


# Exploring The Academic Motivation of Malaysian and Chinese University Students: A Dual-Theoretical Analysis based on Self- Determination and Cognitive Perspectives

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**Abstract.** In examination-oriented university systems in China and Malaysia, what drives undergraduates to pursue high achievement, and how do intrinsic and extrinsic motives shape their learning behaviors? Addressing this question, we integrate Self-Determination Theory with cognitive perspectives (expectancy-value and attribution). We collected semi-structured interviews with 25 undergraduates using purposive sampling across institutions, majors, genders, and years of study. Responses were analysed using thematic analysis to code and classify emergent themes. Findings show motivation as a negotiated mix of internal desires (curiosity, competence, autonomy) and external

pressures (parental expectations, grades, scholarships, and instructor recognition). Six recurrent configurations emerged: (1) achievement as self-worth and future pathway; (2) teacher feedback and classroom climate; (3) peer comparison and support; (4) curiosity-driven exploration; (5) effort-based attributions; and (6) self-regulation in the absence of feedback. Timely, effort-focused feedback and utility value, sustaining strategy use and persistence. Conversely, missing or vague feedback dampened engagement unless students had established self-regulatory routines. Extrinsic demands were more readily internalised when autonomy and competence were supported. Theoretically, we outline an SDT × Cognitive process account linking need satisfaction to expectancies, task values, and attributions that, in turn, guide strategy use and persistence. Practically, the study recommends autonomy-supportive teaching with regular low-stakes formative feedback, visible task utility, limited choice within assignments, and explicit training in self-regulation. These implications inform student-centred reforms aligned with Sustainable Development Goal 4 to improve education quality.

**Keywords :** student motivation; Self-Determination Theory; expectancy-value; intrinsic and extrinsic motivation; higher education; China; Malaysia; SDG 4

## 1. Introduction

### 1.1 Background

Student motivation underpins persistence, strategy use, and achievement in higher education. In testing-heavy nations such as China and Malaysia, motivation is influenced by the pressure of certification and family expectations, as well as how learning environments present relevant tasks and offer prompt feedback. Beyond structural factors, implementation is crucial. Educational technologies tend to increase engagement and higher order thinking when they are thoughtfully aligned with pedagogy and supported by faculty development.

Effects vary by tool, context, and integration. Complementing this, evidence from self-efficacy research highlights four sources through which individuals judge their capability: En-active mastery, vicarious experiences, social persuasion (i.e., credible feedback), and affective/physiological states. Learned mastery is typically the most powerful, and negative or lack of feedback reduces feelings of efficacy more than positive reinforcement (Ghaleb, 2024; Gebresilase et al., 2025). The current study, within this context, examines two key questions in relation to student motivation in China and Malaysia: (a) what drives undergraduates to

pursue academic excellence, and (b) how intrinsic and extrinsic drivers translate into learning behaviors, examined through an integrated lens that combines SDT with cognitive perspectives (expectancy–value and attribution).

## **1.2 Research Objectives**

RO1: To examine the determinants that encourage university students from China and Malaysia to perform outstandingly well in their academics.

RO2: To explore how intrinsic and extrinsic motivations affect learning behaviors for the students.

## **2. Literature Review & Theoretical underpinning**

### **2.1 Literature Review**

Motivation for students has become an important determinant for success, persistence, and the quality of learning (Sharafi, 2024). Motivation has traditionally been divided into two forms: intrinsic, (interest, curiosity, or joy) and extrinsic, (grade, reward, or recognition) both having enormous impacts on learning behaviors and educational outcomes for learners (Ryan & Deci, 2024). Among learners in various learning institutions, highly motivated learners remain more willing to invest time, effort, and swing effectively to demonstrate greater educational aptitudes (Urhahne & Wijnia,2023).

For example, learning achievement in societies where educational achievement is given greater significance, such as China and Malaysia, achieving top marks not only boosts the learner’s achievement, knowledge, or confidence, it also satisfies the learner’s family and societal expectations (Lee & Mendoza,2025; Zhang, 2022). Therefore, the learner finds it difficult to distinguish clearly whether his/her learning achievement is motivated by internal or external factors (internal for joy, fun, and interest, versus external for recognition, grade, etc.), given that it comes from both (Le & Pham,2025).

Though aspiration plays a crucial role for individuals, the learning environment can sometimes prove to be both a facilitator and a hindrance (Schweder & Raufelder, 2024). An effective class environment that is marked by mutual respect, emotional support, and free communication has been found to further boost learners’ motivation to study, particularly within critical learning settings and tough subjects (Zhou et al., 2022). The pedagogy has also played a crucial role, and constructive comments along with appropriate praise can bring about both internal and external motivations (Gan et al., 2021).

When learners are encouraged for their endeavors, instead of for their innate attributes, learners tend to feel a sense of competence and are more prone to continue learning (Zhao & Baharom, 2023). However, in circumstances that lack

comments, recognition, or emotional support, learners' belief in their competence can fall, leading them to cease learning, regardless of how motivated they were initially (Wang & Wang, 2024).

Going beyond the confines of the learning environment, the social surroundings, especially classmates and family, also play an important role in learning motivation (Skinner et al., 2022). Current research illustrates that parental expectations and competition from peers occupy the first place in the value system for both China and Malaysian societies (Chen et al., 2024). However, it is important to note that, although stressful, anxiety can also act as a strong learning motivator (Gebauer et al., 2023). The critical issue, rather, is that learners are not passive responders, but depend on their learning objectives and belief systems, actively processing and accepting, or merely dismissing, their stimuli inputs (Nieminen et al., 2023).

## **2.2 Theoretical Underpinning**

Contextual and social drivers do not act alone, but operate through a linked, step-by-step process. In this process, "need satisfaction" (autonomy, competence, relatedness) shapes cognitive appraisals (expectancy, task value, attribution), while, at the same time, being influenced in return by these appraisals. This study therefore treats SDT and cognitive perspectives as interlocking mechanisms rather than separate lists of factors.

To create a more comprehensive paradigm for grasping the concept of motivation, it will depend on the frameworks offered by Self-Determination Theory and Cognitive Theories. According to SDT, autonomy, competence, and relatedness are the three psychological requirements for fully controlling and comprehending human motivations (Ryan and Deci, 2024). Student autonomy, competence, and opportunities for relatedness will encourage them to earn intrinsic motivations (Robinson, 2022). Conversely, a lack of autonomy, competence, and relatedness could result from China's strict educational system, requirements, and hierarchical learning environment, perpetuating figures-of-authority motivations in universities in China and Malaysian universities (Ji, 2023).

Additionally, Cognitive Theories, in connection with expectancy and attribution, also contribute significantly to comprehending the psychological processing process by adapting to learning behaviors (Gladstone, et al., 2022). This implies that when pupils regard an effort-based achievement, it will encourage them to plan strategies for achieving the same goals and continue learning, irrespective of situations (Muenks, and Yan, 2022). Conversely, when pupils regard failure from the perspective that their intelligence is low, it will contribute to them feeling isolated (Eccles, and Wigfield, 2023). Feedback has also added significance for

pupils when it comes to belief system construction (Tam, 2025). Recently, it was found that, through a study by Lee and Mendoza (2025) that, for people from Asian cultures, effort and aptitudes were more beneficial efforts for undergraduates to continuously perform tasks for praise.

### **2.3 Research Gaps and the Present Study**

Despite the existence of extensive literature related to student motivation, there are several important limitations that remain unexplored. The existing literature has relied largely on quantitative research, particularly using the technique of surveys through the Likert scale, that tends to neglect the complexity, intensity, and cultural nuances associated with the motivational experiences of the students (Zhao, 2024). Notably, there is a lack of comprehensive qualitative inquiry that focuses on how the students themselves perceive their learning motivation, and how the concept of educational success and failure is defined by them.

Additionally, the existing literature has traditionally remained dominated by Western educational settings, without considerable exploration related to its Asian counterparts, particularly China and Malaysia, where student motivation is determined by a set of distinctive factors. Such factors include highly competitive educational tests, Confucian values, collectivist familial norms, and institutional hierarchy, deserving sincere exploration (Bai et al., 2021).

Secondly, there is also a critical gap in the level of integration offered by major theoretical perspectives. Although there has been considerable use of Self-Determination Theory (SDT) in exploring the different types and sources of motivations (Ryan & Deci, 2024) and Cognitive perspectives in exploring how process motivations are translated into learning behaviors and strategies (Pakpahan & Saragih, 2022), there has not been much use of both theoretical perspectives simultaneously.

This limited use of dual theoretical perspectives has limited our comprehension of how different motivations function simultaneously and dynamically. Moreover, there has also not been any consideration for how diminished motivations can arise from negative factors such as negative feedback, lack of recognition, and failure in academia. This study will, therefore, fill the gap by exploring and proposing a SDT×Cognitive process model that can apply specifically to the examination-intensive settings found in Asia.

Such gaps in the existing literature also hold important implications for educational policies and practice. The United Nations' Sustainable Development Goal 4 (SDG 4) states the importance “to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (Adipat &

Chotikapanich, 2022). To fulfill it, there is a need to look beyond the issue of learning structure and access, to instead explore psychological engagement and well-being for the learners (Alcántara-Rubio et al., 2022). The importance given to “student-centered,” “Quality-Oriented,” learning has significantly received prominence in the mainstream educational policies and programs in both China and Malaysia. However, empirically, little is understood. The way learners, from various educational and different cultural contexts, perceive, process, and struggle through learning motivation and behavior has yet to become fully clear.

Failing that, educational policies risk, instead, becoming empty words that lack actual practice, merely becoming superficial formality instead. To address the existing void, the proposed study, through its twin theoretic framework encompassed by SDT, along with its cognitive orientation, specifically aims to explore how university learners from both China and Malaysia perceive learning motivation and behavior.

### 3. Methodology

#### 3.1 Sampling and Participants

Using purposive sampling, 25 undergraduates were recruited from multiple universities in Malaysia and China. Participants were selected based on their full-time study status and willingness to participate in semi-structured interviews. To include as many different student voices as possible, the sample covered different disciplines, gender identities, and years of study. Table 1 summarizes participant characteristics.

**Table 1: Demographic and professional details of study participant**

Participants	Country of origin	Gender	Major	Age
P1	China	Male	Mechanical Engineering	18
P2	Malaysia	Female	Psychology	19
P3	China	Male	Business Administration	21
P4	Malaysia	Female	Software Engineering	22
P5	China	Male	Education	24
P6	China	Female	Law	19
P7	Malaysia	Male	Graphic Design	20
P8	China	Male	Computer Science	18

P9	Malaysia	Female	Environmental Science	18
P10	China	Female	Finance	20
P11	China	Male	Psychology	21
P12	Malaysia	Male	Education	19
P13	China	Male	Mechanical Engineering	20
P14	Malaysia	Male	Marketing	18
P15	China	Female	Chemistry	20
P16	China	Female	Finance	19
P17	Malaysia	Female	Environmental Science	19
P18	China	Male	Civil Engineering	19
P19	Malaysia	Male	Software Engineering	21
P20	China	Female	International Relations	18
P21	China	Female	Psychology	19
P22	Malaysia	Male	Biomedical Science	19
P23	China	Female	Architecture	20
P24	Malaysia	Female	Accounting	18
P25	China	Male	Mechanical Engineering	20

### 3.2 Research Instruments

The study developed a semi-structured interview guide on the basis of two research aims. Content validation was undertaken via expert review by two scholars in educational psychology and a small pilot and cognitive interview with three students. Consequently, the wording and the order of questions were refined on the basis of feedback so that the expression would be clearer and better aligned with the cultural context as per Table 2:

**Table 2: Research objectives and corresponding interview questions**

Research Objective	Interview Questions
RO1: Explore the factors that motivate students to achieve excellent academic results	<ul style="list-style-type: none"> <li>▶ What course are you studying?</li> <li>▶ Why are you studying this course?</li> <li>▶ Is it important for you to get good grades in the exam? Why?</li> <li>▶ What motivates you to achieve excellent results in your studies?</li> <li>▶ Who is your biggest motivation?</li> <li>▶ What influence do teachers, classmates, and the classroom environment have on you?</li> <li>▶ When you succeed or fail in your studies, what do you think is the reason?</li> </ul>
RO2: Explore the impact of intrinsic and extrinsic motivation on student learning	<ul style="list-style-type: none"> <li>▶ What reasons motivate you to study hard? Why?</li> <li>▶ Do you study spontaneously due to curiosity or interest in the subject? Please provide examples.</li> <li>▶ Does receiving good grades or teacher praise increase your motivation? Why?</li> <li>▶ When there is no feedback, do you still maintain your motivation? Why?</li> <li>▶ What situations best stimulate your enthusiasm for learning? Why?</li> <li>▶ Reflect on a time when you studied particularly hard. What was your motivation?</li> </ul>

### 3.3 Data Collection Procedure

Data were collected via online interviews which lasted around 40 minutes each. Before each interview, the research purpose and procedures were explained to participants was obtained. Interviews were transcribed and translated. The study used thematic analysis to code and classify the data around emergent themes related to motivation and learning outcomes (Squires, 2023). Microsoft Excel was used to manually create and arrange the themes, coding and grouping data segments based on new trends. As an additional analytical tool, ChatGPT was used to cross-check and validate the detected themes in order to improve dependability and validate thematic consistency.

### 3.4 Confidentiality and Ethical Considerations

Ethical approval was obtained from the affiliated academic institution. All participants were informed of their rights, including the right to withdraw at any

stage. To protect their privacy, pseudonyms were used in all transcripts and analyses. The recorded data and transcripts were securely stored and used solely for academic purposes. Participation was voluntary, and no incentives were offered.

#### 4. Results

Six themes emerged from the interviews and are reported below using participants' words as primary evidence. The results focus on what students said and how they described their experiences; theoretical interpretation is reserved for the Discussion. Quotes are labelled with participant IDs.

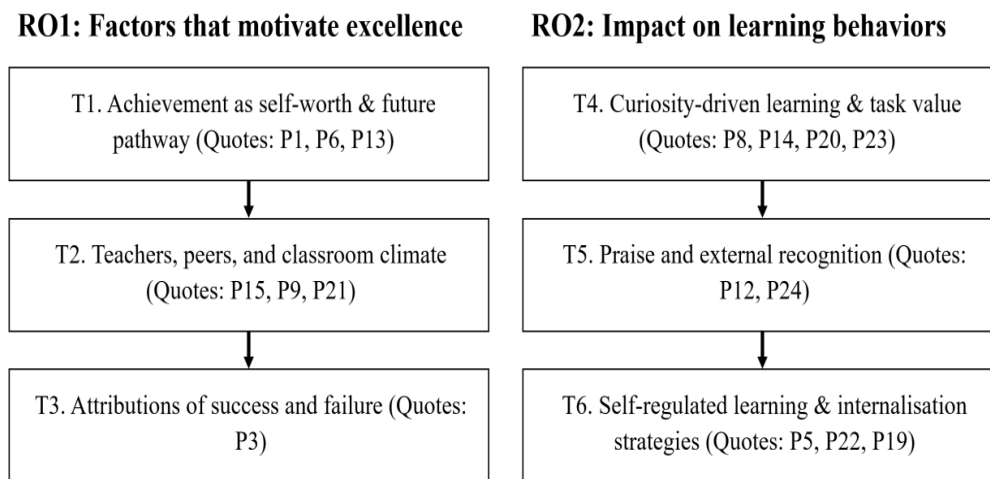


Figure 1: Results theme map (six themes derived from 25 interviews)

#### 4.1 Factors that motivate students to achieve excellent results

##### 4.1.1 Academic Achievement as Self-Worth and Future Pathway

Students generally believe that achieving excellent results is not just task completion but evidence of competence, self-worth, and future opportunity. or many, "good grades" intertwine with self-identity, family expectations, and social recognition. Respondent 1 said: "*When I get a high score, I not only feel that it is a proof of my knowledge, but also a reflection that my efforts have not been in vain.*" The sense of achievement and recognition brought by grades have become the internal motivation for students to continue to invest in learning.

At the same time, many students mentioned that their motivation initially came from family expectations. Respondent 6 said: "*My parents did not go to college, and they think I must change my destiny through studying.*" Although this family motivation is external at first, it is often internalized as a personal goal in the long run. In the context of Asian culture, family expectations are considered to be one of the main external factors that drive Chinese students to form high academic motivation (Ng & Li, 2025; Yim, 2022).

Some students also directly link grades with future development, especially in the context of fierce competition for further studies or job hunting. Respondent 13 said : *"I want to apply for graduate studies abroad, and only if I have good grades can I get a recommendation letter."* This type of goal-oriented motivation structure shows that students highly link learning outcomes with life paths, which is consistent with Alamer and Lee's (2024) research findings on "internalization of external goal motivation."

#### 4.1.2 *The Role of Teachers, Peers, and Classroom Climate*

Teacher-student relationships and classroom atmosphere were frequently mentioned in the interviews, especially in terms of strengthening learning motivation and maintaining a positive attitude. Many respondents pointed out that the teacher's recognition and timely feedback are one of the sources of their persistence. Respondent 15 recalled: *"Last semester, the teacher praised the experimental plan I designed in front of the whole class. That time I really wanted to continue to explore this topic."*

Related studies have shown that teachers' positive feedback helps stimulate students' sense of self-efficacy and willingness to participate (Gale et al., 2021; Sökmen, 2021). Students also said that active competition or learning examples among peers can indirectly increase their level of involvement. Respondent 9 said: *"I didn't like to speak before, but later I saw that some classmates always dared to express themselves, and the teacher also encouraged me, so I slowly tried to participate."* However, some students pointed out that the implicit pressure among peers may bring anxiety or even "involution". Respondent 21 said : *"Many people around me are taking exams and doing internships. If I don't study hard, I will be marginalized."*

#### 4.1.3 *Attribution of Success and Failure*

When talking about the attribution of academic success or failure, most students attributed "success" to early planning, continuous efforts and interest, while "failure" was often attributed to poor time management, mood swings, or emotional stress. Respondent 3 pointed out: *"Every time I start preparing for the exam a week or two in advance, my grades will not be bad. I know it's not luck, but the arrangement that determines the result."* This type of attribution is in line with the research direction in Cognitive perspectives on how students adjust their learning behavior by controlling factors (such as effort) (Pakpahan & Saragih, 2022).

## 4.2 **Impact of intrinsic and extrinsic motivation on learning behavior**

### 4.2.1 *Curiosity-Driven Learning and Task Value*

Intrinsic motivation was evident across interviews. The vast majority of respondents were able to clearly describe the situation of active learning driven

by curiosity or interest and pointed out that this type of learning often inspires more concentration and deep involvement than course tasks. Respondent 8 shared: *"After I saw a data analysis video on Bilibili, I started to learn Python by myself and finished three modules in a week."* Respondent 14 mentioned: *"I am particularly interested in advertising psychology. I once read a behavioral economics textbook by myself and wrote reading notes."* These descriptions confirm Ryan and Deci's (2024) view that "curiosity-driven autonomous behavior is the core manifestation of intrinsic motivation" and support Howard and Bureau's (2021) research conclusion that high self-determination motivation promotes deep learning.

In addition, students' enthusiasm for learning is often greatly stimulated in authentic tasks with visible outcomes. Respondent 20 shared: *"I participated in the Model United Nations and for the first time truly experienced how book knowledge can be used in real life. That feeling was so unstoppable."* Respondent 23 said: *"When I saw the architectural drawings I drew being presented to the whole class by the teacher, I felt for the first time that learning was really valuable."* Perceived challenge and utility are central EVT variables (Eccles & Wigfield, 2024; Lazarides et al., 2021).

#### 4.2.2 Praise and External Recognition as Motivational Drivers

Although intrinsic motivation occupies an important position, extrinsic motivation still plays an important role in students' learning behavior. Most students said that "grades" and "being praised" are core sources of motivation for their continued investment. Respondent 12 recalled: *"Once my grades improved from the bottom to the top ten, the teacher wrote an encouragement card, I posted it in front of the table, and I didn't dare to slack off when I looked at it every day."*

Respondent 24 also pointed out: *"When I got the first place in my major, my parents hung a certificate directly at home. That feeling was really stronger than my own happiness."* This kind of feedback mechanism strengthens students' sense of achievement and motivation to continue to invest. Studies have shown that praise significantly enhances learning motivation when it is linked to effort rather than ability (Fong & Schallert, 2023; Kakinuma et al., 2022).

#### 4.2.3 Self-Regulated Learning and Internalization Strategies

However, in the absence of external feedback, the some students' motivation declines. Respondent 5 pointed out: *"The teacher assigns homework but does not comment on it. I slowly began to feel that it doesn't matter whether I write it or not."* Some students also feel uncertain and their motivation fluctuates due to the lack of feedback. However, some students show strong self-regulation ability and can maintain their learning rhythm through internalization.

Respondent 22 said: *"If the teacher does not comment, I will ask classmates to comment on each other or give myself a score."* Respondent 19 added: *"I set a plan of 'completing 3 small learning goals per week', and I will reward a cup of milk tea when I complete it."* This is highly consistent with the metacognitive regulation and self-monitoring model proposed by Pakpahan & Saragih (2022), and also reflects the "self-regulated learning (SRL) loop structure" proposed by Artino et al. (2022).

## 5. Discussion

### **RO1: Explore the factors that motivate students to achieve excellent academic results**

The findings from this research indicate that university students in both China and Malaysia are motivated to achieve excellent academic results through a combination of internal and external factors. Internally, excellence in academics has become something that learners strive for in efforts to validate their esteem, competence, and fulfill their personal objectives associated with achievement.

Externally, learners' motivations for learning are particularly driven by social pressures in regard to family, socialization, and institutional imperatives including scholarship, employment, and college. Many participants were quick to indicate that excellence in academics can indicate not only achievement, but also recognition, respect, and future security. For example, *"I need a high GPA for my master's application,"* remarked one learner, *"To perform well is to demonstrate my capability and earn my parents' respect,"* added another.

These results align well with that given by SDT, since, according to Ryan and Deci (2024), if autonomy, competence, and relatedness are satisfied, then motivation will be improved. The significance of educational achievement is significantly tied to family prestige in China and Malaysia, making parental factors become crucial factors for improved motivation through the element of external motivational factors. This perspective also aligns well in terms of past studies carried out in Asian settings, putting strong emphasis on the importance of shared family values for enhancing motivational factors (Ng & Li, 2025; Yim, 2022).

If improved class performance by the teacher is supported by constructive class interaction through effort recognition, then class participation and learning excellence will not only improve but also encourage learners to challenge themselves (Monteiro et al., 2021). As per Rasli et al., (2020), educational reform towards personalized learning and innovative assessments can aim for a holistic education system that motivates learners and equip them for uncertain futures.

### **RO2: Explore the impact of intrinsic and extrinsic motivation on student learning**

Both intrinsic and extrinsic motivations were found to play their parts in encouraging the learning behaviors among university students in both China and Malaysia. Extrinsic motivation can be seen when it comes to enhancing learning behaviors through the factors of achievement, teacher support, scholarship stipulations, and future goals, while intrinsic motivation comes along when it comes to increasing learning behaviors through factors such as curiosity, interest, or a desire for improvement. This contributes to the fulfillment by Ryan and Deci (2024) that intrinsic motivation is superior for engaging learners, whereas extrinsically motivated learners benefit from the structure that education places upon them.

The importance of having either feedback or recognition from the teacher has frequently been highlighted by the participants from both countries to maintain learning motivation. If the effort and progress made by the participants were given recognition or praise, it made them more confident and motivated to continue learning, aligning well with the findings made by Kakinuma et al. (2022) and Fong & Schallert (2023). However, since there was a lack of recognition or feedback, it made participants feel insecure or uncertain about their learning, unlike Pakpahan & Saragih (2022) and Artino et al. (2022) that support the concept of self-directed learning.

Moreover, for participants from both countries, it has also become clear that their learning interest has remained largely triggered by the relevance of learning activities that occur in real-world settings, such as through class discussions, design challenges, internships, and simulation learning, making abstract learning related to the participants' reality, and its implications enhance learning motivation and knowledge reduction, aligning well with the findings made by Lazarides et al. (2021) and Wigfield and Eccles (2024).

## **6. Conclusion and key takeaways**

The objectives of the proposed study are to examine the motivations that drive Chinese and Malaysian university students towards achieving educational success, and how both intrinsic and extrinsic motivations can affect their educational behaviors. The study will examine the experiences, perspectives, and behaviors of university students when confronted with different motivational factors in their educational settings.

The implications from the findings indicate that the factors that underpin the motivation process for learning in students are complex, fluctuating, and include factors such as the desire for achievement, parental and societal pressures, future goals, and recognition. Motivation can change from time to time and can range

from different types, and it can also change from externally directed to internal-directed regulation when support is either lacking or diminished.

This paper has three crucial takeaway points. Firstly, motivation for studying in academia is complex and culturally grounded, and it cannot be analyzed using either internal or external perspectives. Secondly, learning in class impacts learning and motivations in class directly. Thirdly, for improved learning, there is a need for a learning environment that can provide goals for learning, as well as goals for motivations, tasks, and progress. The motivations for learning by students are critical for fostering learning success for the learners in the future.

## **7. Limitation and Future Research**

### **7.1 Limitations and Validation of Findings**

This study is grounded in the analysis of semi-structured interviews carried out among 25 undergraduate students from selected universities in both China and Malaysia. Despite the emphasis placed upon trying to include participants from a broad spectrum of disciplines and different institutions, the sample size, scope, and geographical location could pose restrictions to the scope and universality of the results obtained for the whole range of disciplines, geographical location, and the structure of higher education in both China and Malaysia. Additionally, it also requires recognition that pupils could tend to downsize understatements for negative learning experiences, lack of motivation, or feeling depressed by social pressures and avoiding the revelation of their personal problems during the process of face-to-face interviews.

Despite the aforementioned constraints, the depth obtained in the exploratory study along with its thematic coherence possesses superior internal validity. The first-hand account obtained from pupils belonging to different disciplines, varying levels, and enrolling in undergraduate courses possesses an innate richness, offering a comprehensive sight for the interaction existing amongst various factors affecting motivations. The confluence existing amongst pupils' inherent curiosities for learning, externally driven pressure for achieving goals, from receiving 'praise' from mentors to using "self-regulatory strategies," enhances the reliability for arriving at conclusions.

### **7.2 Recommendations for Future Research**

Therefore, future studies could benefit from a longitudinal, mixed-method study design that can better examine the process and trajectory of student motivation. Studying motivational patterns during an entire semester/year-long or multi-year curriculum will enable researchers to examine the impacts of particular learning settings, rounds of formative feedback, and various experiences on both brief and longer-term periods. The integration of both qualitative methods, such

as interviews, and regular surveys, class observations, and learning analytics will enable a more holistic view for better understanding the motivational trends for learners.

Future studies should also include participants from a wider range of learning settings, including community colleges, and top-tier universities. Additionally, consideration for the perspectives from professors, educational advisors, or, interestingly, family professionals could lead to greater knowledge for the comprehensive “motivation ecosystem”. Finally, future experimental study work can help examine strategies that include both autonomy-supportive educational methods, formative educational feedback, and training strategies for improved self-regulatory learning behavior that could also examine the impacts for increasing learner engagement, motivation, for learning settings in both Malaysia and China.

### Gen-AI Tools Declaration

ChatGPT (OpenAI, 2025) was to confirm that manually generated themes were consistent and clear. The researchers performed all coding, analysis, and interpretations.

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