

Categorization of Practical Use Cases in Generative AI Pilot Schools in Japan

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Introduction

- GIGA School Program (2020):** 1 device per student and high-speed networks were provided in Japan's public schools.
- Expected impact:** The 1:1 environment was expected to support personalized and collaborative learning.
- Next Step:** To explore device use, the **Leading DX School Project (LDX)** was launched.
- Rise of GenAI:** Tools such as ChatGPT spread rapidly, drawing attention in education.
- Guidelines (2023):** MEXT issued Guidelines for appropriate school use and designated **Generative-AI pilot schools** within the LDX framework.
- 52 schools designated:** They submitted use case reports to the LDX project website.
- Motivation :** The cases had not been systematically analyzed, and what categories of GenAI use existed was unclear.

1 device per student



<https://leadingdxschool.mext.go.jp/>

Conventional methods and our proposal

	Scope	Data	Method	Value
Romero et al. (2024)	Higher education, conceptual	Literature, guidelines, cases	Narrative synthesis, high-level categories	Conceptual categories, broad orientation
Our proposal	Japan K-12, 52 schools	266 public cases (Oct 2023–Feb 2024)	Multi-label coding; type, role, school, subject	Practical categorization + counts, K-12 benchmarking

Novelty:

- K-12 focus:** First systematic categorization of GenAI use in Japan's primary and secondary education.
- Large-scale dataset:** Analysis based on 266 cases from 52 MEXT-designated pilot schools (FY2023).
- Practical categorization:** 5 categories / 20 roles.

Method

Coding process:

- First **categorized by the roles** of GenAI.
 - Then further categorized by four perspectives for **quantitative trend** analysis :
Type of use (educational / administrative); Role of GenAI (5 categories / 20 roles); School type ; Subject
- Counting rule:** When a case involved multiple roles, types, or subjects, all were counted.



LDX Official Website

Results and Discussion

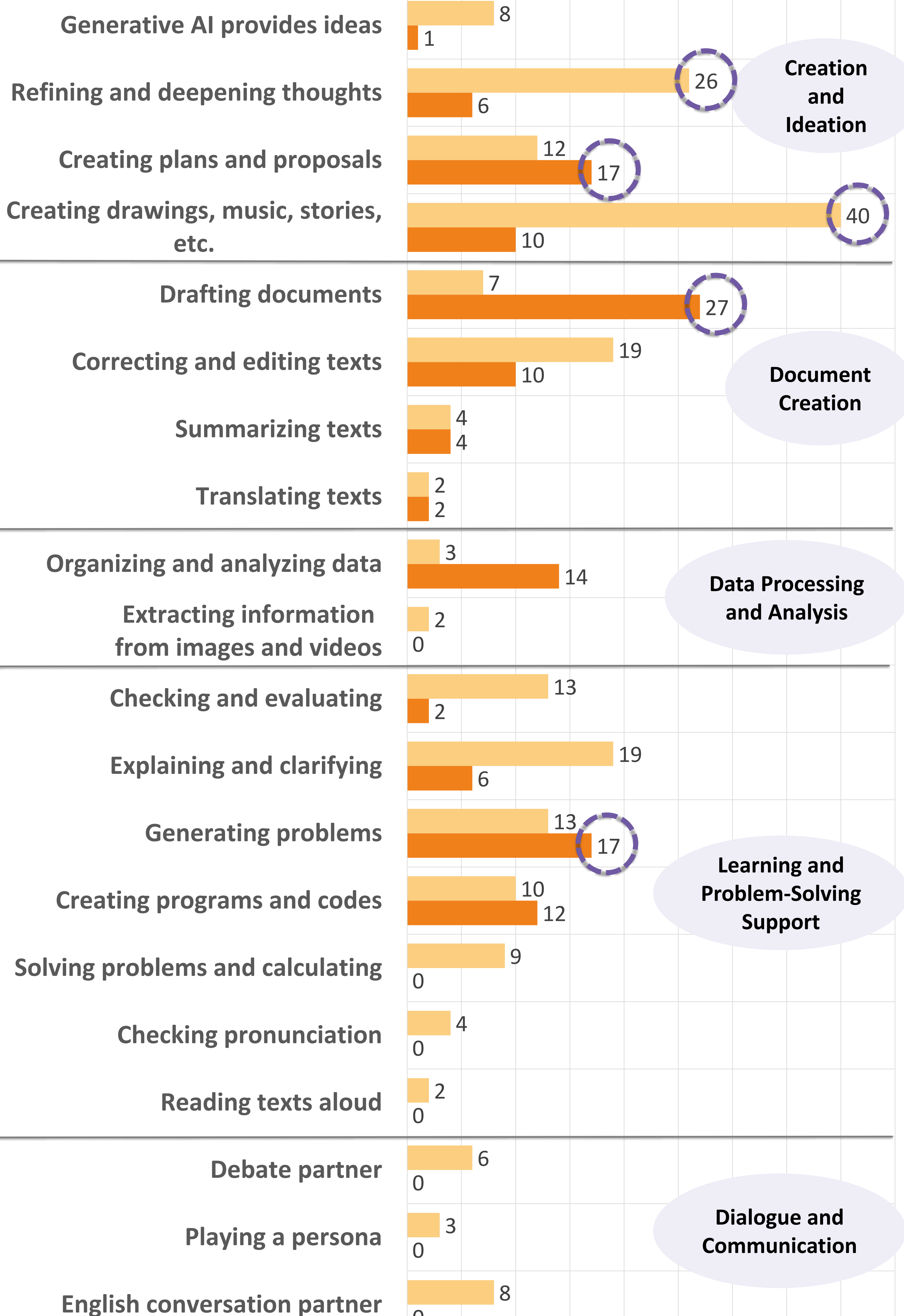
RQ1: What categories exist in the utilization of Gen AI in educational settings?

→ 5 categories and 20 roles

educational administrative

Roles

Categories



Educational > Administrative: 176 vs 102 cases.

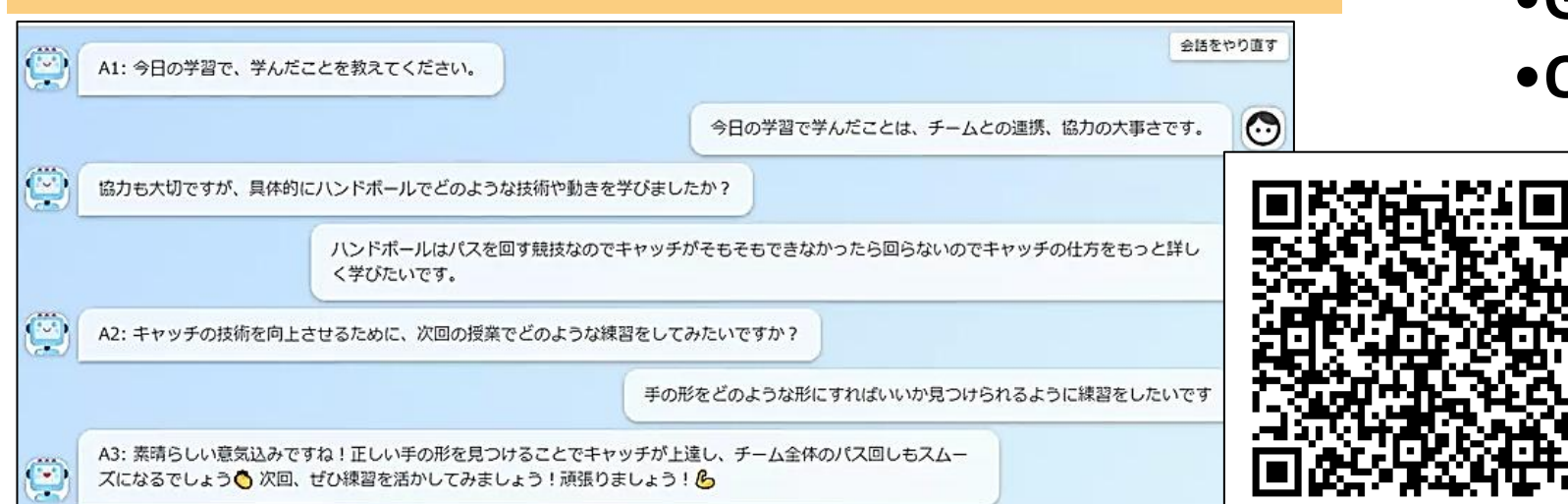
Educational:

- Creating drawings, music, stories, etc. (40 cases), Refining and deepening thoughts (26 cases)
- GenAI is often used to **visualize students' ideas and thoughts**.

Administrative:

- Drafting documents (27 cases), Creating plans and proposals (17 cases), Generating problems (17 cases).
- GenAI is mainly used to **improve efficiency** in school administration tasks.

Refining and deepening thoughts



Creating drawings, etc.



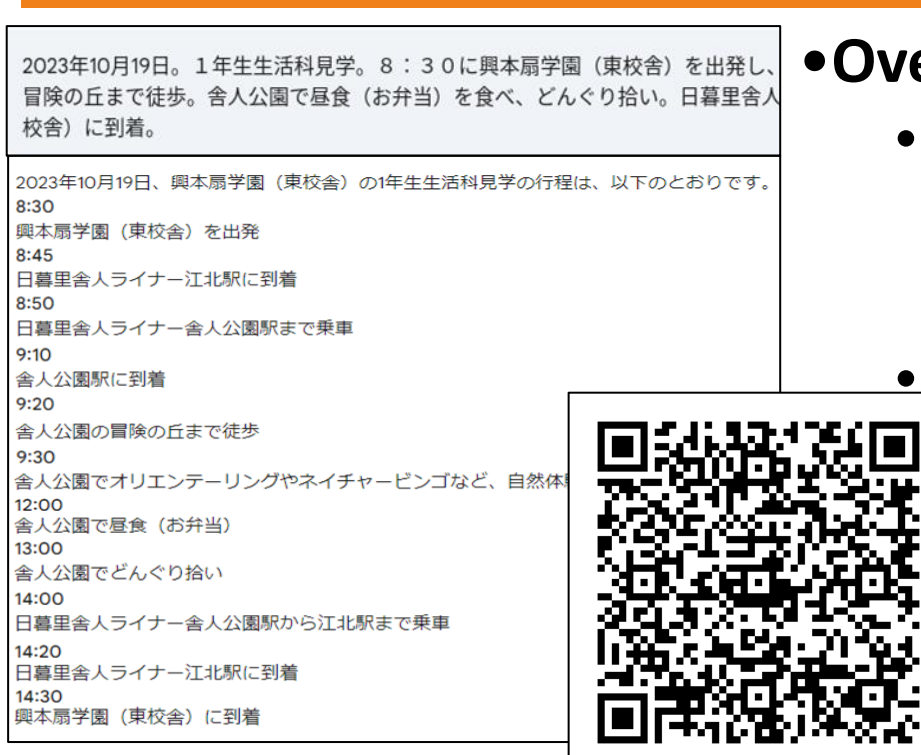
•Subject: Integrated Studies

•Grade: 6

•Overview:

- Used to support creative production.
- Starting from students' scenario drafts, GenAI generated storylines and dialogues.
- In addition, GenAI created visual materials for the performance.

Creating plans and proposals



•Overview:

- Creating an itinerary draft for a field trip in Life Studies.
- The output was closely aligned with the actual schedule and program.

•Subject: Physical Education

•Grade: 6–7

•Overview:

- Used for **reflective learning**.
- When students' reflections did not align with the lesson's objectives, GenAI redirected the reflection process.
- Enabled reflections that are difficult for children alone, without teacher intervention.

Drafting documents



•Overview:

- Created a parental consent form required for the use of generative AI.
- The form itself was **drafted with the support of GenAI**.
- Users struggled with adjusting prompts; the intended "consent form" sometimes turned into a "declaration".

Generating problems

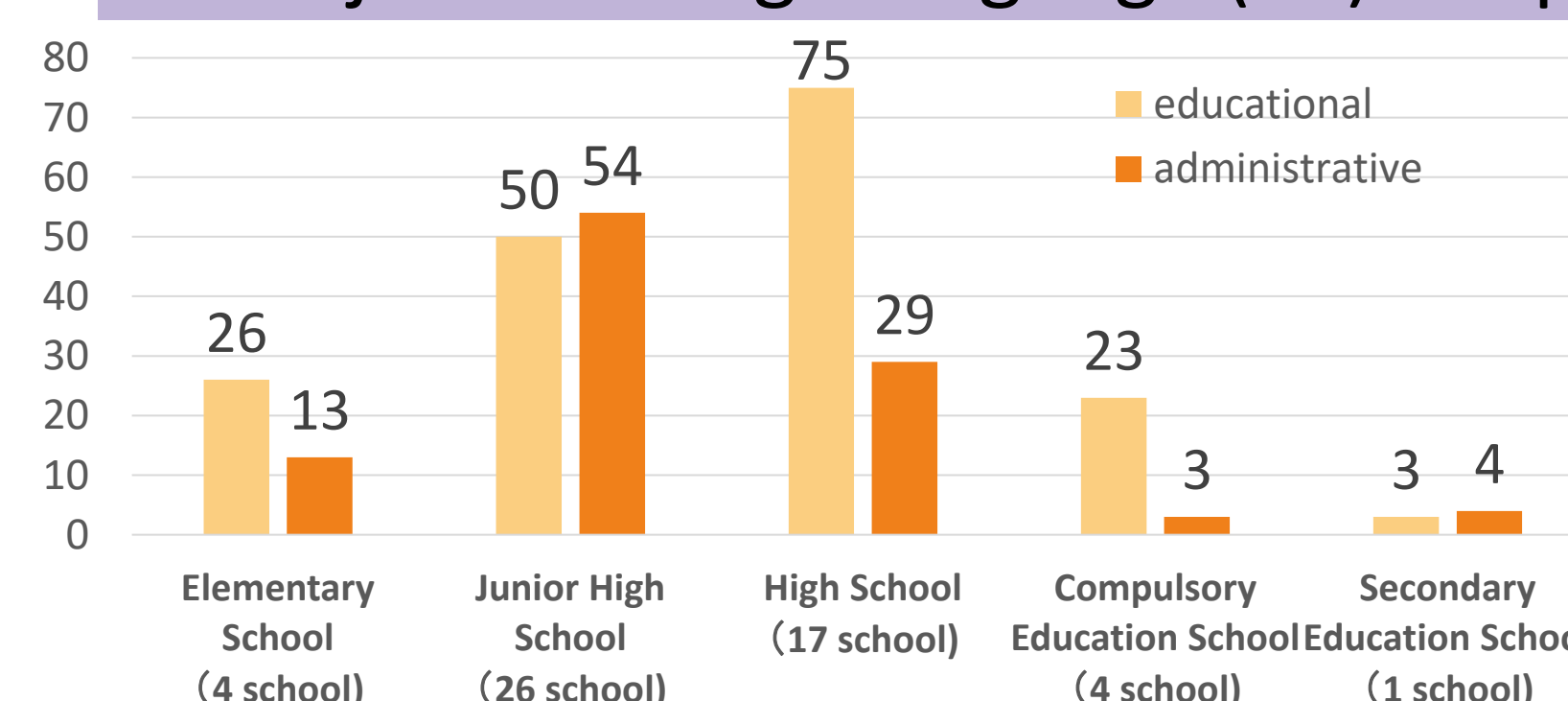


•Overview:

- GenAI **generated exam questions** from lesson worksheets and students' reflections.
- Questions were generated by perspective (knowledge/skills, thinking/expression, etc.), reflecting lesson content.

RQ2: What are the current trends in its utilization?

- Type of use: Educational use (176) > administrative (102)
- Role of GenAI:
 - Education: visualize students' ideas and thoughts.
 - Administration: improve efficiency.
 - School type: High schools show more educational use.
- Subjects: Foreign language (36) > Japanese (27) > Social studies (21).



What: Educational vs administrative use by school type.

Key patterns:

- High schools show more educational use** than junior highs.
- 7 of 10 "Creating programs & codes" cases are in high schools.

So what:

- This aligns with Japan's national survey findings that high school students have **higher information-utilization skills**.
- Such skills enable more advanced prompts (e.g., coding).

Conclusion

Significance:

- Provides a **baseline** that can be used in future comparative and longitudinal research.
- Represents **the early stage** of GenAI use and highlights **the need for continued observation** as technology and guidelines evolve.

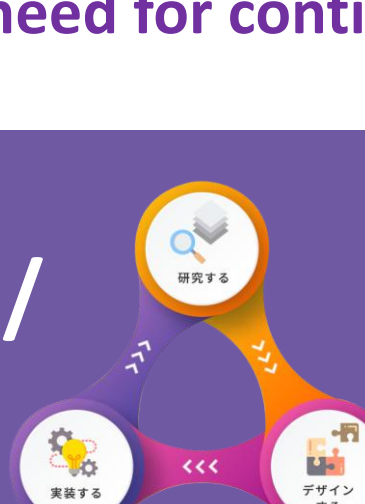
What: Educational use cases by subject.

Key numbers:

Foreign language (36) > Japanese (27) > Social studies (21).

So what:

- GenAI is frequently used in subjects involving **text creation**.



「よりよい学び」をカタチにする

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