University Lecturers' and Students' Perceptions and Use of Genai Technologies

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ABSTRACT: ChatGPT, Bard, and other generative artificial intelligence (GenAI) technologies, also known as conversational AI or chatbots, were trained to be informative and comprehensive. This definition described the capacity of GenAI to answer, create, and complete tasks, such as writing essay responses using user-generated prompts. Universities were often unsure of how to incorporate this technology into the teaching and learning process in a consistent and ethical manner. There was debate about the positive and negative aspects of GenAI within universities, such as prompt feedback and resource development, versus breaches of academic integrity. The inconsistencies in messaging and debates led both academics and students to feel anxious, confused, and concerned. This project explored the expertise, confidence, and subsequent experiences of university students and academics with the use of GenAI technologies in their teaching, learning, and assessment. It employed a mixed-methods approach, combining a quantitative survey with qualitative interviews conducted across international campuses of a large public university, with a sample of 132 students and 38 staff. GenAI had the potential to enhance productivity and efficiency in education; however, further support and clarification were needed to foster the development of critical skills for evaluating information output and the ethical use of these technologies.

KEYWORDS: GenAI technology; perceptions; GenAI tertiary usage; GenAI ethics

1. Introduction

The Chat Generative Pretrained Transformer (ChatGPT) artificial intelligence (AI) chatbot tool was launched in November 2022 by OpenAI, a San Francisco-based tech and research company, and had reached over 100 million monthly active users by January 2023, just two months after its release. This made it the fastest-growing consumer application to date. Leveraging natural language processing, generative artificial intelligence (GenAI) is capable of generating cohesive and informative human-like responses to user input. The rise of GenAI has the potential to profoundly impact the ways in which we teach, learn, assess, and access education.

For instructors, GenAI can serve as a virtual teaching assistant by providing students with immediate feedback on specific tasks. In addition, it can assist instructors in generating course materials, preparing multiple versions of exams and quizzes, and developing rubrics [1]. For students, GenAI can be used to ask questions to gain clarification on particular course content or to have explanations repeated or presented in a different way [2]. ChatGPT also enables students to understand complicated concepts in plain language [3].

Despite its success, GenAI has introduced new challenges and threats to education. For instance, less than two months after its release, some academics detected that up to one-fifth of students were using ChatGPT in assessment tasks [4]. Furthermore, GenAI might undermine academic integrity, raise concerns about the reliability and accuracy of the information it provides, and present issues related to potential data biases, privacy, misinformation, and manipulation [5].

Therefore, universities need to ensure that GenAI tools are used to benefit both students and staff—enhancing teaching practices and student learning experiences, fostering the development of future-ready skills within an ethical framework, and enabling academics to leverage efficiencies for innovative teaching methods. For example, academics are required to rethink their courses using creative approaches and design assessments that are not easily completed by GenAI tools in an increasingly AI-enabled world.

If students and staff can apply GenAI tools skillfully and strategically, this advanced technology could improve the efficiency and effectiveness of teaching and learning and ultimately lead to better educational outcomes. This research explores the resources, support, and training opportunities available to academics and undergraduate and postgraduate students to establish a shared understanding of the appropriate use of GenAI tools. A survey conducted across Curtin campuses investigated the impact of GenAI on teaching, learning, and assessment practices. To guide this investigation, the study focused on three key research questions. First, it examined how university students and academics use GenAI technologies in their teaching and learning. Second, it explored the perceptions that university students and academics hold about GenAI technologies. Finally, it investigated how confident university students and academics are in applying GenAI technologies in their academic and everyday life.

2. Materials and Methods

This project utilized a mixed-methods approach by combining a quantitative survey with qualitative interviews with a small number of student and academic participants.

2.1. Quantitative methods.

The quantitative survey was sent to participants from Curtin University, including the Perth, Bentley, and Singapore campuses. To ensure the robustness of the surveys, they were synthesized by incorporating several pre-validated survey instruments [6]. This integration of validated surveys enhanced the reliability and validity of the data collected for the study. The qualitative data obtained through interviews with self-selecting participants (both academics and students) formed narrative vignettes of specific instances of GenAI technology interactions.

2.2. Qualitative methods.

This research utilized thematic analysis for interviews captured and transcribed via Microsoft Teams. This method enabled the team to identify patterns and consistencies in participants' responses through extensive discussions and member checking to find major themes and sub-themes. As noted by [7] and [8], thematic analysis provided rigorous and insightful findings, highlighting similarities and differences among participants. The process, detailed by [7] and [9], employed an inductive approach with minimal preconceptions to ensure clear and coherent analysis. Initially, the team immersed themselves in the transcriptions through multiple reviews to understand the data thoroughly. During coding, initial codes were identified by systematically highlighting key concepts and patterns. Themes were developed inductively, relying on pattern recognition and researcher consensus, and were refined through several reviews to ensure coherence and alignment with the research questions. Member checking and consensus on theme definitions were crucial. Conclusions were drawn by linking qualitative analysis to existing literature, enhancing the study's credibility and relevance [7, 9].

2.3.Participants.

2.3.1. Student cohort.

All undergraduate and postgraduate students across all Curtin campuses and in OUA were emailed and invited to participate in the online survey. This email was sent to Curtin Academy Fellows with a request to disseminate it throughout their networks and colleagues. A total of 132 students participated in the survey, and three were interviewed.

2.3.2. Academic cohort.

All academics across all Curtin campuses and in OUA were emailed and invited to participate in the online survey. This email was sent to Curtin Academy Fellows with a request to disseminate it throughout their networks and colleagues. A total of 38 staff participated in the survey, and four were interviewed.

2.4. Instruments.

The surveys administered to both students and academics included a combination of main questions using a Likert scale and five open-ended questions to capture additional perceptions. The survey was organized into four sections. The first section, Demographic Information, collected basic demographic data from participants. The second section, Student/Academic General Knowledge or Experience with Generative Artificial Intelligence (GenAI), examined participants' familiarity with and experience using GenAI. The third section, Perception and Confidence in Using GenAI, asked participants about their perceptions of and confidence in utilizing GenAI. The fourth section, Experience of Support Resources on Using GenAI in Teaching and Learning Practices at Curtin University, explored participants' firsthand experiences with support resources available for incorporating GenAI into their teaching and learning practices.

3. Results and Discussion

3.1. Demographics of academic staff.

The summary of academic participant demographics from the study revealed insights into the distribution and backgrounds of the 38 staff participants. The composition primarily consisted of academic staff from the Perth campus, representing 87% of the total, while the remaining 13% were from the Singapore campus. It was important to note that this participant group represented only a small fraction of the overall staff numbers across Curtin University. Therefore, the researchers emphasized that these findings should be considered a snapshot of the larger cohort rather than a comprehensive overview. The disciplinary backgrounds of participants varied, with the majority coming from the Business and Law faculty, accounting for 47.4% (18 participants), and Humanities, representing 36.8% (14 participants). Conversely, there was minimal representation from the Science and Engineering faculty, with only 2.6% (1 participant), and Health Sciences, comprising 13.2% (5 participants). There was a slight male predominance, with 55.3% (21 participants) identifying as male. Female participants made up 42.1% (16 participants), and one participant, accounting for 2.6%, preferred not to disclose their gender.

3.2. Demographics of students.

In a survey of 132 students, 86.4% (114 students) were from the Singapore campus and 13.6% (18 students) from the Perth campus. The majority of respondents, 67.4% (89 students), belonged to the Faculty of Business and Law, followed by the Faculty of Humanities at 11.4% (15 students). Other faculties accounted for 18.2% (24 students), and the Faculty of Science and Engineering for 2.3% (3 students). Additional participants included five from the Faculty of Finance/Accounting and ten from Education and Commerce. Regarding gender, 58.3% (77 students) identified as female, 31.8% (42 students) as male, 1.5% (2 students) as non-binary or third gender, and 8.3% (11 students) chose not to disclose their gender. Linguistically, 66.7% (88 students) reported an English-speaking background, while 33.3% (44 students) reported a non-English speaking background. In summary, the demographic breakdown highlighted the diverse student population engaged in the survey, with a notable presence from various academic faculties and campuses. This demographic context provided valuable insights into the broader student community's perspectives on GenAI utilization and underscored the importance of tailored support strategies to cater to diverse needs effectively.

3.3. Key findings – survey.

One key finding from the survey was the differences between staff and student perceptions of their interactions with GenAI (Table 1). This data analysis examined the awareness and usage of GenAI among 38 academic staff and 132 students, revealing distinct patterns between the two groups. Although a higher percentage of staff (39%) reported substantial familiarity with GenAI compared to students (22.7%), the overall usage trends differed significantly. Notably, while 18% of staff had never used GenAI, only 9.1% of students were completely unfamiliar with it, suggesting a gap between awareness and actual usage among staff, possibly due to cautious attitudes towards new technologies. Usage intensity varied between the two groups. Students reported higher engagement, with 31.1% using GenAI moderately and 12.1% using

it extensively. In contrast, staff showed a more uniform distribution in their use: 29% moderately used GenAI, and 26% used it extensively. This pattern indicated that staff, potentially influenced by professional demands or interest, engaged with GenAI more consistently, whereas student usage showed more variability. Further analysis suggested that these usage discrepancies could have stemmed from differences in age, technological adaptability, the nature of their work or studies, and openness to adopting new AI tools. The results highlighted a potential for increased adoption and training among academic staff to close the gap between familiarity and practical application of GenAI.

Table 1. Staff and student responses to having heard or used genAI.

Group	Category	None n (%)	A Little n (%)	Moderate n (%)	A Lot n (%)
Staff (n = 38)	Heard of GenAI	0 (0.0)	1 (2.6)	22 (57.9)	15 (39.5)
	Used GenAI	7 (18.4)	10 (26.3)	11 (28.9)	10 (26.3)
Student (n = 132)	Heard of GenAI	12 (9.1)	38 (28.8)	52 (39.4)	30 (22.7)
	Used GenAI	24 (18.2)	51 (38.6)	41 (31.1)	16 (12.1)

Another key finding from the survey highlighted a range of GenAI uses among staff and students at Curtin University (Table 2). Among staff, 37.9% used GenAI for tasks related to work and learning, and 20.5% used it for research-related activities, including creative writing, simplifying concepts, and assisting with data analysis and paper proofreading. Notably, 37% of staff tasks involved teaching applications, such as preparing educational materials, designing assessments, and creating marking rubrics. An interesting application emerged in explaining complex ideas in simpler terms, thereby enhancing student comprehension..

Table 2. Usage differences of genai between staff and students.

Group	Purpose	Main Tasks (examples)	Number	(%)
Staff (n = 38)	Work / Learning	Creative writing; language and task clarification; supporting colleagues; preparing presentations; generating pseudonyms; answering specific work or life questions; collaboration	29	39.7
	Research	Paraphrasing assistance; proofreading; data collection and analysis	15	20.5
	Teaching	Language and task clarification for students; preparing learning materials; marking rubrics; designing assessment questions; AI detection in student work; in-class or workshop support	29	37.0
	Total tasks selected	—	73	100
	Never used / none	—	6	—
Students (n = 132)	Learning	Understanding difficult concepts or language; clarifying learning goals; creative writing	166	39.2
	Assessment	Answering questions; reducing word count; paraphrasing; generating argument structures; clarifying tasks; deciphering assessments; research assignments	247	58.4
	Personal use	Resume writing; code generation	10	2.5
	Total tasks selected	—	423	100
	Never used / none	—	7	—

Moreover, some staff members found innovative uses for GenAI, such as assisting colleagues in their teaching efforts, suggesting the emergence of a budding community of practice. However, 13% of staff had not adopted GenAI for any tasks, indicating potential barriers such as limited awareness or access, or concerns about its effectiveness. This

highlighted an opportunity for targeted training and workshops to enhance GenAI adoption and maximize its potential in academic settings. For students, GenAI primarily supported assessments and learning, with nearly 60% of users focused on tasks such as streamlining word counts, structuring arguments, and interpreting assessment questions. The remaining 40% of tasks related to learning enhancements, including explaining difficult concepts and assisting with creative writing. This indicated that students valued GenAI as a versatile tool that enhanced their learning experience and supported academic performance.

The survey data on GenAI support and training within a university context revealed a notable gap between awareness and actual usage among both academic staff and students (Table 3). While 24 staff members were aware of GenAI-related training, only half had accessed these opportunities. Similarly, 98 students were aware of training opportunities, but fewer than half had accessed them. Despite some awareness of GenAI support and training offered by the university, actual engagement with these resources remained low. This underutilization highlighted the need for enhanced communication strategies and more accessible resources, particularly targeted at students, who displayed higher levels of unawareness, potentially due to ineffective communication, perceived irrelevance, or limited engagement with university support services. For academic staff, while initial awareness existed, there was a notable discrepancy in translating this awareness into practical use. This gap suggested the necessity of identifying and mitigating barriers or concerns that staff had regarding GenAI tools. Tailored training and support aligned with staff needs and preferences could significantly increase adoption and effective use of GenAI. Additionally, the lower participation in training sessions among staff compared to students underscored the need for improved promotion and accessibility of programs specifically designed for staff. A significant portion of both students and staff did not utilize available support, indicating the need for deeper investigation into the obstacles preventing engagement with these resources.

Table 3. Differences of genai support and training between staff and students.

Group	Area	Aware and Used n (%)	Aware but Not Used n (%)	Unaware n (%)	Unavailable n (%)
Staff (n = 38)	Academic Support	12 (31.6)	12 (31.6)	13 (34.2)	1 (2.6)
	Training Opportunities	12 (31.6)	12 (31.6)	14 (36.8)	0 (0.0)
Students (n = 132)	Academic Support	43 (32.6)	55 (41.7)	28 (21.2)	6 (4.5)
	Training Opportunities	17 (12.9)	56 (42.4)	53 (40.2)	6 (4.5)

The data on satisfaction with GenAI support resources revealed mixed feelings, with moderate satisfaction being the most common response, but also notable levels of neutrality and dissatisfaction (Table 4). Specifically, 34.2% of staff and 32.8% of students expressed satisfaction (combining those who were "Strongly" and "Somewhat Satisfied"), reflecting general approval of the resources provided. However, attitudes differed with respect to neutrality and dissatisfaction. A notable 22.1% of students remained neutral neither satisfied nor dissatisfied, compared to just 7.9% of staff, indicating a more ambivalent stance among students. Dissatisfaction, although relatively low overall, was more pronounced among students, with 8.4% somewhat dissatisfied and 0.8% extremely dissatisfied. Staff dissatisfaction was milder, with 5.3% somewhat dissatisfied and 2.6% very dissatisfied.

Moreover, the non-usage of GenAI support resources was significant, with 47.4% of staff and 35.9% of students reporting that the resources were not applicable or had never been used. This substantial percentage suggested that a lack of engagement with the resources, or a mismatch between the provided resources and users' needs or expectations, may have existed. Additionally, the presence of an "Extremely Dissatisfied" category among student responses, absent from staff responses, pointed to a broader range of dissatisfaction that may need to be addressed. These findings indicated that while the support resources generally met the needs of both staff and students, there was clear room for improvement.

Table 4. Differences of genai support resource satisfaction between staff and students.

Satisfaction Level	Staff (n = 38)	Students (n = 131)
Strongly Satisfied	1 (2.6%)	29 (22.1%)
Slightly Satisfied	13 (34.2%)	14 (10.7%)
Neutral	3 (7.9%)	29 (22.1%)
Slightly Dissatisfied	2 (5.3%)	11 (8.4%)
Strongly Dissatisfied	1 (2.6%)	1 (0.8%)
Not Applicable / Never Used	18 (47.4%)	47 (35.9%)
Total	38 (100%)	131 (100%)

The responses from academic staff and students at the university revealed a complex picture of the perception and usage of GenAI tools like ChatGPT, highlighting both the potential benefits and the challenges associated with their integration into academic practices. Both staff and students acknowledged the significant advancements offered by GenAI tools. Staff members recognized the value of these tools in enhancing students' critical thinking abilities and improving writing skills. They also noted the efficiency of GenAI in streamlining tasks such as literature searches and providing detailed analyses of student work. Similarly, students appreciated the convenience and time-saving aspects of GenAI, particularly in gathering information and supporting the understanding of complex topics.

However, some staff remained neutral and advocated for more professional development opportunities to better integrate GenAI into their teaching. Students, in turn, expressed a need for more guidance on using GenAI responsibly and raised concerns about potential misuse and the undermining of critical thinking skills. Dissatisfaction stemmed mainly from concerns regarding the accuracy and reliability of GenAI outputs. Staff worried about the potential for GenAI to deliver biased or inaccurate information and the risks of plagiarism. Students shared these concerns, citing instances where GenAI provided irrelevant or incorrect information and expressed frustration with the tools' limitations, especially in accessing specific or nuanced content.

The feedback underscored the need for the university to bolster support and offer clearer guidelines on the effective and responsible use of GenAI tools. This included professional development for staff to integrate GenAI effectively into their teaching methodologies, clear usage guidelines for students to help them leverage GenAI responsibly while maintaining a focus on developing critical thinking skills, and continuous monitoring of GenAI developments to stay updated on the latest research and address emerging ethical concerns.

Engagement and awareness revealed noticeable differences between staff and students, with students showing a broader spectrum of opinions and higher levels of neutrality and

dissatisfaction. Additionally, a significant number of both students and staff were either unaware of, or found inapplicable, the GenAI resources provided by the university, indicating a gap in communication and relevance. Overall, while GenAI tools were recognized for their potential to enhance educational practices, the university community called for careful consideration and thoughtful implementation strategies. Enhancing awareness, providing tailored training, and ensuring that these tools complement rather than replace traditional learning methods were identified as crucial steps toward responsibly and effectively harnessing the benefits of GenAI in an academic setting.

3.4.Key findings – interviews.

3.4.1.   Staff Perspectives – GenAI Uses.

The interviews identified a range of important perspectives from staff about the uses of GenAI and provided some nuanced responses to highlight important aspects for consideration. One example includes a participant who viewed it as particularly beneficial to new teachers:

"I can see that teachers can really benefit from it. Like, for example, if you're asked to give a Lesson plan on meiosis and mitosis in biology and you don't really know much about it and you've been thrust into this class your first-year teacher, you can easily look it up and then you'll have something that is presumably and you have to use your own critical skills on this."

Another had concerns about the capacity of students to use it effectively:

"AI isn't up to scratch because you can very clearly tell when a first-year student outside the chemistry has used an AI, as there will be holes and understanding beyond any of the units, even up to third year network."

3.4.2.   Student Perspectives – GenAI Uses.

In addition, undergraduate students provided interesting perspectives on their own use of GenAI:

"Students, we do a lot of research and sometimes and the time constraints is all these AI language models that you know help us to speed up our research process and you in basically summarizes what we are looking for and we will take like that answers the, the so-called answers law from these models to put it into our work."

"I want AI that can read this PBT and lecture slides and tutorial questions and answers, and then maybe if I don't understand what teacher says and I want to ask some questions about the lecture slides it will chance to teach me like the lecturer."

In summary, undergraduate students find GenAI to be a great resource in their academic toolkit, aiding in various aspects of their education from research to study assistance, while also acknowledging a potential overreliance on the technology.

3.4.3.   Staff Perspectives – GenAI barriers, concerns and challenges.

Along with uses, the staff also reported their perceptions for barriers, concerns and challenges relating to GenAI. There is a concern about the lack of transparency regarding the sources of

GenAI's outputs. The creativity may seem apparent, but it is a composite of numerous other creators' work, leading to questions about the originality and authenticity of the material:

"And it looks as though it's very creative because you may not have seen it before, but of course it's creative because it's taken from so many other creative people who have done this before. So, you're getting a whole mishmash. And but the problem there, of course, is we don't know where it comes from, and we don't know the authenticity. And so it's it's like a little child in a or a bull and China shop, you know, walking around thinking, oh, this is wonderful, but unfortunately, you're probably going to break a few things by doing that."

In addition, the feedback touches on the structure of university assessments, with a mix of exams and take-home assignments. The latter can be particularly susceptible to misuse of AI, as these assessments can be completed without direct supervision:

"So, there are take home assessments that chat GPT can spit answers out for students, so we still have these concerns in chemistry."

Overall, while acknowledging the potential of GenAI in education, the feedback from academic staff points to significant concerns about the ethical use of AI, the development of student knowledge and skills, and the challenges of ensuring academic integrity in the age of AI.

3.4.4. Student Perspectives – GenAI barriers, concerns and challenges.

Undergraduate students also shared their concerns and challenges regarding the use of GenAI for their learning and schoolwork. There is a general apprehension about the accuracy of the information provided by GenAI, with students questioning whether the answers are completely reliable:

"Yes, because we are not too certain whether the answers that they provided is 100% accurate or not."

The students also recognise the necessity of conducting their own research to verify the information obtained from GenAI, highlighting the importance of due diligence:

"So, we still need to do our due diligence to do our own research after we so called researched object, GPT."

In essence, while recognising the utility of GenAI in academic pursuits, students are also aware of the barriers and challenges it presents, particularly the need for maintaining academic integrity and the cultivation of independent, critical thinking skills.

3.4.5. Staff Perspectives – academic integrity and ethical use.

Another interesting key finding from the interviews were staff perspectives relating to the ethical use of GenAI, and academic integrity issues that arise from this. One participant suggested a method where the use of ChatGPT by students is permissible if they provide a screenshot of their activity. This suggests a desire for transparency in how GenAI tools are used for academic purposes:

"A fairly comprehensive bit of information about how it's used and what I'd like to see the way I'd like to see it being used is saying that you can use ChatGPT provided you provide us with a screenshot of what you've used because then."

Staff also expressed concern over the significant lack of information and advice provided by the institution on using GenAI:

"But, but having said that, I just think that there's just been this big black hole in terms of the lack of information and advice that we've been given."

Overall, the feedback points to a need for clearer policies, better dissemination of information, and an interactive, hands-on approach to training on the use of GenAI in educational settings.

3.4.6.   Student perspectives – academic integrity and ethical use.

The final theme included student perspectives of academic integrity issues and ethical usage of GenAI tools. One participant discussed the need to rephrase AI-generated content to avoid detection:

"We will still have to rephrase it in a in a point whereby it won't be checked by turning in right?"

There is an awareness among students about the importance of preserving academic integrity while using GenAI tools, emphasising ethical considerations in their use:

"So, so, so also we should preserve the academic integrity and then we should be concerned about the ethical use of AI and ensure that we are."

These comments reflected a tension between the potential benefits of using GenAI for educational purposes and the need to adhere to strict academic integrity and ethical standards. Students recognized the necessity of aligning with institutional policies, which often restricted GenAI use to safeguard against plagiarism and ensure the authenticity of their work. Moreover, students were not always certain, as course guidelines did not clearly specify whether the use of GenAI was permitted in assessments.

4.   Conclusions

The use of GenAI in learning (students and staff) and teaching (staff) held promising potential for improving productivity and efficiency in the educational process. The interview results revealed that GenAI assisted users in searching for information and ideas, translating text, and providing alternative questions to deepen their understanding of the subject matter. However, it was important for users to consider and verify the information provided by GenAI against more reliable and accurate sources. While GenAI offered an interesting and effective alternative for learning, users needed to remain critical and selective in its use. Additionally, users needed to exercise caution to ensure that academic ethics were upheld, maintaining honesty in data collection and interpretation. Despite its limitations, participants perceived GenAI as beneficial for enhancing productivity and efficiency in both learning and teaching. However, the study had several limitations. The participant sample was primarily drawn from the Singapore campus and consisted mainly of international students, which may have

introduced specific biases. The sample size, 132 students and 38 academic staff, was relatively small, particularly for the staff cohort, and may not provide a comprehensive view of staff perspectives. The interviews, which included only three students and four academic staff, presented further limitations in terms of generalizability and representativeness. With such a limited number of interviewees, the perspectives captured may have been biased toward those individuals' specific contexts, restricting the ability to draw wide-reaching conclusions or develop overarching strategies applicable to the broader population. Future research could focus on developing comprehensive ethical guidelines for GenAI use in academia, strategies to enhance digital literacy among staff and students, and methods to integrate GenAI into curriculum design in ways that promote critical thinking while maintaining academic integrity. Additionally, examining the impact of GenAI on student learning outcomes and teaching pedagogy could provide valuable insights into its educational potential and limitations. Future studies would also benefit from a larger and more diverse sample, including more staff participants and students from various backgrounds, to enhance the representativeness and reliability of the findings. Employing more rigorous quantitative methodologies, such as hypothesis testing, could further strengthen the evidence base and provide universally applicable insights.

Author Contributions

All authors contributed to the writing, reviewing, and editing of the manuscript and approved the final version for publication.

Competing Interests

The authors declare that they have no competing interests.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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