



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECP 1513 - 04
TECHNOLOGY AND INFORMATION SYSTEM

PLAGIARISM DETECTION

Phase 2: Design Thinking Information Gathering & Analysis

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TABLE OF CONTENTS

INTRODUCTION.....	2
SURVEY DATA ANALYSIS.....	4
1) Usage of AI Tools.....	4
2) Effectiveness of Existing AI Tools.....	5
3) Effectiveness of Plagiarism Detection in Languages Other Than English.....	6
4) Incorporating AI-generated Content.....	7
5) Improvement of Writing efficiency.....	8
6) Factors Influencing Tool Choice.....	9
7) Subscription Costs Perception.....	10
8) Tool Usage For Academic or Professional.....	11
9) Tool Usage and Preference.....	12
10) AI-generated Content and Citation.....	13
11) Interest in Training on AI Tools.....	14
12) Perceived Room for Improvement.....	15
13) Willingness to Try New Tools.....	16
14) Features Influencing Tool Switch.....	17
INTERVIEW DATA ANALYSIS.....	19
CROSS ANALYSIS.....	20
CONCLUSION.....	21

INTRODUCTION

In the ever-evolving landscape of academic writing, the integration of technology has become pivotal in shaping the writing experience. Plagiarism detection tools, in particular, play a crucial role in maintaining the integrity of scholarly work. This survey and interview study embark on a journey to delve into the intricate nuances of users' experiences, perceptions, and expectations concerning existing plagiarism detection tools. The overarching goal is to gather comprehensive insights that will serve as the foundation for the development of an advanced plagiarism detection tool prototype.

Purpose of the Study:

The primary purpose of this research initiative is to understand the unique challenges and preferences of users when it comes to plagiarism detection tools. By engaging participants in a thoughtful exploration of their interactions with existing tools, we aim to identify areas where current solutions may fall short and opportunities for improvement. This comprehensive understanding will, in turn, guide the design and development of a plagiarism detection tool prototype that is not only technologically robust but also resonates with the practical needs and desires of its users.

Aim of the Plagiarism Detection Tool Prototype:

The envisioned plagiarism detection tool prototype seeks to go beyond conventional functionalities. It aspires to be a transformative solution that not only addresses the identified gaps in existing tools but also introduces innovative features aligned with users' expectations. Through this research, we aim to bridge the divide between user experiences and tool capabilities, ensuring that the prototype not only meets the technical benchmarks of plagiarism detection but also elevates the user experience to new heights.

Navigating User Sentiments:

This study represents a collaborative effort, wherein user sentiments take center stage. By navigating through the diverse perspectives and opinions uncovered in the survey and interviews, we aim to create a tool that resonates with the needs of its users. The rich tapestry of insights gathered will enable a nuanced understanding of user expectations, allowing us to craft a plagiarism detection tool that is not just proficient but is tailored to the preferences and concerns voiced by the academic and professional community.

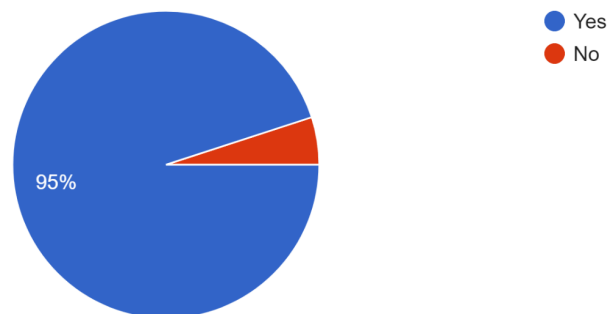
SURVEY DATA ANALYSIS

1) Usage of AI Tools

- **Have you ever used AI tools like ChatGPT for academic writing help?**

Have you ever used AI tools like ChatGPT for academic writing help?

20 responses



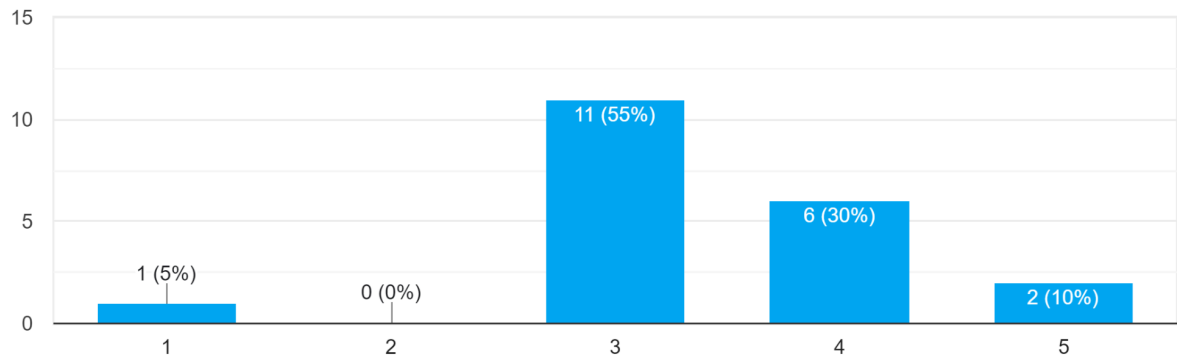
- The majority of respondents indicated that they have used AI tools like ChatGPT for academic writing assistance, showcasing a notable embrace of technology in the realm of academic support. This widespread utilization suggests a growing trend in leveraging AI tools to aid in the writing process, potentially reflecting a recognition of the benefits these tools offer in terms of generating ideas, improving language proficiency, and streamlining the writing workflow. The positive response also indicates a cultural shift towards accepting AI as a valuable ally in academia, signaling a potential transformation in the way students and professionals approach their writing tasks.

2) Effectiveness of Existing AI Tools

- **How satisfied are you with the effectiveness of the existing AI tools?**

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20 responses



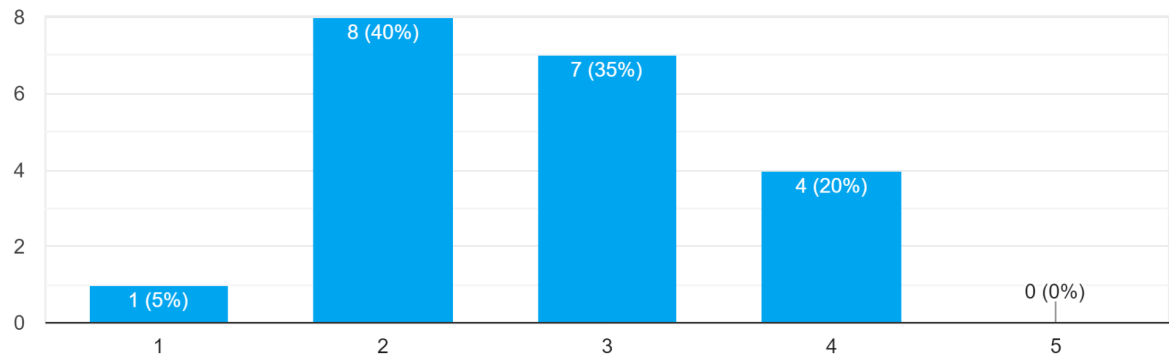
- Participants generally expressed moderate satisfaction with the effectiveness of existing AI tools, with the majority assigning a rating of 3 out of 5. While this points to a generally positive sentiment, it also indicates room for improvement in the features and capabilities of current AI tools. Understanding the specific aspects users find effective or lacking could inform future developments in AI writing assistance. Exploring user expectations and preferences in terms of functionality, adaptability to various writing styles, and integration with existing workflows can provide valuable insights for us aiming to enhance user satisfaction and usability.

3) Effectiveness of Plagiarism Detection in Languages Other Than English

- How effective are Plagiarism Detection tools in detecting Plagiarism in other languages than English?

How effective are Plagiarism Detection tools in detecting Plagiarism in other languages than English?

20 responses



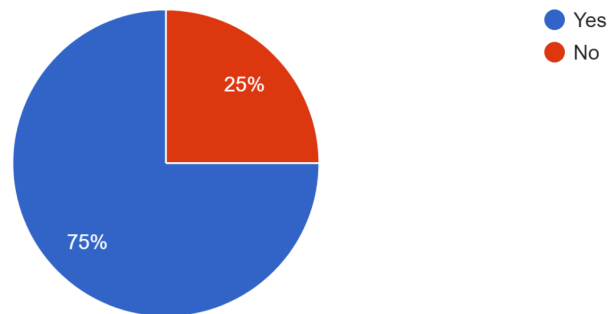
- Respondents exhibited diverse opinions on the effectiveness of Plagiarism Detection tools for languages other than English. The most prevalent response was a rating of 2, indicating a somewhat skeptical view regarding the tools' effectiveness in detecting plagiarism in non-English languages. This finding highlights a perceived challenge in extending the capabilities of these tools beyond English, suggesting a potential area for improvement. Exploring specific issues or limitations users encounter in detecting plagiarism in other languages can offer valuable insights for us seeking to enhance the linguistic inclusivity of plagiarism detection tools. Understanding whether users feel the need for more robust multilingual support or specific language options can guide improvements in the tools' language coverage.

4) Incorporating AI-generated Content

- **Have you struggled with incorporating AI-generated content into your academic work while avoiding plagiarism?**

Have you struggled with incorporating AI-generated content into your academic work while avoiding plagiarism?

20 responses



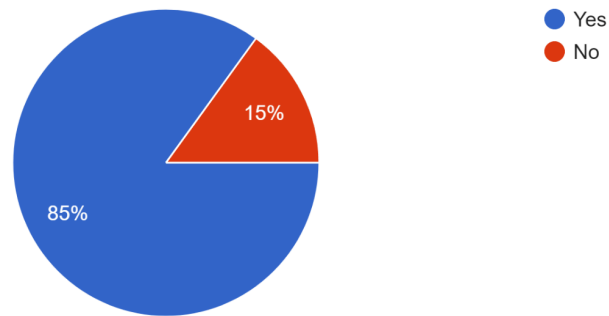
- A noteworthy finding is that a substantial portion of respondents reported struggling with incorporating AI-generated content into their academic work without risking plagiarism. This raises questions about the ethical considerations and challenges associated with integrating AI-generated text seamlessly. Further exploration into the specific difficulties faced by users could offer valuable insights into refining these tools for enhanced ethical use. Understanding whether these challenges stem from the ambiguity of citation guidelines for AI-generated content, the limitations of existing citation practices, or other factors can inform educational initiatives and tool enhancements.

5) Improvement of Writing efficiency

- **Do you think using AI tools has improved your writing efficiency?**

Do you think using AI tools has improved your writing efficiency?

20 responses



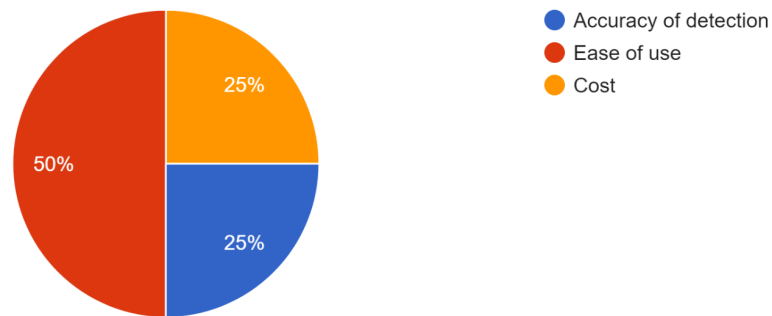
- The majority of respondents believe that using AI tools has indeed improved their writing efficiency. This positive sentiment suggests that these tools are perceived as valuable aids in enhancing the productivity of academic writing tasks. Exploring the specific aspects of efficiency that users attribute to AI tools, such as idea generation, language enhancement, or document organization, could provide deeper insights into their perceived benefits. Understanding the nuanced ways in which AI tools contribute to efficiency can guide us in refining and customizing these tools to better meet the diverse needs of users.

6) Factors Influencing Tool Choice

- **What factors influenced your choice of plagiarism detection tool(s)?**

What factors influenced your choice of plagiarism detection tool(s)?

20 responses



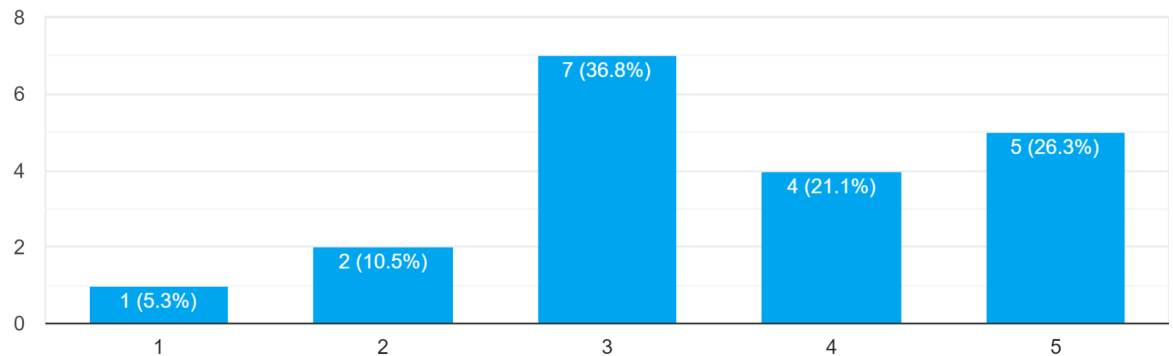
- Among the factors influencing the choice of plagiarism detection tools, ease of use emerged as the most significant consideration, cited by 50% of respondents. Cost and accuracy of detection were also identified as important factors, emphasizing the multifaceted criteria users consider when selecting these tools. Understanding these factors can guide us in refining existing tools and inform the creation of user-friendly and cost-effective solutions. Additionally, investigating how user priorities in these factors may vary across different academic or professional contexts can provide insights into tailoring plagiarism detection tools for specific user demographics.

7) Subscription Costs Perception

- **How do you feel about Plagiarism Detection tools subscription costs?**

How do you feel about Plagiarism Detection tools subscription costs?

19 responses



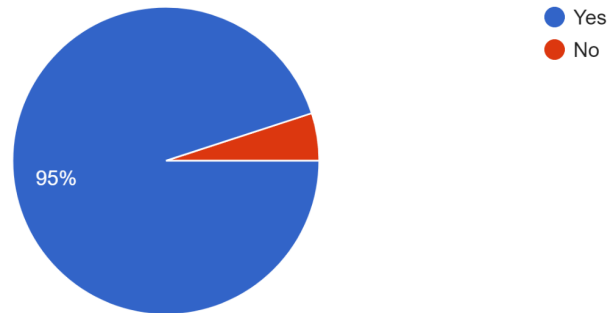
- Opinions on the subscription costs of Plagiarism Detection tools varied, with the most common response being a rating of 3. This indicates a neutral stance among respondents regarding the affordability of these tools. While a notable portion expressed dissatisfaction, and a slightly larger group found the costs more favorable, the prevalence of a middle-ground rating emphasizes the mixed sentiments regarding the perceived value of the subscription costs. Delving deeper into the aspects users consider when evaluating the cost-effectiveness of these tools, such as the features offered at different price points or the frequency of use, can provide valuable insights for us aiming to optimize pricing models and enhance user satisfaction. Understanding the specific features or pricing structures users find most equitable or challenging can inform strategies for making plagiarism detection tools more accessible and appealing to a broader user base.

8) Tool Usage For Academic or Professional

- **Have you ever used a plagiarism detection tool for academic or professional purposes?**

Have you ever used a plagiarism detection tool for academic or professional purposes?

20 responses



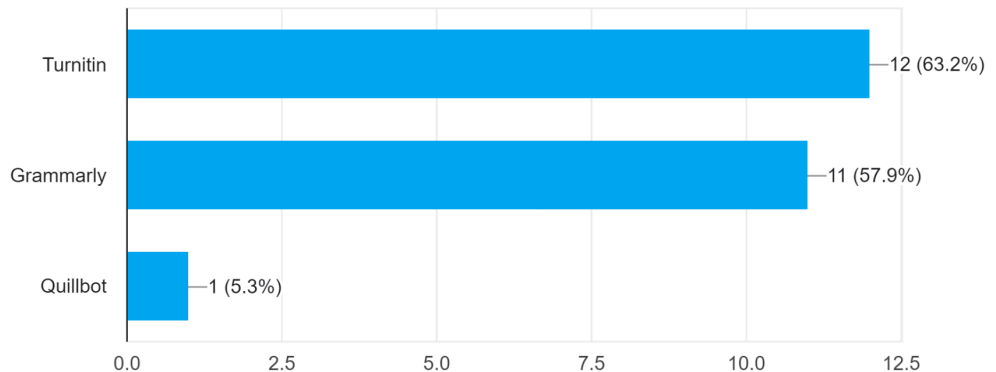
- An overwhelming majority of respondents confirmed that they have used plagiarism detection tools for academic or professional purposes. This high usage rate suggests a widespread reliance on such tools within the surveyed population, indicating the integral role these tools play in maintaining academic integrity and ensuring the originality of written work. Exploring the specific use cases and benefits users associate with plagiarism detection tools can provide a comprehensive understanding of their role in academic and professional settings, guiding further improvements and integrations.

9) Tool Usage and Preference

- Which plagiarism detection tool(s) have you used?

Which plagiarism detection tool(s) have you used?

19 responses



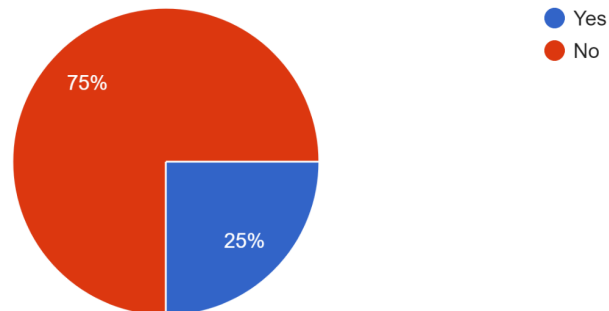
- The analysis of respondents' usage of plagiarism detection tools revealed interesting patterns. The most frequently used tools include Turnitin, with a substantial 63.2% of participants relying on its services. Grammarly follows closely, with 57.9% of respondents utilizing its plagiarism detection features. A smaller percentage, 5.3%, indicated the use of Quillbot. This breakdown highlights the dominance of Turnitin and Grammarly in the current landscape, with Quillbot being a less commonly employed option. These insights into tool preferences provide a snapshot of the current market dynamics and user preferences within the surveyed population. Understanding the popularity of specific tools can guide future developments and improvements, ensuring that enhancements are aligned with the preferences and needs of the majority of users.

10) AI-generated Content and Citation

- **Have you ever submitted AI-generated content without proper citation, risking plagiarism?**

Have you ever submitted AI-generated content without proper citation, risking plagiarism?

20 responses



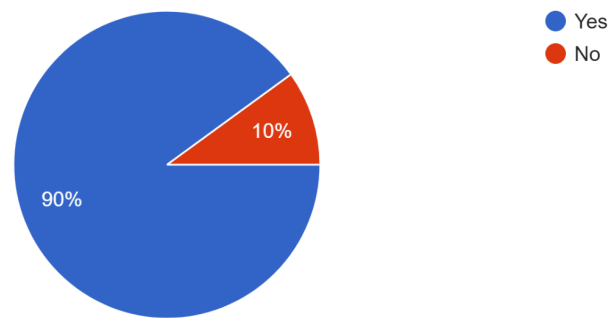
- A notable finding is that a minority of respondents admitted to submitting AI-generated content without proper citation, potentially risking plagiarism. This highlights a need for awareness and education on ethical practices when utilizing AI-generated content. Exploring the reasons behind this behavior, whether due to lack of understanding or other factors, could inform educational initiatives aimed at promoting responsible use of AI tools. Understanding the ethical dilemmas users face and tailoring educational resources to address these challenges can contribute to the development of a more ethically conscious user base.

11) Interest in Training on AI Tools

- **Would you be interested in training on using AI tools without risking plagiarism?**

Would you be interested in training on using AI tools without risking plagiarism?

20 responses



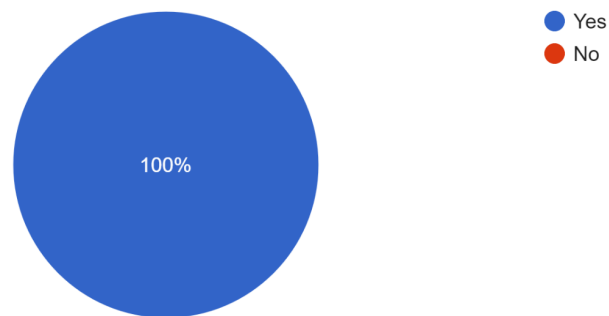
- The majority of respondents expressed interest in training on using AI tools without risking plagiarism. This eagerness indicates a demand for educational resources to guide users in the ethical and effective integration of AI-generated content into their work. Understanding the specific aspects of training that users find valuable or challenging can inform the development of educational programs tailored to user needs. Exploring whether users prefer interactive workshops, online modules, or other formats can guide the design of training initiatives that resonate with diverse learning preferences.

12) Perceived Room for Improvement

- **Do you believe there is room for improvement in the current plagiarism detection AI tools available?**

Do you believe there is room for improvement in the current plagiarism detection AI tools available?

20 responses

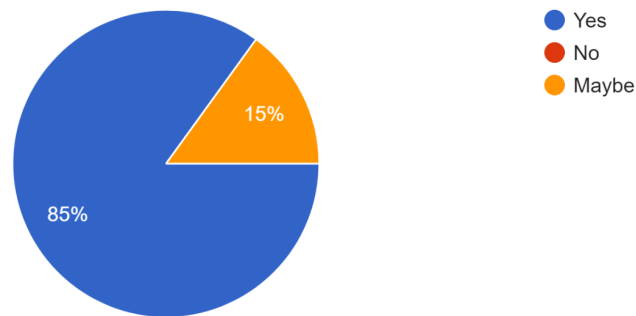


- A unanimous sentiment emerged, with all respondents indicating a belief in the need for improvement in the current plagiarism detection AI tools. This collective opinion underscores the perceived room for enhancement and innovation in this technology. Exploring the specific aspects users believe require improvement, such as accuracy, speed, or language coverage, can guide us in prioritizing areas for advancement. Additionally, understanding whether users desire more customizable features or integration with other writing tools can inform a roadmap for future developments.

13) Willingness to Try New Tools

- **Would you be open to trying new or improved plagiarism detection tools in the future?**

Would you be open to trying new or improved plagiarism detection tools in the future?
20 responses



- Looking ahead, a resounding 85% of respondents expressed a clear affirmative stance toward trying new or improved plagiarism detection tools in the future. This overwhelming majority indicates a high level of openness and willingness among the surveyed individuals to explore innovations in this field. Additionally, a notable 15% expressed a more cautious stance with a "maybe" response, suggesting a degree of uncertainty or consideration before committing to future tools. These findings underscore a generally positive attitude towards embracing advancements in plagiarism detection technology, while also recognizing a segment of users who may approach new tools with a more reserved perspective. Understanding these nuanced attitudes can guide us in tailoring communication and features to address the varying degrees of openness among potential users.

14) Features Influencing Tool Switch

- **What features would encourage you to switch to a different plagiarism detection tool? (or encourage you to use one if never used any)**
- Understanding the factors that would prompt users to switch to a different plagiarism detection tool or consider using one for the first time is crucial for shaping the future development of such tools. Responses from participants highlighted several key features that would motivate a transition or initial adoption. These features include:
 1. **Precision:**
 - Desire for AI to comprehend a student's writing style for improved plagiarism detection.
 - Identification of commonly used sentences to prevent false positives in plagiarism flags.
 2. **Language Support:**
 - A call for comprehensive language support, ensuring efficiency across a wide range of languages.
 3. **Cost Considerations:**
 - A recurring theme was the importance of subscription costs, with users expressing interest in lower costs or even free access to broaden tool accessibility.
 4. **Accuracy and Effectiveness:**
 - Emphasis on improved detection algorithms, higher accuracy in identifying plagiarism instances, and better handling of paraphrased content and advanced techniques.
 5. **Free Access:**
 - The appeal of a plagiarism detection tool being offered for free, suggesting that cost remains a significant factor in user decisions.

6. Offline Capability:

- A desire for plagiarism detection tools to have an offline mode, indicating a preference for flexibility in usage scenarios.

7. Critique of Current Tools:

- Criticism of the efficiency of Turnitin, with concerns about accuracy and inconsistent results between accounts, suggesting a willingness to switch to a tool that can ensure better service.

INTERVIEW DATA ANALYSIS

In the interview segment, Dr. Alif Ridzuan Khairuddin, a lecturer at UTM with expertise in programming techniques, shared insights into the challenges associated with using Turnitin for plagiarism detection. Dr. Alif pointed out issues like false flagging, limited contextual understanding, and the high cost of subscriptions. To address these concerns, suggested improvements include refining contextual analysis, enhancing matching algorithms, and implementing AI memorization for detecting contract cheating. Moreover, Dr. Alif emphasized the importance of reducing costs and expanding language compatibility to foster a more inclusive plagiarism detection system.

These proposed solutions align with the goal of addressing shortcomings in Turnitin, aiming for a more comprehensive and accessible tool. Dr. Alif's recommendations highlight the necessity of detecting contract cheating, improving contextual understanding, and enhancing the recognition of accurately paraphrased content.

In a broader context, the cross analysis revealed varying satisfaction levels among respondents, despite a high utilization rate of AI tools for academic writing. Turnitin, a prevalent choice, faced criticism for issues like false flagging, language barriers, and high subscription fees. While 85% of respondents noted improved writing efficiency with AI tools, a unanimous 100% expressed a shared belief in the need for enhancements.

Factors such as cost, precision, and ease of use emerged as pivotal influences on tool selection. Dr. Alif's insights reinforced the demand for improved tools, evident in the 85% of respondents expressing openness to trying new or enhanced plagiarism detection software. Overall, the analysis underscores the ongoing evolution in the academic landscape, emphasizing the desire for more accurate, cost-effective, and user-friendly AI solutions.

CROSS ANALYSIS

1. Effectiveness of Existing AI Tools

Survey: 95% of respondents to a survey said they have used ChatGPT or other AI tools to assist with academic writing.

Interview: Dr. Alif thinks there is potential for improvement at Turnitin and accepts its limits.

2. Satisfaction with Existing AI Tools

Survey: Respondents gave differing ratings on the efficacy of the current AI tools.

Interview: Dr. Alif complains about Turnitin, pointing out problems such erroneous flagging and inadequate contextual awareness.

3. Plagiarism Detection in Other Languages

Survey: Respondents voice doubts over the efficacy of plagiarism detection software for languages other than English.

Interview: Dr. Alif emphasises how Turnitin's ability to identify plagiarism in assignments written in many languages is limited.

4. Subscription Costs

Survey: Views on subscription fees are divided among respondents.

Interview: One issue brought up by Dr. Alif is the high cost of Turnitin subscriptions.

5. Incorporating AI-Generated Content

Survey: 75% of respondents said they had trouble using AI-generated content in their academic writing without being accused of plagiarism.

Interview: Dr. Alif suggests improving matching algorithms to improve AI comprehension of student work.

6. Writing Efficiency with AI Tools

Survey: 85% of respondents to a survey said they write more effectively now that they use AI technologies.

Interview: Dr. Alif wants to increase efficiency by improving contextual awareness.

7. Factors Influencing Choice of Plagiarism Detection Tools

Survey results: cost (25%), detection accuracy (25%), and ease of use (50%).

Interview: Dr. Alif offers suggestions for improving accuracy and cutting costs.

8. Usage of Plagiarism Detection Tools

Survey: 95% of survey respondents have used plagiarism detection software.

Interview: Turnitin is used by Dr. Alif, however she feels that it could be better.

9. Interest in Training on AI Tools

Survey: 90% of respondents are interested in learning how to use AI tools without running the risk of plagiarism.

Interview: Dr. Alif suggests ways to improve the efficiency of AI tools.

10. Room for Improvement in AI Tools

Survey: 100% think that the AI tools now in use for plagiarism detection should be improved.

Interview: Dr. Alif offers certain suggestions and admits the need for changes.

11. Openness to Trying New Tools

Survey: 85% of respondents are willing to try out new or enhanced plagiarism detection software.

Interview: Dr. Alif suggests ways to make better tools.

CONCLUSION

To summarize, AI technologies use machine learning and complex algorithms to examine and understand data. After observing the results of the surveys done and interviews held, we note that:

- The increasing popularity of AI writing tools, like ChatGPT, indicates that more people are realizing how useful these tools are for coming up with ideas, getting better at language, and speeding the writing process, participants show a generally good attitude toward the current AI tools, the opinions of respondents regarding the efficacy of plagiarism detection technologies for languages other than English are not consistent indicating a perceived difficulty in expanding their functionality, respondents find it difficult to include AI-generated content into their academic writing without running the risk of being accused of plagiarism, they also think that employing AI tools has increased their writing productivity, demonstrating that these tools are well-regarded, the selection of plagiarism detection software is mostly influenced by factors related to ease of use, highlighting the need of user-friendly solutions, membership fees are divided, with respondents taking a neutral position, highlighting various opinions about the perceived worth of the fees, respondents affirm that they have used plagiarism detection software for work-related or academic objectives, underscoring the crucial role that these programs serve in upholding academic integrity, the two most popular options for detecting plagiarism are Turnitin and Grammarly. Quillbot, a less popular choice, offers information about user preferences and market dynamics, Only a handful of respondents acknowledge that they have submitted AI-generated content without properly citing it, stressing the importance of ethical guidelines and awareness-raising while using AI-generated content.
- As for the interview, Turnitin is used by Dr. Alif Ridzuan Khairuddin, a lecturer at UTM on programming techniques, for plagiarism detection; however, he notes that there are several problems with it, including false flagging, poor contextual comprehension, and expensive subscription fees. He suggests a number of fixes, such as improving contextual analysis, matching algorithm improvement, contract cheating detection by AI memorizing, cost reduction, and language compatibility expansion. Enhancing global language inclusivity, detecting contract cheating, bolstering contextual understanding, detecting accurate paraphrasing recognition, and improving accessibility to plagiarism detection are the goals of these solutions.
- For the cross analysis, 95% of respondents utilize AI tools for academic writing, according to the analysis, however satisfaction levels differ. The popular program Turnitin has been criticized for things like false flagging, language barriers, and excessive

pricing. 75% of respondents said it's difficult to integrate AI-generated content without worrying about plagiarism. Even though 85% of respondents said that AI tools had improved their writing efficiency, 100% of respondents still felt that improvements were needed. Cost, precision, and convenience of use are some of the factors that affect the choice of tool. According to Dr. Alif, there is a need for better tools as seen by the 85% of respondents who are willing to attempt new or improved plagiarism detection software. She offers improving both accuracy and cost.

At the end, bringing together survey results, interviews, and cross-analysis reveals a growing acceptance and use of AI writing tools, with a general demand for improvements in cost, accuracy, and user-friendliness, pointing out the continuous evolution and need for more affordable and accessible AI solutions in academic and professional settings.