

Mapping Attrition Risk Among International Medical Students: Insights from Port Dickson

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Abstract: *This conceptual analysis examines why international medical students at a private medical school in Negeri Sembilan, Malaysia, persist or approach withdrawal. Attrition risk cannot be understood only through language support, social adjustment, or surface indicators of performance. This study is proposing a modified version of Tinto's Student Integration Model that foregrounds three interlinked constructs. First, cognitive preparedness captures alignment between students' study strategies and the curriculum's assessment ecology and the capacity to recalibrate after feedback. Second, lived academic experience describes how students interpret lectures, labs, small group learning, pacing, grading, and feedback and how these meanings shape motivation and belonging. Third, academic trust concerns confidence in the fairness and transparency of policies, grading, advising, and communication. The analysis identifies a gap in the literature on how these constructs interact for international students in Malaysian medical education and proposes four research questions to illuminate mechanisms that connect institutional practices to persistence. The analysis reveals that academic challenges extend beyond conventional adaptation issues, suggesting that international medical students may exhibit inherent differences in matters that are poorly yet to be understood, which could significantly influence their academic success. Anticipated contributions include a better understanding for diagnosing attrition risk, a framework for early identification and support, and institution level implications for building trust, assessment literacy, and feedback credibility with international students. This research aims to identify unknown causes that could be related with the attrition risk yet not significantly attended to and might have eluded previous studies pertaining to Malaysian medical education.*

Keywords: attrition risk, international medical students, cognitive preparedness, lived academic experience, academic trust, Tinto's Student Integration Model

1. Introduction

The internationalisation of higher education is an indicator that clearly shows that the collective aspirations of most nations who are pursuing both scholarly advancement and economic development within the dynamic framework of global education (Urban & Palmer, 2014).

Malaysia has opted to maintain a position of foresight and not left behind. It has emerged as the focal point of scholarly pursuits in Southeast Asia. Undoubtedly, its success can be attributed to its rich cultural identity and the rapid expansion of its academic infrastructure (Wan & Abdullah, 2021). It has established itself at the centre of Southeast Asia's educational landscape. Undeniably, this is due to its dynamic multicultural identity and its rapidly expanding academic infrastructure. One of the fields of study that seems to steal the spotlight is medical program (Sulong, 2022). The growing medical education industry, which attracts students from various continents and educational traditions, serves as one of the clearest examples of this development. The medical program represents a vital domain of inquiry. The burgeoning field of medical education, attracting students from a multitude of continents and varied academic backgrounds, serves as a prime illustration of this phenomenon. It is no doubt, the influx of a huge number of international students enhances the local academic landscape, fostering the exchange of diverse ideas and practices (Sulong, 2022). Consequently, Malaysia is emerging as a prominent destination for medical training, thereby enhancing its global standing. In her 2024 paper, Lugova clearly mentions that Malaysian universities, especially those providing medical programmes are truly becoming or emerged as a favoured option for international students seeking a high-quality education within a culturally rich environment. In the same paper, Lugova also observed that this advancement stems from national policies and the ambitious plans set forth in higher education (Lugova et al., 2024). It seems that, the implementation of these initiatives has fostered an atmosphere that promotes scholarly achievement and has drawn students from diverse nations in pursuit of high-calibre medical education (Sulong & Othman, 2020).

Nonetheless, the current changes have caused the process of achieving academic success increasingly complex amid these progressive developments (Lugova et al., 2024). This indicates that advancements in education, although intended to enhance learning, may also introduce new challenges that has the propensity to complicate the attainment of academic success (Yamada et al., 2014). Therefore, students and educators must address these complexities to adapt effectively. International students often face a significantly different environment, distinct from their previous experiences, despite their academic qualifications and motivation (Dos Santos Boni et al., 2018). It is clear in this educational paradigm that the shift is profoundly cognitive and epistemological in nature, in addition to being geographical (Jiang et al., 2022).

Malaysia's international medical programmes exemplify the dynamics of international academic interaction (Malaklolunthu & Selan, 2011). Beyond providing education, these institutions bolster the national economy, enhance the country's image, and promote cross-cultural understanding. The multicultural environment undoubtedly offers numerous opportunities for knowledge exchange, creativity, and social development. However, according to Sulong (2022), it is equally important to create a meaningful and sustainable academic environment for students, as according to him, this is essential for the success of internationalisation. To put in nutshell, it is undeniable that, in order to comprehensively understand the lived experiences of international students who are striving to navigate themselves through the dual pressures of adaptation and the pursuit of excellence, it is crucial to attempt to explore how educational experiences unfold in these era and context which is ever changing.

This paper puts forward an analysis the progression of perspectives regarding student retention through the lens of Tinto's Student Integration Model. Organically, Tinto's model is emphasising the unique mental, social, and institutional context, that are relevant to education.

Using Tinto as the framework, this study seeks to investigate relevant issues within the Malaysian context and aims to produce insights that go beyond superficial academic indicators, thereby fostering a comprehensive understanding of student learning in globalised context.

2. Background of the Study

The Malaysian Education Blueprint, which came out in 2013, is a plan for changing the education system by 2025 (Saini et al., 2023). It focusses on improving student outcomes, making sure everyone has equal access, and raising the quality of teachers. Aligning with its aim, Malaysia boldly declared that, it wishes to position itself as an international educational hub (Sulong, 2022). The very deceive decision to internationalize tertiary education in Malaysia marked a major policy shift in this country (Sulong, 2022). Components such as student diversity, financial, management and administration aspects of an internationalized education institution differs from institutions which are governed by the government. Thus, Ministry of Higher Education in Malaysia had produced an extensive network of policies and regulatory guidelines to help the private education institution to help Malaysia's ambition to become an international education hub in this region (Sulong, 2022).

However, Malaysia failed to achieve its national goal, which is to have 200,000 students by 2020 in order to be an education hub of excellence (Sulong, 2022). It's undeniable that, the act of internalization of our education sector did observe a robust influx of foreign students into our education system (Sulong, 2022). If that is so, the question arises, how did we as a nation failed to achieve our initial goal set by Ministry of Higher Education in Malaysia? Did the international students leave Malaysia for one reason or another without completing the program? In other words, what was the attrition rate significant high? In an paper published earlier, a study by Sulong and Othman, also indicated of a clear a trend whereby the failure rate and dropout rate among international students are increasingly prevalent (Sulong & Othman, 2020). Thus, we are forced to take a deeper look at the problem at hand. Are the elevated student attrition rates exclusive to our nation only? Is this problem an isolated problem? No, it seems that, this is a problem faced by many countries.

It appears that huge number of universities from various countries are grappling with the same issue and they have begun their investigation and some have introduced tools to mitigate the problem at hand (Malaklolunthu & Selan, 2011). However, Malaysia is a unique country. It carries within it, a myriad of context that are observed in other countries. Thus, to extrapolate the findings from studies done in other countries to the Malaysian context would not do justice to the stakeholders of this country (Zainudin et al., 2025). Furthermore, Sulong (2020) emphasized the very fact that, there is a lack of studies focusing on the attrition rate of international students in Malaysia (Sulong & Othman, 2020). Thus, this situation as understood, clearly demands a comprehensive attention from all stakeholders within the education fraternity to address the issue in systematic yet holistic manner.

3. Problem Statement

Malaysia seems to face few hurdles in the field of medical education while attempting to transform itself into a hub for transnational higher education. One among many, is the challenges faced by international medical students that spills over in the form of increased student attrition rate among international medical students. Truly, from an education point of view, this matter does raise serious questions about the dynamics of medical education in Malaysia. Cognitive compatibility or preparedness among international students, compatibility

of curriculum design, development of trust between the stakeholders, institutional support and so on are on the table for all stakeholders to examine and understand if they have any say related to attrition risk.

Based on literature, one particularly context, which was less understood, is the dimension which is called, “cognitive preparedness” among international medical students in Malaysia. Cognitive preparedness refers to one of the most unique character that is required to face unpredictability (Parkes et al., 2015). Why cognitive preparedness is vital? Here, we would like to establish that, unpredictability is the very nature of medicine. In this context, the ability to face unexpected problems in the medical career is viewed as an aspect of innate cognitive preparedness. Thus, could it be that, the significant difference in approach between the education systems, poses itself as a huge hurdle, for the international medical students to cross over? Following this, other aspects such as the approach utilized by these group of students to perceive the experience and build trust with other stakeholders while embarking on their educational journey, seems to be which are also domains that are less explored in the stated ecosystem.

So, the question is, " Could Tinto's Student Integration Model be useful to us in this situation? Current student retention models, such as Tinto's Student Integration Model, is a powerful tool for figuring out dropout trends, however, they are seeming to fall short, when it comes to taking internal academic context like academic experience, academic trust, and cognitive adaptability within the eastern culture into account. A better understanding of the very phenomenon of student retention and the reasons which influence a student's decision to continue or stop their studies can be attained by taking these internal academic contexts into account. It is true to assume that, this strategy might increase the efficacy of interventions meant to raise student achievement. In this context, Tinto's model serves as the framework allowing us to investigate whether there are any differences between the current Malaysian medical curriculum and the curriculums of the home countries from which the international medical students come. It is also the framework to explore the academic trust factor and the lived experience gained by the international students. By pointing out these gaps, we hope to draw attention to areas where changes could improve international students' success and integration into the Malaysian system. In addition to addressing academic difficulties, this strategy promotes a more welcoming classroom that honors a range of educational backgrounds. Thus, the purpose of this study is to determine whether previously unknown academic context, like perceived experience, cognitive readiness, and the level of trust developed among the stakeholders, have an impact on student attrition risk in Malaysian, especially among students from medical schools and whether this context could be investigated under the academic integration domain of Tinto's model.

4. Research Objectives (RO)

- RO 1: To understand cognitive preparedness among international medical students at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RO 2: To understand the lived academic experiences among international medical students at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RO 3: To understand the development of academic trust among international among international medical students at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RO 4: To investigate self-employed coping mechanisms among international medical students at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.

5. Research Question

- RQ1: How do international medical students perceive their cognitive preparedness in relation to the medical programme at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RQ2: How do international medical students make sense of their lived academic experiences in relation to the medical programme at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RQ 3: How do international medical students interpret the development of academic trust in relation to the medical programme at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.
- RQ 4: What self-coping mechanisms do international medical students use in relation to the medical programme at a private medical school in Port Dickson, Negeri Sembilan, Malaysia.

6. Purpose of the Study

The principal objective of this particular study is to investigate the impact of cognitive preparedness, lived experience and academic trust and their link with attrition risk among international medical students presently enrolled at a medical institution in Port Dickson, Negeri Sembilan, Malaysia. At the core, the study is designed to understand the difficulties faced by these specific group of students as mentioned above. The study also will concurrently be examining the mechanisms by which they influence their educational experiences, interact with their institutions, and employ self-directed coping strategies. Thus, the core innate aim of this research lies in comprehending the interplay of these components and their impact on attrition risk.

7. Scope of the Study

This specific study was conceived and designed with certain inclusion, exclusion criteria and some boundaries are also ingrained within it. The first fact is that, this study is purely conceived to investigate the attrition risk limited to a specific group of international medical students. This group of international students are specifically enrolled into a medical program offered by a private medical institution, which is currently having the medical program in a private medical hospital, located in Port Dickson, Negeri Sembilan. Secondly, the study is designed to specifically investigate components such as, cognitive preparedness, lived academic experience and academic trust as encountered by these specific group of students within the location as mentioned above. The focus is restricted to those international students who have failed more than 3 modules while still journeying through their medical program. Other students such as those international students pursuing nursing and those enrolled in other programs or institutions, does not fall into the scope of this research. Employing purposive sampling techniques, a group of international students who have failed one or more modules but are still being enrolled into the medical program are selected for this study. The study adopts a qualitative research design, employing semi-structured interviews as the primary method of data collection. The group of medical students are from various countries to ensure a diverse representation of educational backgrounds and nationalities. Geographically, the research is limited to only one institution, and the findings will be interpreted within the contextual framework as will be explained later. Common context related to social, academic, and institutional adaptation will be investigated, however, greater emphasize will be given to the emerging construct of cognitive preparedness, lived academic experiences and academic

trust and the coping mechanism as employed organically by the students to ward off any challenges to improve their academic performance will be looked into. Issues such as financial stress, mental health, or cross-national policies, are not investigated in this study as they are not the objective of this particular study.

8. Conceptual Framework

The conceptual framework used is built upon Tinto's Theory of Student Retention as shown as in Figure 1, below, which is further explained below.

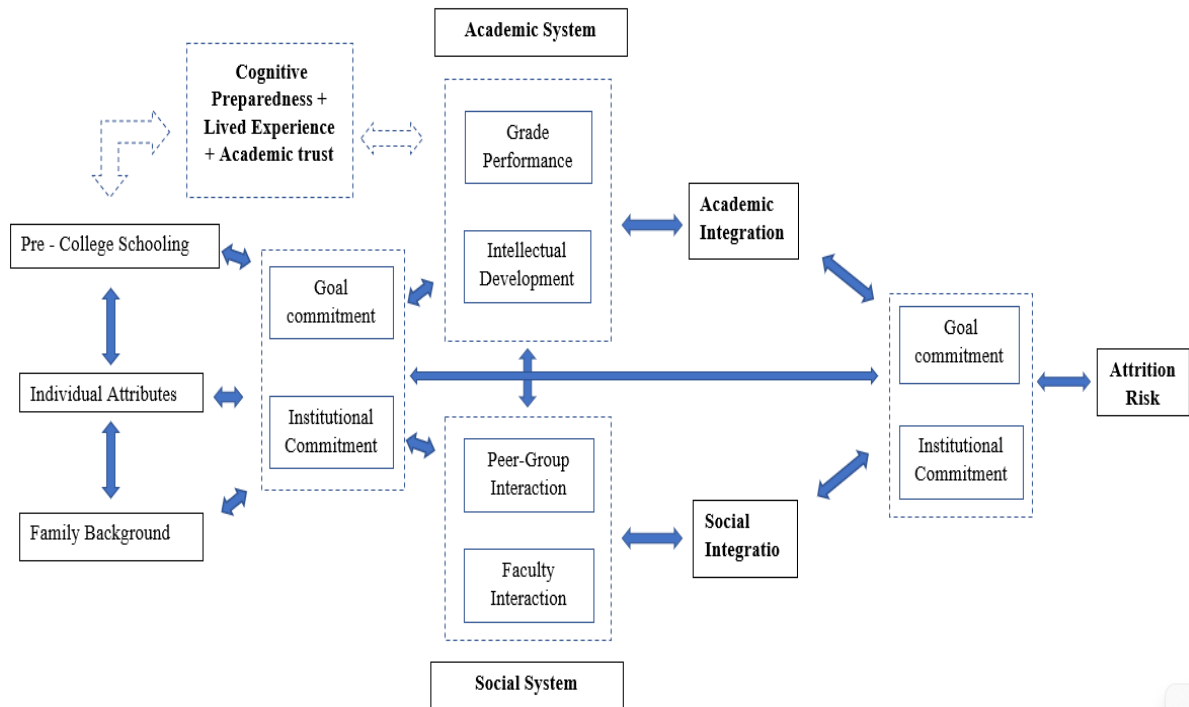


Figure 1: Proposed Conceptual Framework

Malaysia's internationalising higher education system, particularly in the medical field, places a number of demands on new students that are too complex to be explained by a single factor (Wan & Abdullah et al., 2021). Second, research on retention indicates that early transition processes are critical, however, in cross-cultural, practice-intensive programs, the mechanisms by which students adapt institutionally, socially, and cognitively are still not well understood (Barbera et al., 2020). It is a given fact that, numerous and intricate context contribute to high attrition rates, which have a substantial effect on educational institutions, students, and a country's healthcare system (Jiang et al., 2022). This phenomenon might result from a certain set of known and unknown difficulties that come with the process of pursuing medicine. Among a diversity of context, commons known context such as a rigorous curriculum that puts a lot of pressure on students could play a role in raising attrition rates. However, the rigorous of any curriculum alone should be blamed as the sole reason for any attrition risk. High attrition risk could be caused by a number of contexts, such as inadequate support networks, low trust among students and institutions, poor lived experience, pedagogy mismatch and discontent among students, to name a few. Allowing the attrition risk to develop means that, educational institutions, facing such problems can have detrimental effects on their financial stability and reputation. The consequence of losing students means that eventually lower standard of community healthcare services is on the horizon. As fewer and fewer qualified professionals

join the workforce, this situation will at one point in time strains the healthcare system as a whole in addition to having an impact on individual patients. Improving retention at the academia level and guaranteeing a robust healthcare system in the future demands the stakeholders to put forward a concrete step, addressing these fundamental problems (Yadav et al., 2019). Thus, universities are in a position to investigate ways to identify the core reasons behind low retention rates and improve the general standard of medical education by taking proactive measures to address these problems.

However, a conceptual framework is needed to truly comprehend, the true reasons, which might be causing a significant proportion of international medical students who are undergoing, in the private sector in Malaysia to struggle academically, while others with a similar background did succeed despite similar challenges (Yadav et al., 2019). Here, is where Vincent Tinto's Student Integration Model (SIM) becomes particularly valuable.

Tinto's Student Integration Model (SIM) was initially proposed in 1975 and was refined over several decades (Manyanga et al., 2017). Tinto's theory continues to offer relevant insights for modern education systems, especially within the increasingly global and multicultural landscapes of higher education. In this study, a modified framework of Tinto's model is proposed to analyze academic attrition taking into consideration of the context of an eastern environment that might not been present in a western ecosystem. to explore the success strategies of those international students who during their critical pre-clinical phase in a private Malaysian medical institution.

Thus, the proposed Tinto's framework, aims to identify any new context that falls within the three context, besides academic integration, social integration, and institutional support. In addition, the proposed framework is also designed to capture any overlapping tendencies among the three contexts as mentioned above and the new proposed context. Positioning this research on the Tinto's framework, which originally highlights the significance of both academic and social integration as the two major essential avenues through which students cultivate commitment and perseverance is clearly an attempt to consolidate that, the position of the new context into a framework which is proven to be significant in addressing student retention. Subsequent analyses reveal two key insights: the initial year serves as a particularly vulnerable transition period, and structured, proactive support mechanisms can significantly diminish the chances of withdrawal (Manyanga et al., 2017). In Malaysia, data does suggest that a focused academic guidance and development initiatives will truly enhance both achievement and advancement, thereby reinforcing Tinto's claims concerning institutional mechanisms (Wan & Abdullah, 2021). Nonetheless, the conventional frameworks were not conceived in the first place to embrace the epistemological transformations that is currently being observed within the modern medical curricula, nor do they sufficiently consider the cognitive preparedness, academic trust and living experience, and technological elements that shape the daily learning experiences of international students. These context necessitate a critical reassessment of current frameworks to enhance the support offered to these students. By incorporating a deeper comprehension of their diversified backgrounds and the native educational contexts, institutions can cultivate an inclusive atmosphere that encourages success and retention. This research thus builds further upon the Tinto framework by examining three closely related, adaptable context, such as cognitive preparedness, academic trust, and lived experiences during the learning process. This process is fundamentally aiming to understand, if any and how these elements are expected to influence retention or attrition in the Malaysian medical education ecosystem.

To begin with, it is wise to consider that success or failure is not determined by a single variable but there might exist certain dynamics among them which might very a subtle interplay of these three elements over time (Noyens et al., 2019). Another consideration that have been looked into while proposing this framework, is the origin of the framework itself. Tinto's framework was designed in explore student integration in a western ecosystem, while this study aims to explore the same issue in eastern ecosystem. This in itself is a huge difference in many aspects and these aspects have been considered while proposing a new version of the Tinto's framework which is profoundly crucial for connecting students' cognitive resources, their faith in academic systems, and the lived meanings in culturally complex contexts with the unique design of any given institution. The study offers an explanatory account of attrition that is relevant to Malaysian medical programs and has wider implications for international higher education by elucidating how these contexts mediate and moderate the classical Tinto pathways to higher dimensions.

9. Theoretical Gap

This study was primarily conceived to investigate both the theoretical and practical significance within the evolving discourse or matters pertaining to international medical education within the private sector in Malaysia. From a purely theoretical standpoint, this study aims to extend beyond the well-established boundaries or understanding that currently exist within Tinto's Student Integration Model. Simply mentioned, this study aims to achieve this objective of extending the boundaries within Tinto's Student Integration Model by bringing in, constructs such as cognitive preparedness, lived academic experience and academic trust. It is acknowledged that, these contexts, while often implied in most studies that looks into the very process of academic transition seems to be not being truly investigated in depth. They remain under theorized in relation to attrition risk and academic performance in an evolving paradigm shift that is currently taking place in Malaysia. The very subtle relationship between, these contexts, could be holding some unknown information pertaining to the subject matter while remain underrecognized in relation to attrition and persistence. However, the very intent or process of understanding these unknown dynamics is truly important when, any education institutions are creatively engaged in creating effective strategies to significantly reduce student attrition and enable a strong support system to the increasingly diversified learner populations in Malaysia. As only by thoroughly examining these under-theorized contexts, researchers can identify the exact role that the above-mentioned context contribute to student attrition which will ultimately lead to appropriate educational ecosystem which is inclusive while addressing the needs of all learners.

At the same time, it is not denied that grade performance and the level of interactions at the faculty level have traditionally been seen as the dominant variable besides many others as the most common predictor among most student retention studies (Malau Aduli et al., 2011). It is not denied that they do play a very vital role in exhibiting the overall academic engagement of the student as some may argue of them being the most fundamental context that significantly influence student attrition. However, to strongly believe that these are the only predictors or context that usually, attrition rate is strongly linked with seems to be a view that is holistically conceived. Clearly, this demands that, we do take a more holistic approach that is the willingness to accommodate the possibility that students' cognitive alignment with higher-order, lived academic experience and academic trust which are poorly studied, are explored thoroughly to see if the all these contexts are truly having an impact on student attrition. Thus, in this study, cognitive preparedness, lived academic experience and academic trust is understood as a latent but influential component of academic integration, particularly for

international students whose prior educational systems may not have adequately equipped them for the academic demands of a medical training in Malaysia. Thus, this study aims to narrow the gap in the Tinto's framework by investigating the contribution of cognitive preparedness, lived academic experience and academic trust.

The second significance is, the study aims to fill a critical gap in the type of studies that have been done in and around this subject matter. Most of the studies done in Malaysia are not investigating the above-mentioned context in any of the educational institutions in Malaysia soil (Wong & Abdul Kadir, 2017). Moreover, the nature of the studies is truly lacking in the form of experiential depth in this specific subject matter. In Malaysia's private higher education landscape, where a significant number of international students are enrolled into medicine, there is significant lack in qualitative research on their academic integration and decision-making. While previous studies have undoubtedly examined comprehensively, the relationship between stress and psychological wellbeing among medical trainees in Malaysia (Ismail et al., 2020), but based on literature search, very few have attempted to explore cognitive preparedness, lived academic experience and academic trust to the attrition risk among international medical students in Malaysia. Moreover, the focus on international medical students, particularly during among those who have failed 3 and more modules and still able to go through the program, offers a new way to capture the interplay between connected cognitive preparedness, lived academic experience, academic trust, and attrition. Thus, this study at the core level has the capacity to address a broader gap in global literature, where most retention-focused inquiries are based on quantitative metrics over experiential depth (Abd Malek & Ahmad, 2023).

10. Conclusion

The increasing academic failure among international medical students in private institutions in Malaysia need critical attention. The background and rationale that were put forward expressed the urgency of investigating both the observable academic challenges and the less-explored context such as cognitive preparedness, lived academic experience, academic trust in a Malaysian academic ecosystem. These context as mentioned above are part of the problem statement that are being investigated under this proposal. It is hoped that, with issues at hand coupled with Tinto's Student Integration Model, a comprehensive investigation could be carried out.

In conclusion, with the new information gained, attrition risk among international medical students could be understood and handled more effectively. The beneficial impact could be made relevant not only at the fundamental level but also at the policy making and at the implementation level, which are all part of the education system. Finally, with this, all the information and steps taken according to the findings will surely guide Malaysia to be recognised as an international education hub as it set itself to be.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this study.

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