moodlemoot 2026 SIST 静岡理工科大学 Shizuoka Institute of Science & Technology

Adding ✨AI✨ feedback to the Database module

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Time: 1st Mar 2026 (10:30 – 10:55)
Place: Room B (4F of M20 Building)

Slides are numbered
and are available online

https://indico.global/event /15189
/contributions/142396/author/271369

Name
Date
Info

Timely Feedback

- **Hattie & Timperley (2007)** – *The Power of Feedback*
  - ”**Just-in-time**" feedback is one of the most powerful influences on achievement.
- **Li (2020/2025)** – *The Timing of Corrective Feedback*
  - There is a"**cognitive window of opportunity**”
  - Immediate feedback is often **superior** for early-stage skill acquisition.
- **Shute (2008)** – *Focus on Formative Feedback*
  - Delayed feedback can lead to "**interference**”
  - Overly complex feedback can cause “**cognitive overload**”

Noticing the Gap

- **Long (2015)** – *Second Language Acquisition and Task-Based Language Teaching*
  - Immediate feedback allows students to "**notice**" the gap between their output and the target form.

- **Nassaji & Kartchava (2021)** – *The Cambridge Handbook of Corrective Feedback*
  - Student's original **communicative intent** is still active in their working memory.
  - Immediate and focused (rather than exhaustive) feedback leaves learners feel **less overwhelmed** and **more supported**.

Is AI Feedback Effective?

- **Dai et al. (2023)** – *Can Large Language Models Provide Feedback to Students?*
  - ChatGPT generates more **detailed, fluent, and readable feedback** than human instructors in certain formative contexts
- **Misiejuk, Kaliisa, et al. (2024/2025)** – *How does AI compare to human feedback?*
  - Meta-analysis of 41 studies shows AI feedback is **as effective as** human feedback for learning outcomes.
- **Zhai (2022)** – *ChatGPT User Experience: Implications for Education*
  - AI can **automate** complex assessment
  - AI can provide "**systematic**" feedback efficiently

Feedback in moodle

Immediate Feedback

Quiz, SCORM, HotPotatoes

Delayed Feedback

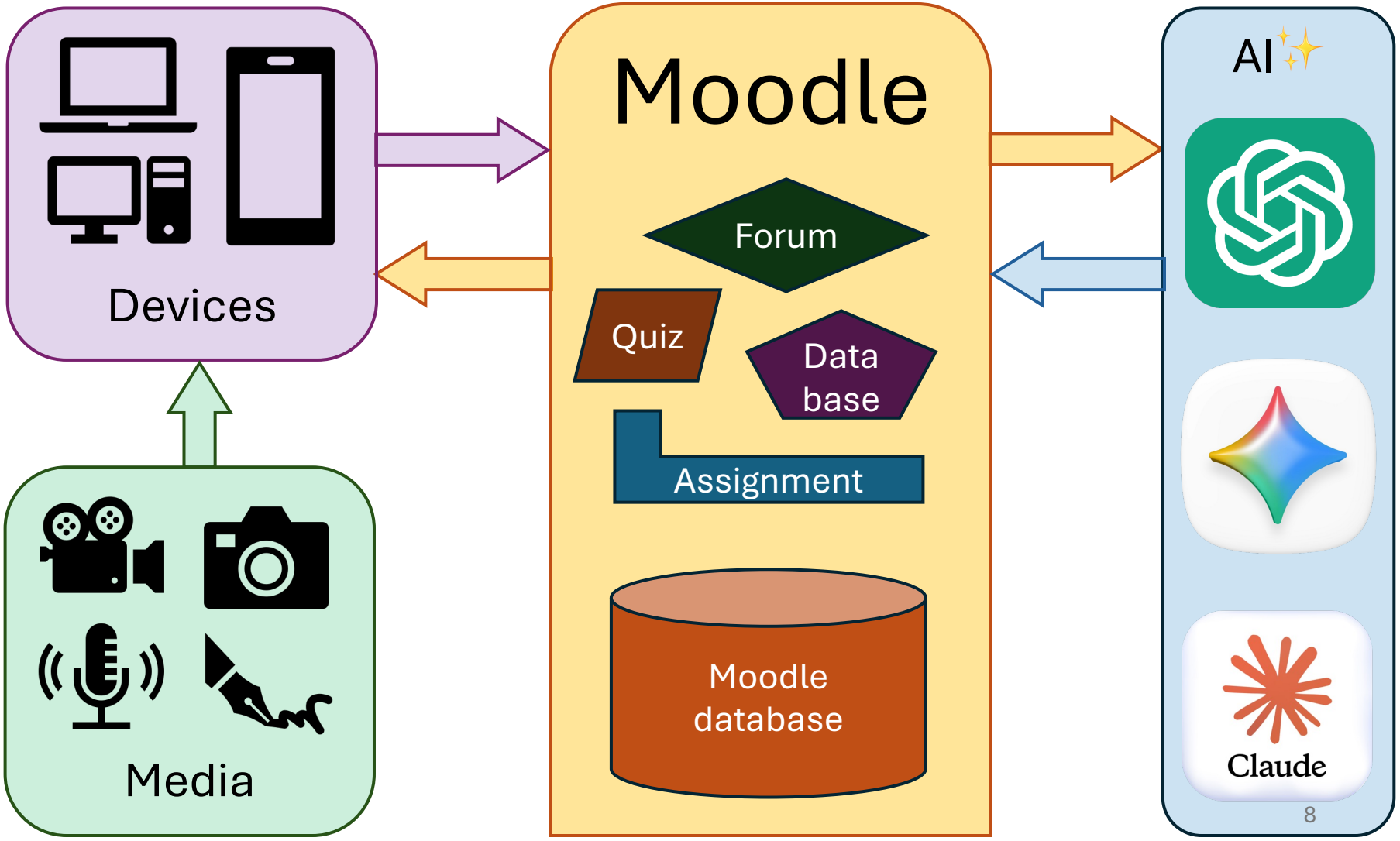
Assignment, Database, Forum

Reseach Questions

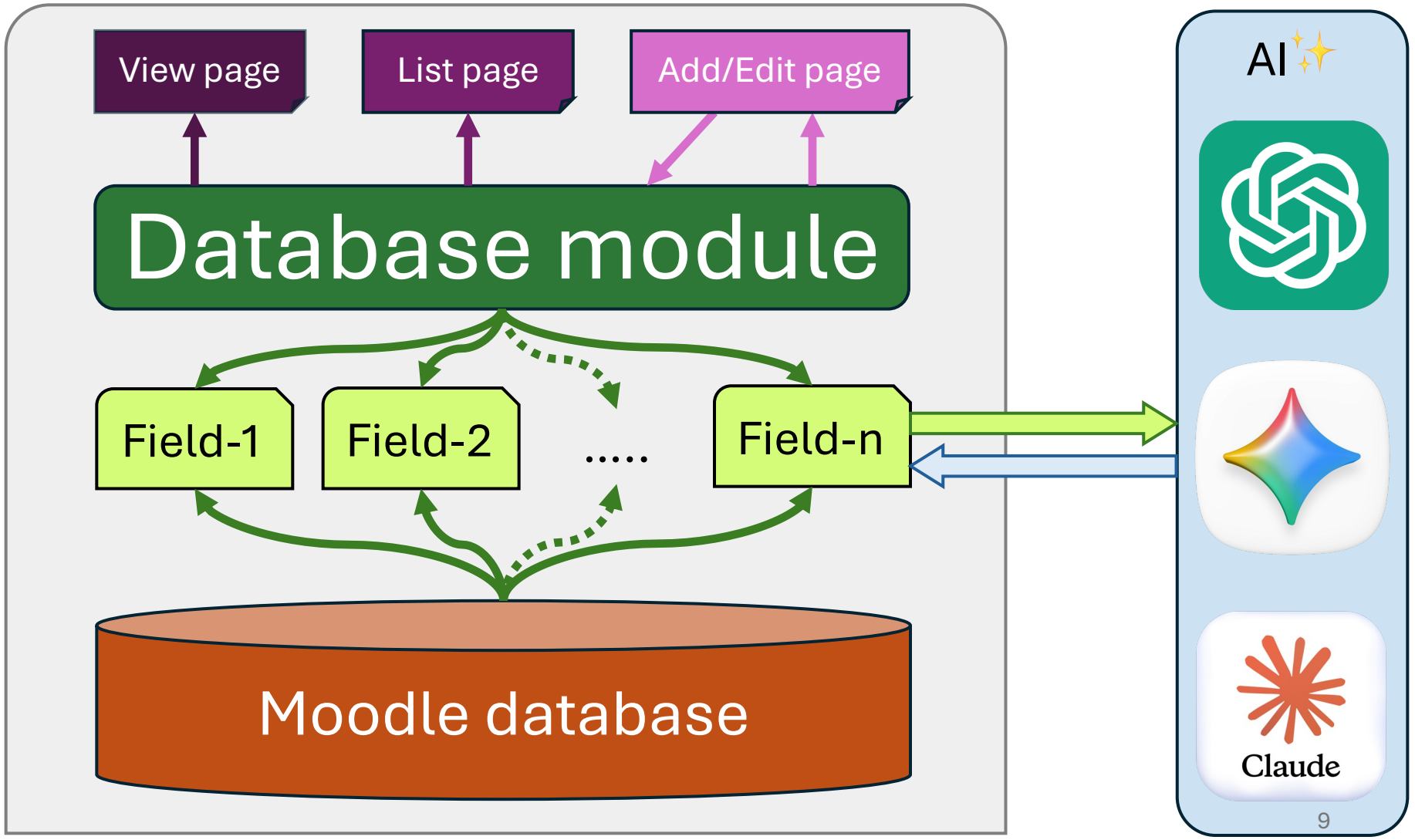
Is it possible to add automated immediate feedback to the database module in Moodle?

Would adding automated immediate feedback for student submissions to a database activity affect their motivation?

Adding AI feedback



Inside a Database Activity



datafield_report

Overview

- a 3rd-party “field” plugin for the Moodle database activity module
- derives secondary values from primary values in other fields
- utilizes a functional expression language similar to Excel formulas, e.g. SUM(1, 2, 3)
- allows the creation of “reports” with aggregates and other values derived by combining other fields

datafield _report

Examples

Field: auto-wordcount

WORDCOUNT("ai-transcript")

Field: auto-uniquewordcount

UNIQUEWORDCOUNT("ai-transcript")

Field: auto-duration

DURATION("mediafile")

Field: auto-speechrate

SPEECHRATE("auto-duration", "ai-transcript")

datafield
_action

Overview

a 3rd-party “field” plugin for the Moodle database activity module

triggers an action (e.g. generate feedback) when a specified event (e.g. submit media file) is detected

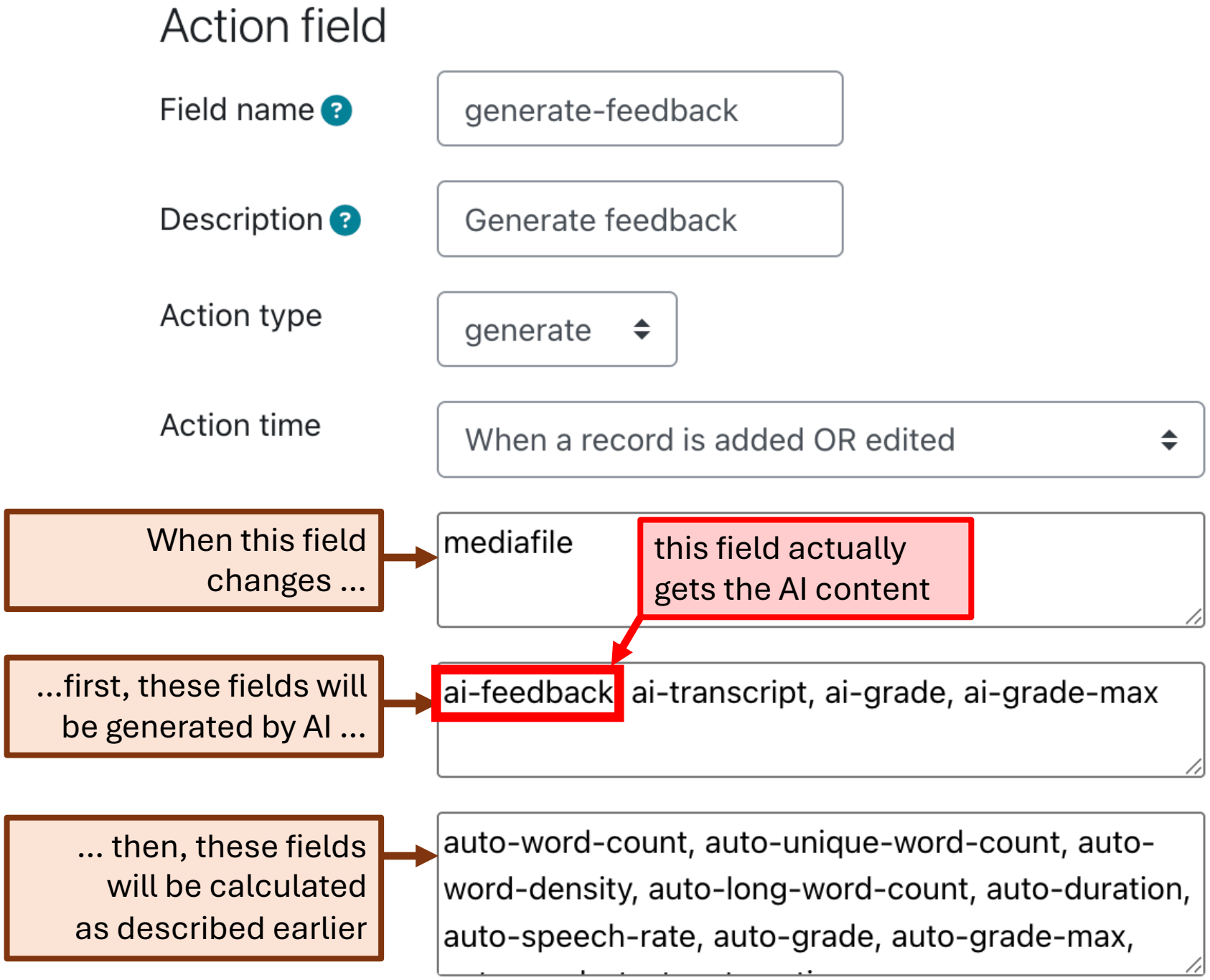
datafield
_action

Arguments

Argument 1:
the field that triggers the creation of AI generated content (e.g. *mediafile*)

Argument 2:
fields that will be receive the AI generated content
(e.g. *ai-transcript*)

Argument 3:
fields that will be calculated after the AI content is received
(e.g. *auto-wordcount*)


Action field
Field name
generate-feedback
Description
Generate feedback
Action type
generate
Action time
When a record is added OR edited
When this field changes ...
mediafile
this field actually gets the AI content
...first, these fields will be generated by AI ...
ai-feedback
ai-transcript, ai-grade, ai-grade-max
... then, these fields will be calculated as described earlier
auto-word-count, auto-unique-word-count, auto-word-density, auto-long-word-count, auto-duration, auto-speech-rate, auto-grade, auto-grade-max,

The ai-feedback field definition

Report field

Field name: ai-feedback

Description: AI feedback

Required field: ☐

Input format: CURRENT_VALUE

Output format: CURRENT_VALUE

Extra format (1):

Extra format (2):

```
GENERATE("text", PROVIDER("Gemini", "", "my-secret-key"), "This is an AI prompt", GET_FILE("mediafile"))
```

GENERATE(...)

Description:

Send the prompt and files to an AI provider in order to generate content of the required type ("text", "image", "audio", "video")

Full Syntax:

GENERATE(type, provider, prompt, files=NULL)

Example:

GENERATE("text", PROVIDER("Gemini", "", "my-secret-key"), ” This is an AI prompt", GET_FILE("mediafile"))

PROVIDER(...)

Description:

Define the information necessary to access an AI provider that generates content.

Full Syntax:

PROVIDER(name, model="", key="", url="")

Example:

PROVIDER("Gemini", "", "my-secret-key")

The AI prompt

several items are joined together using the CONCAT(…) function

roles

task

rubric

instructions

Prompt: roles

You will receive media file containing an audio or video recording of a Japanese student speaking English. Your task is to generate formative feedback and a suitable grade for the recording.

Prompt: task

```
CONCAT(
   “Here is the task that the ”,
   “students were told to complete:”,
    GET_INTRO(".task-description")
)
```

Task Description in Intro

Record a 1–2 minute audio describing a technology, device, or social media site/app that you use. Use vocabulary and grammar from this unit.

▼ Details

1. Introduce the technology, device or social media site/app.
2. Describe what you do with it, when and where you use it, and how it helps you in daily life.
3. Explain why you like or dislike it, and whether you think it is useful or not.
4. Add some extra information or a personal story related to your experience.

A1 Name the technology or app and say what you do with it. Use simple present tense and short sentences.

A2 Add details about when and why you use it. Talk about your feelings and give examples. Use linking words like 'and', 'but', 'so' and 'because'.

B1 Explain how this technology affects your daily life. Give reasons and a short example. Use time expressions, comparisons, and opinion phrases.

B2 Reflect on how this technology or app has changed how you work, learn, or communicate. Discuss both benefits and drawbacks. Use a range of vocabulary and complex structures.

Prompt: rubric

```
CONCAT(
   “Evaluate the submission”
   “according to the following rubric:”,
    GET_INTRO(".rubric")
)
```

Rubric Description in Intro

Rubric 評価基準

▼ Details

You will be graded according to the following rubric.

A1 Level (0-40 points)

Language uses a limited range of simple vocabulary and grammatical structures. Ideas are presented in a basic, logical order, with some simple connectors like "and" and "but" to link short, straightforward sentences describing familiar topics.

A2 Level (41-60 points)

Everyday vocabulary is used quite accurately with some less common words too. Common grammatical structures are used well, though more complex sentences might contain errors. Ideas are generally organized with some logical sequencing, using a limited range of linking words to connect ideas.

Rubric Description in Intro

B1 Level (61-70 points)

Language uses a range of vocabulary to express opinions and discuss abstract topics, though there may be some errors with less common words. There are a range of grammatical structures, in which occasional errors do not significantly prevent communication. Ideas are organized clearly and coherently, utilizing a variety of linking words to connect ideas smoothly.

B2 Level (71-80 points)

Speech is fluent and accurate, and employs a wide range of vocabulary, including idiomatic expressions and nuanced language. A wide array of complex grammatical structures are used naturally and effectively. Ideas are expressed fluently and coherently, utilizing a wide range of discourse markers to structure the writing and guide the reader effectively.

Rubric Description in Intro

Bonus points

Additional points will be added for word count, as follows:

0 ~ 50 words:	5 bonus points
51 ~ 100 words:	10 bonus points
101 ~ 150 words:	15 bonus points
151 ~ 200 words:	20 bonus points

Prompt: instructions

When generating your response, follow these important instructions:

[1] Do not include any HTML, markdown formatting or `backticks` in your response.

[2] Do not include any greetings or platitudes in your response.

Prompt: instructions

[3] If the media file is missing, unreadable or otherwise unavailable, return the following values:

ai-feedback: 'Media file is missing, unreadable or otherwise unavailable.'

ai-transcript: (empty string)

ai-grade: 0

ai-grade-max: 0

Prompt: instructions

[4] If you can access the media file, analyze the content and generate the following values:

ai-feedback: formative feedback using simple CEFR A1-A2 English

ai-transcript: a transcription of what is said in the media file

ai-grade: a score out of ai-grade-max using the rubric above

ai-grade-max: the maximum possible score using the rubric above

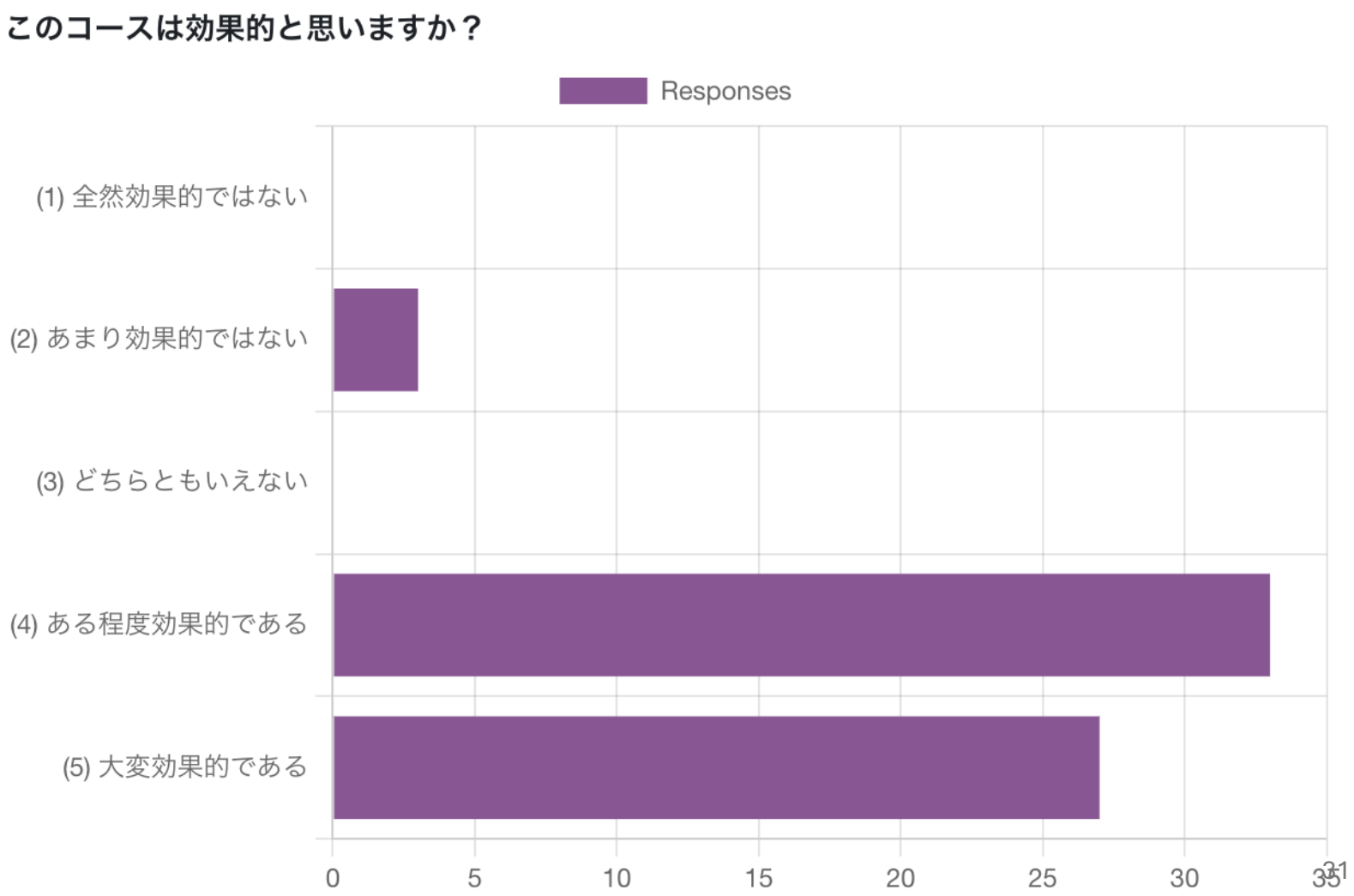
Prompt: instructions

[5] Return a JSON object containing the following properties: ai-feedback, ai-transcript, ai-grade, grade-max

Live demonstration

- Course: English Communication
- Lesson 12: Upload a media file
    - audio
    - small video (< 20MB)
    - large video (> 20MB)
    - Handwriting (photo)

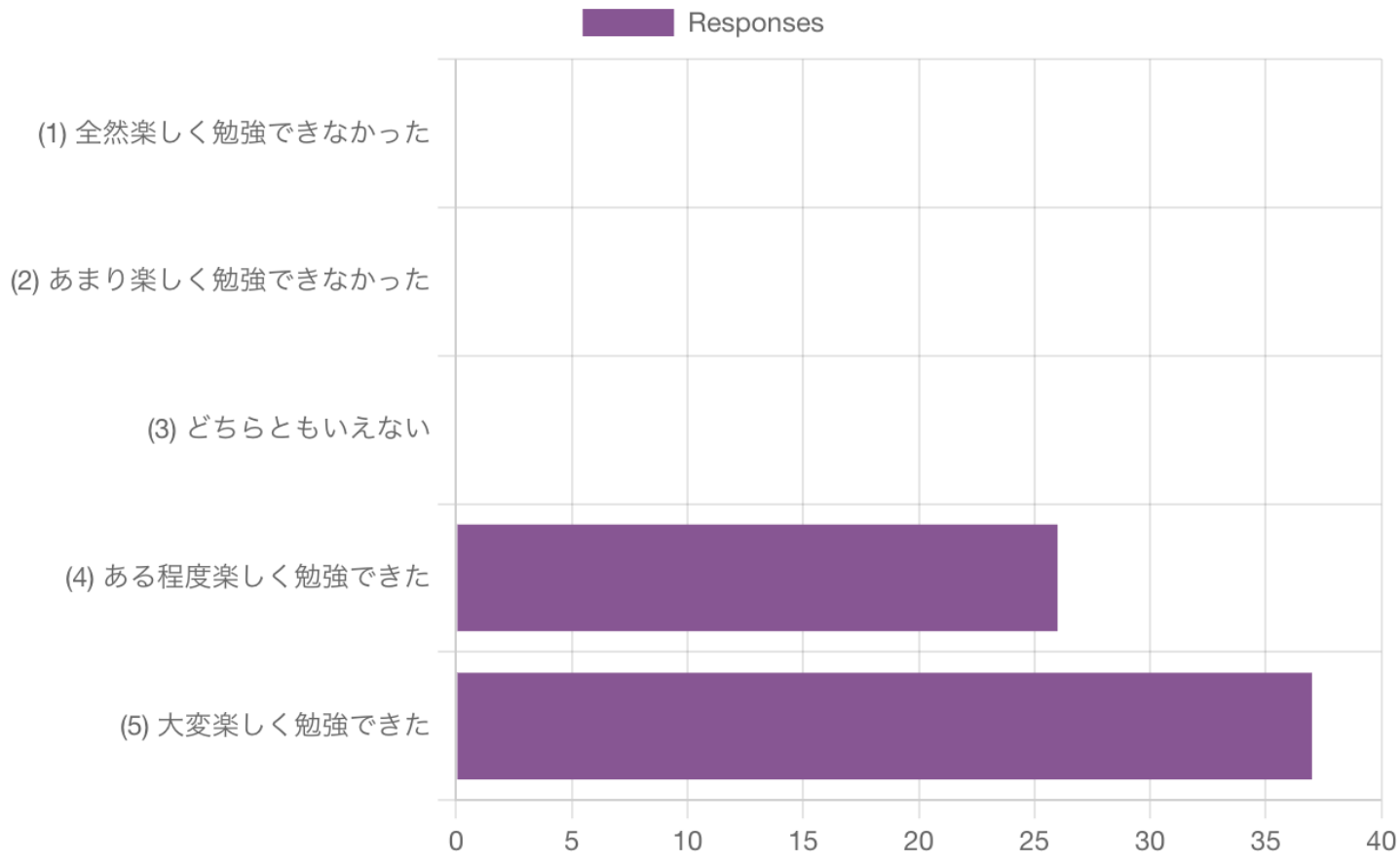
Feedback survey: Effective?



Feedback survey: Enjoyable?

Average: 4.33

このコースで楽しく勉強できましたか？



Feedback survey: Good

1. Regular tasks built confidence and fluency.

   "At first it was tedious, but I became able to speak more… it was very effective."

2. Students appreciated choosing tasks matching their ability (A1–B2).

   "It was good that the content changed depending on my English level."

3. Immediate AI feedback provided insights humans couldn't catch.

   "Thanks to the AI analysis, I made new discoveries."

Feedback survey: Issues

1. Technical "Tech-Stress": Mobile uploads and file compression were difficult.

   "Even if I reduced the video size on my smartphone, it wouldn't send properly."

2. The "Blank Page" Problem: Some prompts were too abstract to spark ideas.

   "There were themes where I couldn't think of any sentences at all during writing."

3. Social Fatigue: In small classes, partner rotations felt repetitive.

   "I often ended up with the same person; I wanted to talk to others more."

Feedback survey: Improvements

1. Automate Metadata: Use the plugin to auto-calculate word counts and formatting.

   "I wish there was a template... it was hard to write the start time and word count every time."

2. Scaffold Ideas: Use AI to provide "hints" or "brainstorming points" before the task.

   "I feel the quality would go up if there were basic ideas or ways of thinking provided."

3. Functional Realism: Include "real-world" scenarios like ordering at a café.

   "It would be interesting to practice conversations like how to check in at a hotel."

Improvements

1. Software now **detects large files** and uploads them separately to the AI engine
2. **Auto-grade can be calculated** as a weighted combination of other fields, including AI grade
3. Auto-rating can **set rating for each student** that goes to the gradebook as a grade for the activity

Reseach Questions

Is it possible to add automated immediate feedback to the database module in Moodle?

YES

Would adding automateds immediate feedback for student submissions to a database activity affect their motivation?

YES

Questions and Comments

Downloads: github.com/gbateson/...
moodle-datafield_admin
moodle-datafield_action
moodle-datafield_report

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