生成AIを活用した英語教育・研究支援Webアプリケーションの開発と展望

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発表の流れ:

1. はじめに:生成AIと英語教育の現在地
2. Teacher toolの開発と実践(谷野)
3. ライティング自動評価・語彙学習支援ツールの開発と実践(水本)
4. 全体のまとめと今後の展望

APIとは？

- API (application programming interface)

対象としているサービスから情報を抽出

「ソフトウェア同士をつなぐ橋」

レストランの例

お客さん(あなた)→ 注文したい料理がある

ウェイター(API)→ 厨房に注文を伝え、料理ができたら持ってくる

厨房(システム)→ 実際に料理を作る

＊ 私たちは直接厨房に行かなくても、ウェイター(API)を通して注文できる！

APIとは？

例えば...　　　　APIをスプレッドシートに埋め込むことで、カスタマイズができる。

生成AI(llama-3.3)のAPIを埋め込んだスプレッドシート　　　　ChatGPT

APIとは？

生成AIをGoogle スプレッドシートに組み込む（無料）

生成AIをスプレッドシートへ組み込むことであるセルの内容を生成AIを通じてアセスメントしたり、リライトしたりすることができます。

今回使用するのはGoogleアカウントのみです。（厳密にはそれ経由でGroqアカウントも作ります）

1. API Key の準備(Groq)

まずは、GroqAPI Key を取得します。

Groqcloudへアクセスし、アカウントを作成。(Google アカウント連携でも作成できます)

右上の**DEV CONSOLE** をクリック

Groq is Fast AI Inference

APIとは？

例えば...

方法は**コチラ**

埋め込んだプロンプト→

↓学習者が書いた英語

Yes, I use social media, especially Twitter, Reddit, and Snapchat. Social media refers to online platforms and applications that enable users to create, share, and interact with content, as well as communicate and build communities with others. One of the good points is that I can get new and useful information easily, including things I've been looking for. Another good point is that I can learn different perspectives from people around the world. However, there are also some bad points. There is a lot of low-quality information, and sometimes fake news spreads quickly. Also, some users can be harmful or toxic, which makes social media less enjoyable at times. In conclusion, social media is useful but needs to be used carefully because of its risks.

↓AIによるコメント

(A) 英文の構成・語彙・文法：文章の構成はシンプルでわかりやすいですが、語彙の使用に少し制限が感じられます。例えば、「good points」や「bad points」の代わりに、「advantages」や「disadvantages」などのより適切な語彙を使用することができます。また、文法的には基本的には正確ですが、少し単純な構文が目立ちます。

(B) トピックの内容：社会メディアのポジティブな側面とネガティブな側面の両方をバランス良く議論していますが、より具体的な例や学生自身の経験を取り入れることで、議論をより深め、興味深くすることができます。また、現代社会における社会メディアの影響についても触れることができます。

I use social media platforms like Twitter, Reddit, and Snapchat, which provide access to a vast array of information and diverse perspectives. The advantages include easily obtaining useful information and learning from global viewpoints. However, there are also disadvantages, such as the spread of low-quality information and fake news, as well as its benefits, social media must be used cautiously, acknowledging its risks and limitations.

生成AI(llama-3.3)のAPIを埋め込んだスプレッドシート

APIとは？

例えば...

```
="出席番号"&D35&"番
氏名：  "&E35&"
単元番号： "&F35&"

【提出された英文】("&I35&" words)
"&G35&"

【評価とモデル英文】
"&H35
```

出席番号□番
氏名：□
単元番号: Chapter2

【提出された英文】(125 words)
Yes, I use social media, especially Twitter, Reddit, and Snapchat. Social media refers to online platforms and applications that enable users to create, share, and interact with content, as well as communicate and build communities with others. One of the good points is that I can get new and useful information easily, including things I've been looking for. Another good point is that I can learn different perspectives from people around the world. However, there are also some bad points. There is a lot of low-quality information, and sometimes fake news spreads quickly. Also, some users can be harmful or toxic, which makes social media less enjoyable at times. In conclusion, social media is useful but needs to be used carefully because of its risks.

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AI・機械翻訳 と 英語学習

教育実践から見えてきた未来

山中 司 編

授業にAI・機械翻訳を**正式導入！**
日本の大学**初の**試みから、学習の**ゲームチェンジャー**の姿が、今、鮮やかに浮かび上がる。

朝日出版社

TRANSABLE

GPTをはじめとしたAPIを利用
https://transable.net/
https://www.ritsumei.ac.jp/news/detail/?id=3103

Teacher tools

https://taninon.sakura.ne.jp/teacher_tool/index.html

生成AIのAPIを使用している機能
- ライティングFB（中初級・上級）
- 英文書き換え
- 語彙リスト作成
- LingoForge: 翻訳
- LingoLens: 読解補助
- TextTrek: 問題作成

生成AIのAPIを使用していない機能
- 穴埋め問題作成
- 整序問題作成

→AIにさせないといけない作業、手動
の延長線上の作業を切り分ける

英作文評価など

エッセイの自動採点やフィードバック

Research Methods in Applied Linguistics
Volume 2, Issue 2, August 2023, 100050

Exploring the potential of using an AI language model for automated essay scoring

Atsushi Mizumoto [a], Masaki Eguchi [b]

https://doi.org/10.1016/j.rmal.2023.100050

- (Chat)GPTだけで自動採点すると、ある程度の精度。
- 言語的特徴量を追加するとかなりの精度。
- 人間の評価を組み合わせることが必要。

英作文評価など

正確性（accuracy）の自動評価

Research Methods in Applied Linguistics
Volume 3, Issue 2, August 2024, 100116

Testing the viability of ChatGPT as a companion in L2 writing accuracy assessment

Atsushi Mizumoto [a], Natsuko Shintani [a], Miyuki Sasaki [b], Mark Feng Teng [c]

https://doi.org/10.1016/j.rmal.2024.100116

- 正確性の自動評価にChatGPTを使用することができる。
- 人間の評価よりもライティングスコアとの相関が高い。
- ChatGPT (4.0) > Grammarly

英作文評価など（エラー自動算出ツール） https://langtech.jp/autoerror/

Error Analysis

Accuracy

Index	Value
Number of Errors	11
Errors per 100 Words	9.73
Errors per Total Words	0.10
Errors per Sentence	1.57
Errors per T-Unit	1.57
Errors per Clause	0.92
Error-Free Sentences	1
Error-Free T-Units	1
Error-Free Clauses	4
Error-Free Sentences / Total Sentences	0.14
Error-Free T-Units / Total T-units	0.14
Error-Free Clauses / Total Clauses	0.33
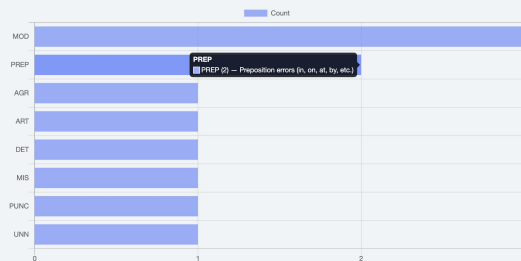
	Original	Corrected	ErrorCounts	Error Types
1	I agree **with** that it is important for college students to have **a** part-time jobs.	I agree that it is important for college students to have part-time jobs.	2	UNN DET
2	There are two **reasons** in terms of interaction with people and earning.	There are two **reasons**, in terms of interaction with people and earning.	1	PUNC
3	First, students can learn how to get along with other people because there are not only their friends but also various people **in** extensive ages.	First, students can learn how to get along with other people because there are not only their friends but also various people **of** extensive ages.	1	PREP

Mizumoto, A. (2025). Automated analysis of common errors in L2 learner production: Prototype web application development. *Studies in Second Language Acquisition.* https://www.iris-database.org/details/eFPsq-2pGp6

語彙学習支援ツールの開発と実践

lexitracker

Enter your English text here…

開発・公開しました
https://mizumot.com/lex.html

Load　Listen　Translate　Ask　Clear

https://mizumot.com/lex.html
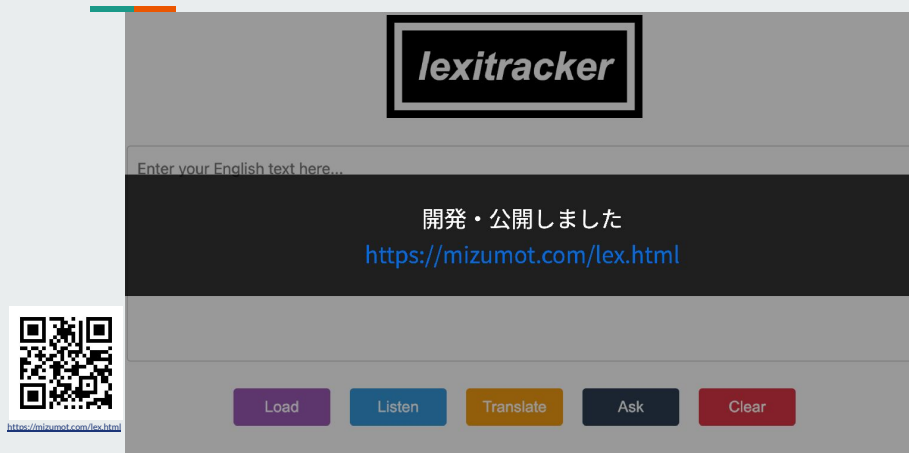
概要

- 語彙学習進捗管理システム

- 語彙レベル判定（新 SVL12000）

- 生成 AI の統合（API）

    GPT-4o-mini, Llama-3.3, Gemini-2.0

- 何でも質問可能、フィードバック

- 自動問題作成機能

- データを活用した自律学習を促す

lexitracker

Japan Post will not deliver live reptiles starting from April on animal welfare grounds, a company spokeswoman said Wednesday.

Customers had raised concerns and animal rights activists had criticized the service online, the spokeswoman for the nationwide postal service told AFP.

"After consulting with the government… we came to realize that shipping animals in an environment where temperature control and food are unavailable can amount to animal abuse," she said.

Load　Listen　Translate　Ask　Clear

Words at Level 3 (3000) or higher are highlighted in red. ☑ Use this function

Vocabulary levels follow New SVL12000, divided into 12 levels of 1,000 words each. For more details, use New SVL12000 Profiler. For analyzing multi-word units, consider using Multi-Word Units Profiler (Eguchi, 2021).

⊕ Click words you don't know while reading text. They will be registered as unknown words.　Add Word/Phrase

Police in Kuki, Saitama Prefecture, have arrested a 46-year-old man on suspicion of stealing an ambulance.

授業でも活用可能

lexitracker

JAL initially planned to solely operate the flights using aircraft developed by Volocopter GmbH from Germany.

But it later teamed up with Japanese trading house Sumitomo Corp, launching a joint venture Soracle Corp. in June 2024, and planned to use aircraft manufactured by U.S. startup Archer Aviation Inc, which is still seeking to obtain U.S. safety certification.

The two other companies aiming to conduct showcase flights are Japanese trading firm Marubeni Corp and SkyDrive Inc, a Japan-based flying car startup.

Load　Listen　Translate　Ask　Clear

Words at Level 3 (3000) or higher are highlighted in red. ☑ Use this function

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AI Chat Assistant

Original Text

The release of the latest image generator on OpenAI's ChatGPT has triggered an online flood of memes featuring images done in the style of Studio Ghibli, the Japanese studio behind classic animated films like "My Neighbor Totoro" and "Princess Mononoke."

The virality of these images, with OpenAI CEO Sam Altman even changing his profile picture on X to match the style, immediately raised questions about copyright infringement by the ChatGPT maker, which already faces lawsuits regarding the use of source material without permission.

Since the release on Wednesday, AI-generated images depicting Studio Ghibli versions of Elon Musk with U.S. President Donald Trump, "The Lord of the Rings," and even a recreation of the September 11 attacks have gone viral across online platforms.

On Thursday, the White House took part by posting on X a Ghibli-style image of a weeping alleged felon being handcuffed by a U.S. immigration officer before her deportation.

Originally intended to be available on the platform for free, Altman said the huge success of the new generator was unexpected and meant the tool would remain limited to paid users for now.

It was already possible to generate images with ChatGPT, but the latest version is powered by GPT-4o, the company's highest-performing model, and allows sophisticated results to be obtained through very succinct requests, which was not the case before.

Chat — Hide Prompts ▲

Basic Instructions:
- Prompts in English will be answered in English.
- Prompts in Japanese will be answered in Japanese.
- Press **Shift + Enter** to create a new line.
- You can click on a prompt in the table below to copy it.
- Click the **Send** button to submit your prompt.

Example Prompts: More prompt examples
▶ Reading
▶ Writing

サンプルのプロンプトがある

[Ask any questions.] Send

GPTに英文について
何でも英・日で質問可能

クリックするとコピー可能

Example Prompts: More prompt examples

▼ Reading

Purpose	English Prompt	Japanese Prompt
Summary	Summarize the text in one sentence.	一文で要約してください。
Explain Simply	Explain this so a 10-year-old can understand.	10歳の子どもにもわかるように簡単に説明してください。
Key Words	List the key words to understand the text.	テキストを理解するためのキーワードを挙げてください。
Vocabulary	List B2-level CEFR words and phrases in a table.	CEFRのB2レベルの単語やフレーズを表にしてください。
Comprehension Check	Ask me questions to check if I understand the text.	私がテキストを理解しているかどうか確認するために質問してください。
Topic Suggestions	Suggest five engaging and thought-provoking writing topics inspired by the text.	テキストのテーマやアイデアに基づいて、面白くて考えさせられるライティングのトピックを5つ提案してください。
Discussion	Let's have a brief discussion about this text. Start by asking me a question.	このテキストについて簡単なディスカッションをしましょう。質問から始めてください。

▼ Writing

Purpose	English Prompt	Japanese Prompt
Correction Table	Correct errors sentence by sentence in a simple two-column table ("Original" on left, "Revised" on right). Left column: Original sentences unchanged. Right column: Revised sentences corrected or changed word clearly and explicitly in bold and underline exactly like this: *corrected word* (use HTML tags only).	(訳) 原文と訂正文を左右に並べた表にしてください。訂正箇所を太字・イタリックで示してください。
Track Changes	Correct all errors in the text including grammar mistakes, awkward phrasing, and structural issues. Use HTML tags to mark the changes: deletions with deleted text and insertions with inserted text. Include the necessary style tag at the beginning of your response: and use classes in your corrections like wrong textcorrect text. Show both deletion and insertion for each correction.	(訳) 文法や表現、構造上の誤りを赤色に、追加箇所を青色で示してください。
Clarity Advice	Do you have any tips for improving the clarity and flow of this text?	このテキストの明快さや流れを改善するヒントはありますか？
Natural Rewriting	Please point out any unnatural words, expressions, or sentence structures in this English text. For each point you identify, explain why it is unnatural, and provide a more natural English expression as an example.	この英文において、不自然な語句、表現、または文の構造があれば、具体的に指摘してください。それぞれの指摘箇所について、日本語でどのように不自然であるかを具体的に説明した上で、より自然な英語の表現例を示してください。

CEFR-J Writing Level Check

[Get Feedback From the CEFR-based Writing Level Analyzer] (Text will be copied automatically)

Reading & Listening

Chat — Show Help ▼

> Summarize the text in one sentence.

Japan Airlines has abandoned its plan to conduct demonstration air taxi flights at the 2025 World Exposition in Osaka, while three other operators still intend to offer exhibition flights during the event.

> なぜ断念したのですか？

日本航空は、航空機の開発と安全認証を取得するプロセスが時間を要するため、2025年の大阪万博でのデモンストレーション飛行の計画を断念しました。

> What are the pros and cons of air taxi?

Pros of Air Taxis:

1. **Reduced Travel Time:** Air taxis can significantly decrease travel time by bypassing ground traffic and providing direct routes.
2. **Convenience:** They offer on-demand services, allowing passengers to book flights at their convenience, similar to ride-sharing services.

> Suggest five engaging and thought-provoking writing topics inspired by the text.

Here are five engaging and thought-provoking writing topics inspired by the text:

1. **The Ethics of AI in Creative Industries:** Explore the ethical implications of using AI to generate art and content. Should AI-generated works be considered original creations, or do they infringe on the rights of human artists?

2. **The Future of Copyright Law in the Age of AI:** Analyze how current copyright laws may need to evolve to address the challenges posed by AI-generated content. What changes would be necessary to protect artists while fostering innovation?

3. **The Impact of AI on Artistic Authenticity:** Discuss how the rise of AI-generated art affects the concept of authenticity in creative works. Can art created by algorithms hold the same value as that created by human hands?

Writing & Speaking

Chat

> Correct errors sentence by sentence in a simple two-column table ("Original" on left, "Revised" on right). Left column: Original sentences unchanged. Right column: Revised sentences clearly marking corrected or changed words in bold with underline using HTML tags (word) only.

Original	Revised
I agree that it is important for collage students to have part-time job.	I agree that it is important for **college** students to have part-time **jobs**.
I have two reasons why we should work as part-time job.	I have two reasons why we should work as part-time **jobs**.
First, we use monny anywhere such as to buy lunch, take a train and go out with friends.	First, we use **money** anywhere such as to buy lunch, take a train, and go out with friends.
We should earn ourself when we use money because we are over 18 ages.	We should earn **ourselves** when we use money because we are over **18 years old**.

Chat — Show Prompts ▼

> Correct all errors in the text including grammar mistakes, awkward phrasing, and structural issues. Use HTML tags to mark the changes: deletions with deleted text and insertions with inserted text. Include the necessary style tag at the beginning of your response: and use classes in your corrections like wrong textcorrect text. Show both deletion and insertion for each correction.

```html
I agree that it is important for ~~collage~~college students to have part-time ~~job~~jobs. I have two reasons why we should work ~~as part-time job~~part-time jobs. First, we use ~~monny~~money anywhere, such as to buy lunch, take a train, and go out with friends. We should earn ~~ourself~~ourselves when we use money because we are over 18 ~~ages~~years old. It is ~~adult~~being an adult. We have to become a ~~little~~little ~~independent~~independent from our family in terms of money. Second, before we work as ~~business~~business ~~man~~people, we should learn ~~expriences~~experience of society, such as ~~communicatin~~communicating with older people. We must talk with them ~~with respects~~with respect. So, we ~~heve~~have to be ~~care of how to talk with~~careful about how we talk to them. We do not have to speak ~~them~~to them rudely. For other situations from my experience, I work at a cram school, and I ~~bacieally~~basically speak not only to adults but also to children, from elementary school ~~children~~students to junior high school ~~children~~students. So, if I work as a ~~teather~~teacher in elementary school or junior high school, I can talk with children to teach with skills that I ~~learn something I got as a cram shcool teacher~~learned as a cram school teacher, such as ~~talk to slowly~~talking slowly, ~~communicate with easy words~~using simple words, and ~~talk to with looking at the same poisions~~maintaining eye contact. In conclusion, I ~~recommend to have~~recommend having a part-time job to be independent and gain experience in society.
```

授業で使う場合のために
LMS版も作りました。

Chatの履歴はすべてテキストと一緒に保存される

語彙学習支援ツールの開発と実践

- ChatGPTを使ったライティング実践で多いパターン
  ⇒ 履歴をスクリーンショットで提出

- 一部しか記録できない、変化を見る必要がある
  ⇒ 語彙学習支援ツール以上の機能が必要

- 教員のフィードバックだけでは得ることができない内容が
  やり取りを確認してみると起きていることがわかる。

語彙学習支援ツールの開発と実践

語彙学習支援ツールの開発と実践

- 学習者の反応は良い
  ⇒「ほかの文章を読む際や、ライティングの課題などに応用していきたいと思います。無料でこのクオリティーのものを使わせていただけて本当にありがたいです。」

- 実際は一部の学生のみが活用

- 授業で触れさせて、実際に使わないと効果的かつ、倫理的な使い方は身につかない。

今後の展望
:個別最適学習とAIツール

- 個別最適な学習パートナーとしてAIツールを活用
- API組み込みWebツールで授業のターゲット技能に合わせたサポート&教師支援
- 学習者の技能に合わせてAIツールをカスタマイズ(教師がコントロール)できる
- チャットツールとの差別化(壁打ちをする必要があるときとない時)