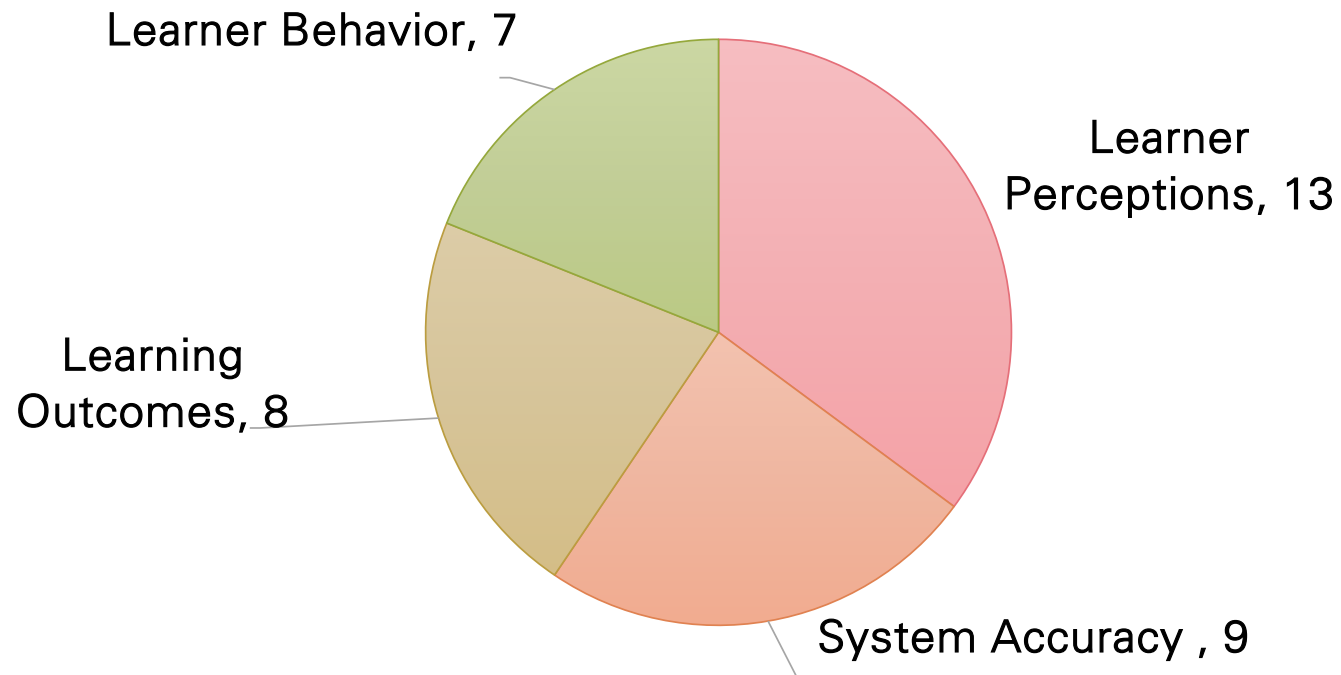
Grammarly Affordance: Teaching Presence (n=7)

- Utilized an effective <u>instructional design</u>
  - "…respondents broadly found it a convenient tool to work with, which helped them in different areas of writing" (Ebadi et al. 2023, p. 101).
- Provided useful <u>feedback</u>
  - Because the explanation and suggestions offered by Grammarly are adapted to each of the learners, they tend to be more accepting of the corrections and …integrate them into their current L2 knowledge" (Barrot, 2023, p. 599).

Grammarly Affordance: Writing Performance (n=7)

- Promoted <u>complexity, accuracy, and fluency (CAF)</u> in students' writing
  - "The high rate of errors decrease in the Grammarly-corrected text seems to imply that Grammarly is quite robust fulfilling its intended role, i.e., to reduce the number of grammatical errors in a writing" (Utami & Mahardika, 2023, p. 234).

Grammarly Constraint: Teaching Presence (n=15)

- Feedback-related issues
  - Grammarly had difficulty identifying more complex errors, namely, those "relating to sentence structure, lexical or syntactical complexity" (Long, 2022, p. 453).
  - Grammarly feedback was "unnecessary or improper" (Kawashima, 2023, p. 131) or "challenging to digest, not comprehensive enough" (Miranty & Widiati, 2021, p. 135).
  - Negative effect on learner autonomy (Zaini, 2018)

Summary of Findings

1. What were the trends (publication year, research contexts) regarding Grammarly in L2 English writing between 2009 and 2023?
   - L2 Grammarly research output has increased significantly since 2022
   - Majority of studies have focused on the university context

2. What research methodologies were used in the reviewed studies?
   - Quantitative or mixed-methods designs were common
   - Short study durations of one to two sessions or fewer than six weeks (n=13)
   - Many studies did not specify version of Grammarly used or device used

Implications

- Grammarly as a complement instead of a replacement for teacher feedback
  - Combine Grammarly and teacher feedback (Thi & Nikolov, 2022)

- Learners must be informed about the limitations of Grammarly
  - Ongoing training

Directions for Future Research

- Conduct a meta-analysis to assess Grammarly's impact on L2 writing

- Investigate the use of Grammarly among younger students

- Study GrammarlyGO (generative AI)
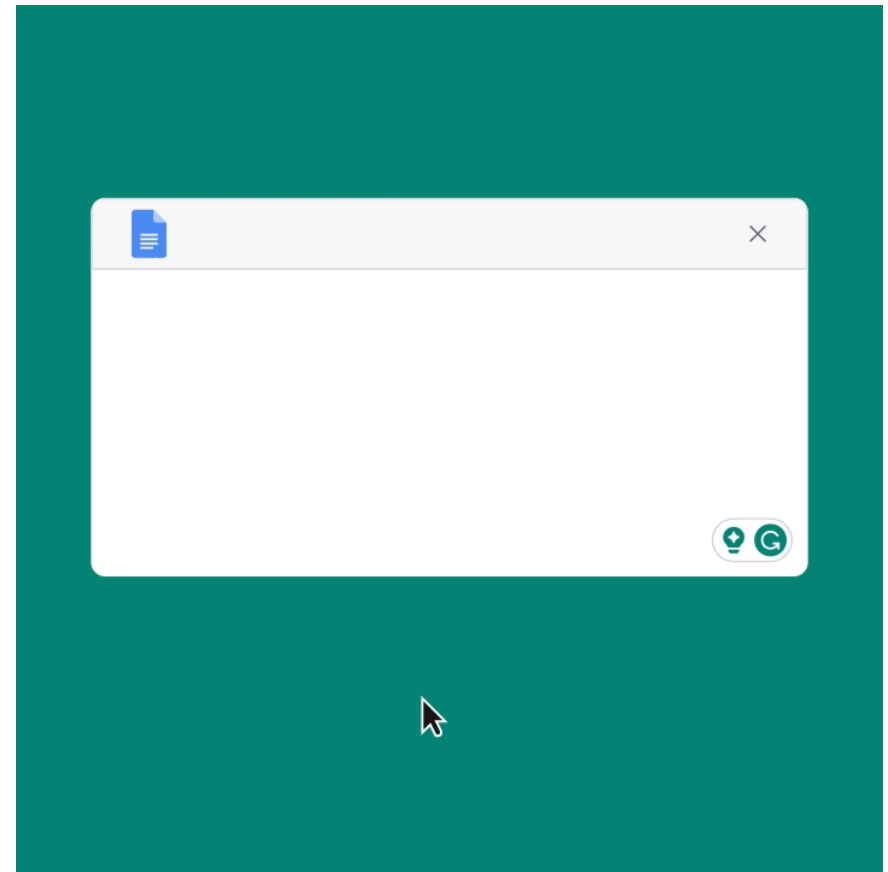
Thank You

Gilbert Dizon

gilbert.dizon.jr@gmail.com

John M. Gayed

gayed@waseda.jp

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Studies Included in Review

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