



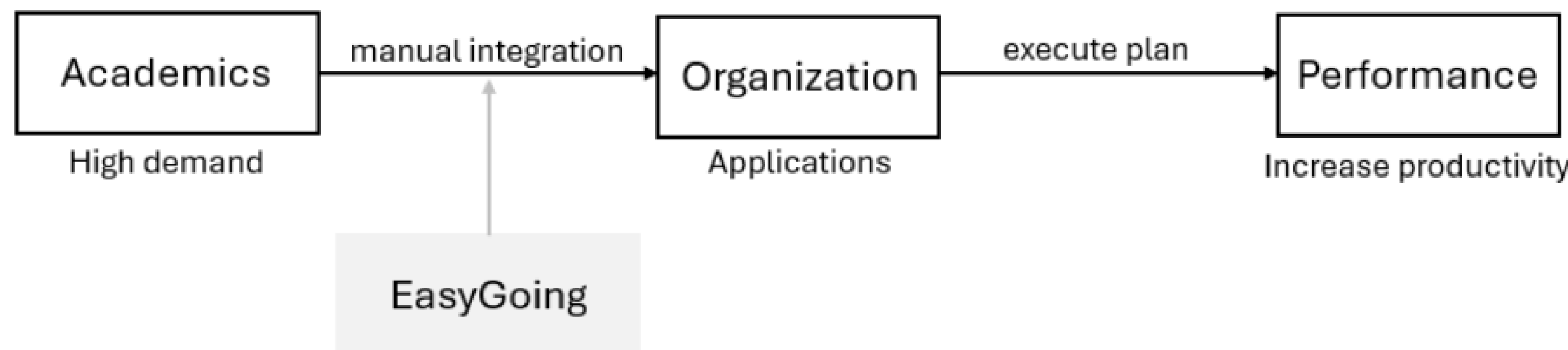
EasyGoing: A Human-Centered Web Application for Student Organization

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Abstract

Higher education students have a demanding lifestyle, which can negatively impact student well-being and academic performance [1].

- Artificial Intelligence (AI) has many student dependency concerns; however, AI offers personalized tools for academic assistance [2].



An overview of the user interface (UI), user experience (UX), and large language model (LLM) evolution builds the foundation of the web application *EasyGoing*.

Research Questions

RQ1) What are some key user interface components needed to enhance user experience?

RQ2) How does the selection of a large language model impact the efficiency of automated syllabus extraction?

RQ3) How do students respond to the web application?

Background

UI/UX Design Theory

RQ1) The key user interface components are displayed below:

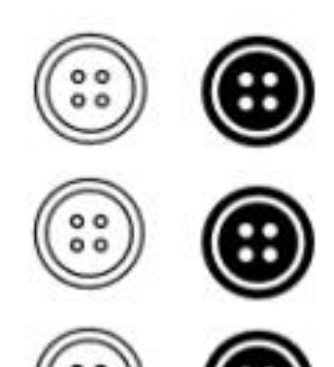
- Jakob Nielsen's Principles aid developers in creating user navigation.
- According to the Aesthetic-Usability Effect, the aesthetics of a user interface can help overcome minor issues in navigation.
- Gestalts Principles aid in unconscious visual components.



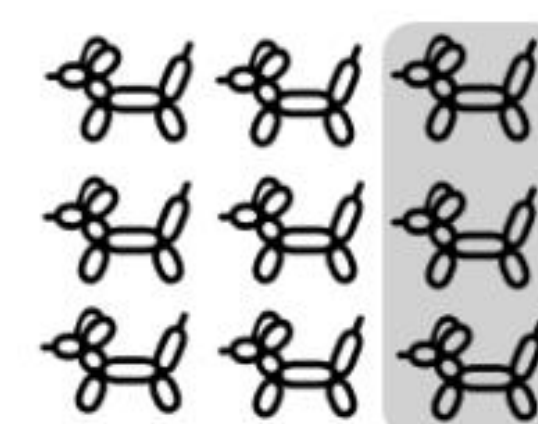
a) Closure



b) Proximity



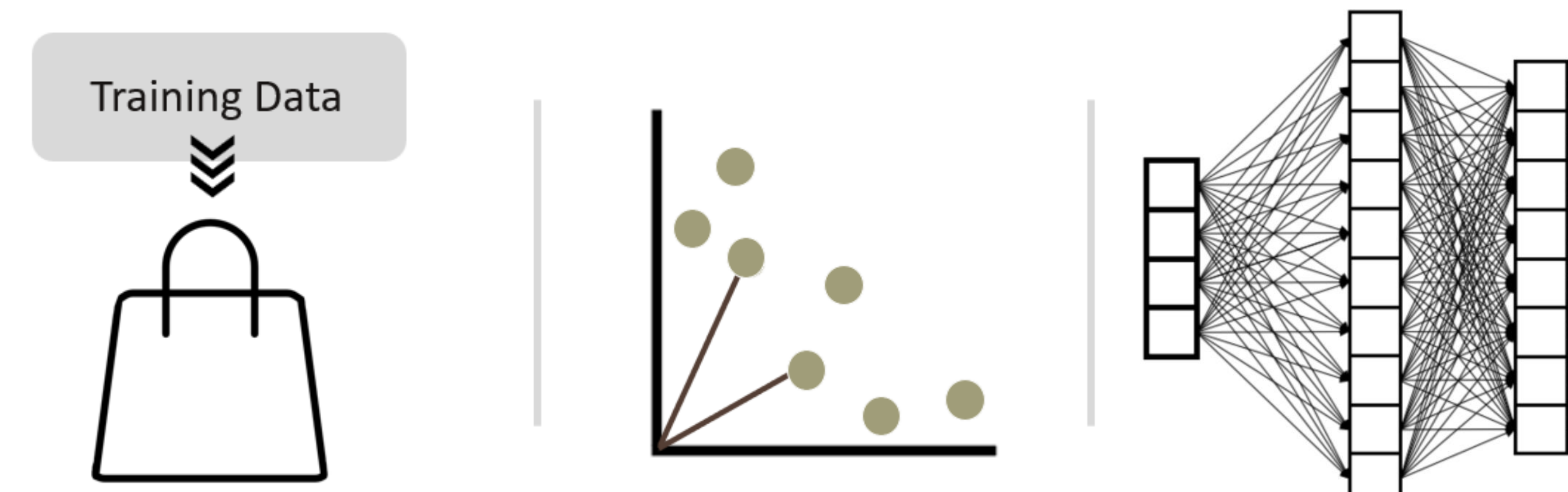
c) Similarity



d) Figure ground

LLM Theory

Word embeddings leverage statistical methods to categorize text based on token analysis. Some popular techniques are Word2Vec, GloVe, and FastText. Transformers gather diction through position.



Preliminary Case Studies

	Parameters	Input	Output	RPM	.png	.pdf	.docx	Pricing
Gemini	>8 billion	1M	8,192	-	✓	-	-	Free API
Copilot	≈175 billion	-	-	60 RPM	✓	✓	✓	\$20 monthly
ChatGPT	>1.8 trillion	1M	1M	-	✓	✓	✓	\$1.50

Methodology

It is difficult to validate LLM accuracy, so four syllabi with unique structures were selected for manual validation.

- The same five prompts were used for each LLM.

	Explicit dates	Paragraph	Table	Typos	File Type	Total Pages
Africana Studies	✓	✓	-	-	pdf	12
Psychology	✓	-	✓	-	docx	8
Biochemistry	✓	-	✓	✓	png	6
Mathematics	-	-	✓	-	pdf	4

Results

RQ2) Each LLM translated the prompts differently:

- Gemini 1.5 Flash was unable to apply many of the syllabi due to limitations on file format acceptance.
- Copilot was able to leverage all file types with more errors occurring with the vagueness of syllabi.
- ChatGPT 4o mini was able to leverage all file types and performed the best by fixing typos and having the correct response format.

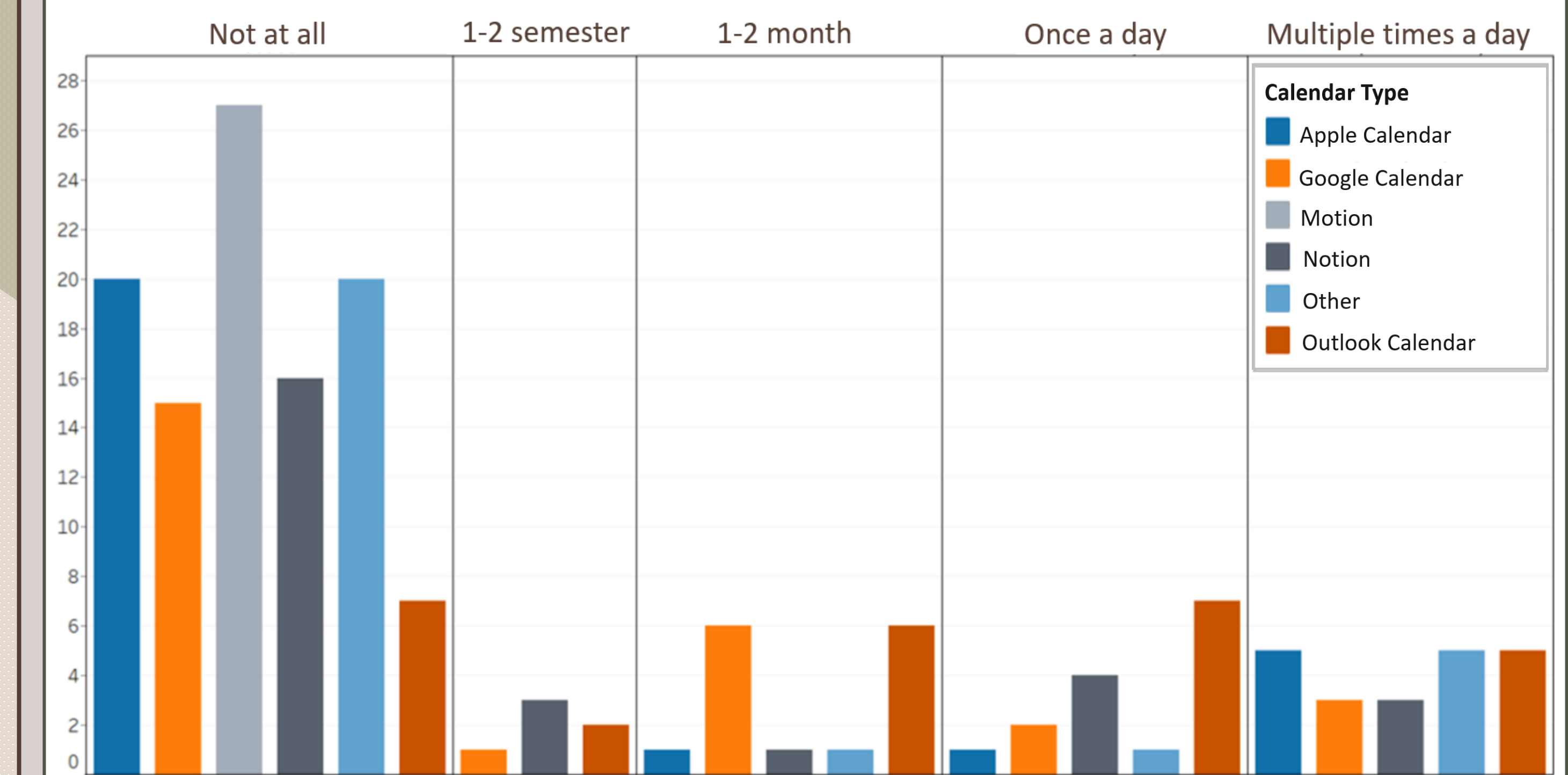
	Africana	Psychology	Biochemistry	Mathematics	Average
Gemini 1.5 Flash	-	-	28/64	-	43.8%
Copilot	62/73	92/107	55/64	11/59	72.6%
ChatGPT-4o mini	72/73	106/107	63/64	59/59	99.0%
Average	91.8%	92.5%	76.0%	59.3%	

Usability Testing

Methodology

Recruited 27 college students for an interactive survey consisting of:

- Participant calendar use/frequency demographics
- Tasks to perform on *EasyGoing* with 3 - 5pt Likert Scale rating
- Quantitative and qualitative participant feedback



Results

RQ3) Undergraduate student participants responded positively, with an overall approval rating of 84.67%.

- Participants found the application extremely helpful (F1), demonstrating interest in the application's improvement.
- Qualitative analysis mentioned minor improvements in user control and visual user interface design.

Ease of use	T1	T2				Mean
	4.63	4.63				4.63
Correctability	T3	T4	T5	T6		Mean
	2.41	2.49	2.41	1.93		2.31
Feedback	F1	F2	F3	F4	F5	Mean
	4.48	4.15	4.44	4.07	4.11	4.22
Overall Approval						84.67%

Future Work

- OpenAI ChatGPT API is not free for use. Training a model from scratch provides a free alternative, offering more developer control in syllabus extraction management.
- Improving the correctability of syllabus extraction.
- Providing personal user interface design features to enhance user control and subjective aesthetics.
- Breaking down rubrics to manage academic project planning.

References

- [1] Wolters, C., & Brady, A. 2021. "College Students Time Management: A Self-Regulated Learning Perspective." *Educational Psychology Review*.
- [2] Chan, C., & Hu, W. 2023. "Students' Voices on Generative AI." *International Journal of Education Technology in Higher Education*.

