Academic self-formation through problem-based learning: A case study of Chinese undergraduate students' participation in the *Dachuang* programme

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Abstract

Higher education as student self-formation as an emerging paradigm brings student agency back into people's focus. As the context of higher education is distinctive by its academic nature, Lee puts forward the concept of academic self-formation, highlighting students' active knowledge engagement. Although this paradigm has received wide attention from the discipline, the conceptual framework requires examination and evaluation through empirical inquiries. Motivated by the connections between problem-based learning (PBL) and academic self-formation, the research gap identified in the relevant literature, and personal experiences in the *Dachuang* programme, the author aims to investigate students' academic self-formation through PBL based on the case study of Chinese undergraduate students' *Dachuang* experience. The research question of this study is: how do students engage in academic self-formation through PBL? Based on Lee's study, this study developed a new conceptual framework characterising an interplay of reflexive agency and epistemic agency within the mechanism. The cycle of academic self-formation involves condition, mechanism, and product. Three components comprise the three sub-research questions: (a) what is the condition for academic self-formation, (b) what is the mechanism of academic self-formation, and (c) what is the product of academic self-formation.

Based on individual semi-structured interviews with 20 Chinese students who had *Dachuang* experience during their undergraduate years at a chosen Chinese university, the study demonstrates that students are active agents in academic self-formation through PBL, engaging in a continuous interplay of reflexive agency and epistemic agency when interacting with external structures and social relationships. The mechanism is primarily embedded in Chinese traditional learning-teaching culture and reflects the pedagogical characteristics of PBL and institutional features. In the context of *Dachuang*, the evolving agency of Chinese undergraduate students remarks a transition from conditioned reflexivity and epistemic agency to increasingly transformative reflexivity and epistemic diversity and openness. Academic self-

formation is highly individualised by factors such as major subjects, phases of university study, team roles, previous learning experiences, and participation in other activities intersecting with higher education. The empirical evidence of this study refines Lee's conceptual framework and includes condition, mechanism, and product as three crucial components of the cycle of academic self-formation.

Overall, this study contributes to the empirical and conceptual development of the paradigm of student self-formation. Within this paradigm, the findings also have practical implications for the organisation of *Dachuang*. In addition, the interplay model of reflexive agency and epistemic agency enhances the explanatory power of the paradigm by enriching the perspective and contents in the agency-structure debate. Recognising the evolvement of epistemic agency offers new perspectives to interpret students' interactions with external structures and social relationships through knowledge engagement. The specific scope of PBL allows the study to capture the other sites intersecting higher education beyond the common-sense educational discourse.

Key words: academic self-formation, PBL, *Dachuang*, higher education

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Chapter 1. Introduction

This chapter introduces the context, objectives, research questions and the outline of this study.

1.1 Context of the study

This section defines and introduces the backgrounds of the key terms: self-formation, academic self-formation, problem-based learning (PBL) and the *Dachuang* programme, and then details my motivation for this study.

1.1.1 Self-formation and academic self-formation

Student self-formation by Marginson (2014, 2023a, 2023b) has been emerging as a paradigm to address the contribution of higher education. By definition, self-formation is a reflexive process that 'establishes or deepens ongoing self-making, grounded in self-aware agency' (Marginson, 2023a, p. 62). This paradigm challenges the prescription of students as deficient objects and emphasises students' agency (see Archer, 1995, 2003) in directing their learning journey in higher education (Lee, 2021; Lipura & Collins, 2020; Marginson, 2014).

In order to address the central role of knowledge in the discussion of higher education (Ashwin, 2020), Lee (2021, 2024a, 2024b) brings up the concept of student academic self-formation, explicitly focusing on students' self-formation through knowledge engagement. Based on Korean students' academic experience in higher education, Lee (2024b) summarises different aspects of reflexivity (e.g., effort, self-criticism, and active conformity) that carry Korean cultural features. Further, she puts forward the conceptual framework that involves 'the process and outcome of the agency-structure interaction mediated by students' evolving disciplinary reflexivity' (p, 110). Addressing the formation of the disciplinary agency, Lee (2024a) argues that students' self-reflection and understanding of the world are shaped by how their academic discipline encourages them to think and act. However, academic self-formation does not only happen through disciplinary learning. Engagement with non-disciplinary knowledge in

informal educational settings (e.g., extraarticular activities and interaction with faculties and other students; Bílik, 2022). As such, Lee's findings can be complemented by researching students' experiences in informal educational settings and their engagement with other types of knowledge.

Besides, the mechanism of student academic self-formation is highly contextualised and specifically culture-oriented (Lee, 2024b), the same as self-formation in general (Östling, 2018; Yang, 2014). Drawing on the Confucian philosophy of *Xiushen* (self-cultivation), Yang (2022) argues that self-formation flourishes when a state of harmony exists between personal autonomy and the external environment. Yang's argument is echoed by empirical research on Chinese students' academic self-formation through cross-national learning experiences, where students tend to adapt to the external environment that is more evidently distinct from traditional Chinese learning philosophy (Xu, 2018; Yang, 2014; Yu, 2021). Thus, it is worth investigating Chinese students' experience in PBL, whose underlying philosophy does not originate from Chinese culture, to add more comprehensive and nuanced insights into conceptualising student academic self-formation.

1.1.2 PBL and *Dachuang*

In recent decades, Chinese higher education has been undergoing an education reform that calls for a change from a rigid, fixed curriculum and didactic pedagogy to a more flexible and student-centred pedagogy. PBL is increasingly popular among multiple sections of Chinese higher education, spanning formal and informal settings, in-class teaching and extracurricular activities. Many Chinese universities now implement PBL as a teaching method, either as a sole approach or to complement lecture-based teaching in disciplines such as medicine, fine arts, humanities, and natural and social sciences (Huang et al., 2013; Qu & Chu, 2023; Walker et al., 1996).

A notable example of PBL in informal education is the Innovation and Entrepreneurship Training Programme for College Students in China, known as the

Dachuang programme, which was sponsored by the Ministry of Education and implemented by universities. Since 2007, the *Dachuang* programme has been increasingly prevalent across multiple layers of higher education institutions, involving top-tier universities in China[1] (Jiang et al., 2021; Tan, 2018) and a few Sino-foreign cooperative educational institutions (Duke Kunshan University, 2024). Student *Dachuang* projects are research, practice, and entrepreneurship-based, categorised into different levels (e.g., nation, province/city, institution; Jiang et al., 2021; Qu & Chu, 2023). In 2022, the Ministry of Education approved and sponsored 41,982 student-led projects (MoE of PRC, 2022). According to the Platform for Innovation and Entrepreneurship Training Programme for College Students in China (2022), the programme aims to foster university students' creative thinking and problem-solving skills by encouraging PBL, interdisciplinary collaboration, and mentorship. The programme provides funding and resources to help students develop innovative solutions to real-world problems and showcase their projects.

The implementation process of *Dachuang* follows a pattern similar to PBL but involves distinctive features in its organisation. First, different from the pre-assigned tasks of in-class PBL activities, the *Dachuang* programme starts with on-campus registration and selection. Students form their teams (usually 3-5 students in the same or different majors), propose research projects or business plans, and find mentors. Selected projects are ranked at different levels, such as nation-level, province/city-level, and university-level, which decides the funding and resources that the projects receive. Second, the projects take longer, usually in 1-2 years. Third, as an extracurricular activity, students will not receive punishment for 'bad' assessment results. The assessment involves students presenting their projects to a panel of judges for evaluation. Successful projects may receive continued support through university incubators or external funding to help transition their ideas into more comprehensive

[1]. Top-tier universities in China typically involve Project 985, Project 211, and Double-First-Class universities, which receive concentrated funding and resources from the Chinese government to elevate their global rankings and research capabilities.

research or viable businesses.

Students' learning experiences and outcomes through *Dachuang* are highly individualised. However, previous studies have not approached *Dachuang* as a self-formation process, which leaves a research gap to fill. First, previous studies on *Dachuang* focus more on learning outcomes (esp. academic performance) than students' learning trajectories, neglecting the self-forming process throughout PBL experiences (He et al., 2024; Qi et al., 2021). Second, previous studies mainly adopt quantitative methods and lack a nuanced investigation of *Dachuang*'s impacts on students' individualised development (e.g., Tan, 2018; Zheng et al., 2021). Third, the learning experience of social sciences and humanities (SSH) students in PBL is under-explored, and this is expected to offer significant insights into how these specific disciplines influence students' academic choices and development. As such, it is valuable to approach PBL from the perspective of student-academic self-formation by taking the *Dachuang* programme as a notable case.

1.1.3 Motivation

'Twenty months have flown,
MUN dream now known.
Outcome, perhaps, less grand,
Yet the journey, in my hand.

Challenges met, a heart's unrest,
Distress and despair, a heavy test.
Thoughts of surrender, a fleeting plea,
But teachers, teammates, set me free.

To that brave freshman, I raise a toast,
Doubts now quieted, a path embossed.
Answers found, for now, it seems,
Guiding steps, like moonlit beams.

Though imperfect, this project's arc,
Holds more treasure than a perfect mark.

A journey's end, a new start's call,
Grateful heart, embracing it all.'

(Translation of an excerpt from my reflective journal after completing *Dachuang* project, 2019)

My personal experience in the *Dachuang* programme has inspired me to explore students' academic self-formation through this PBL experience. This started with my passion for Model United Nations (MUN) and the aspiration to explore my potential for academic research. Throughout the project, I encountered many challenges and learned a lot from my supervisor and teammates. Initially, I saw it as a common undergraduate experience – similar to what I had in class. However, even today – five years later – I realise that experience has been always shaping my learning journey, consciously or unconsciously. My teammates shared this feeling, though with subtle differences. Although I am curious about the mechanism underlying the phenomena and its individuality nature, I cannot understand implicitly why it happens, how it happens, and what makes it happen the same and/or differently. These subtle notions and feelings become the starting point of this study.

1.2 Objective of the study

This study aims to address students' experience of academic self-formation with a case study strategy, from the initial condition and the process to the final outcomes. By interviewing 20 Chinese students who had *Dachuang* experience during their undergraduate years at University X, the study aims to investigate how students engage in academic self-formation through PBL. The qualitative methods involve semi-structured interviews and thematic analysis, which contribute to exploring the depth and complexity of students' personal PBL experiences in *Dachuang*. Based on Lee's (2024b) research, the study expects to contribute to the conceptual and empirical development of the paradigm of student academic self-formation. Further, the study intends to examine and elaborate the previous literature on PBL and *Dachuang* from a new perspective and contribute constructive suggestions on the practice of Dachuang, encompassing the organisation and supervision from the aspect of students' learning

experience.

1.3 Research questions

Based on personal motivation and the research gaps identified, this study aims to explore how students engage in academic self-formation through PBL. Borrowing the idea from Lee (2021, 2024a, 2024b), the study develops the conceptual framework of academic self-formation. The research question involves three sub-questions:

- What is the condition for academic self-formation through PBL?
- What is the mechanism of academic self-formation through PBL?
- What is the product of academic self-formation through PBL?

1.4 Outline of the study

This dissertation includes six chapters. Following this introduction, Chapter Two illustrates the conceptual framework of this study, builds the connection between PBL and student academic self-formation, and reviews the previous literature on student academic self-formation, PBL, *Dachuang* programme and relevant literature based on Chinese contexts. Chapter Three illustrates the methodology adopted in this study and the rationale for the choices, involving paradigm and approach, research strategy, research methods, researcher's positionality, rigorousness and trustworthiness, limitations and ethical considerations of this study. Chapter Four reports the research findings, followed by Chapter Five, which discusses the findings in relation to the previous literature. In Chapter Six, the concluding remark encompasses the summary of major findings, contributions of the study, and limitations and implications for future research.

Chapter 2. Literature review

This chapter introduces the conceptual framework, reviews the relevant theoretical and empirical research, and identifies the research gap for this study.

2.1 Higher education as student self-formation

Higher education as student self-formation is an emergent paradigm receiving increasing attention. Defined as a reflexive process that 'establishes or deepens ongoing self-making, grounded in self-aware agency' (Marginson, 2023a, p. 62), this paradigm aligns with the subjectification function of education raised by Biesta (2009), concentrating on how education individualises students to become 'autonomous and independent' subjects (p.41). The self-formation paradigm highlights the university's role in developing students into active self-determining agents (Marginson, 2023b). It challenges human capital theory and the deficit model that focus on how external forces shape students' motivations, trajectories, and learning outcomes but disregard the proactive engagement of students' agency and its impacts on knowledge engagement (Oldac et al., 2023). Thus, the student self-formation paradigm provides a supplementary perspective to existing theories in understanding the contribution and purpose of higher education.

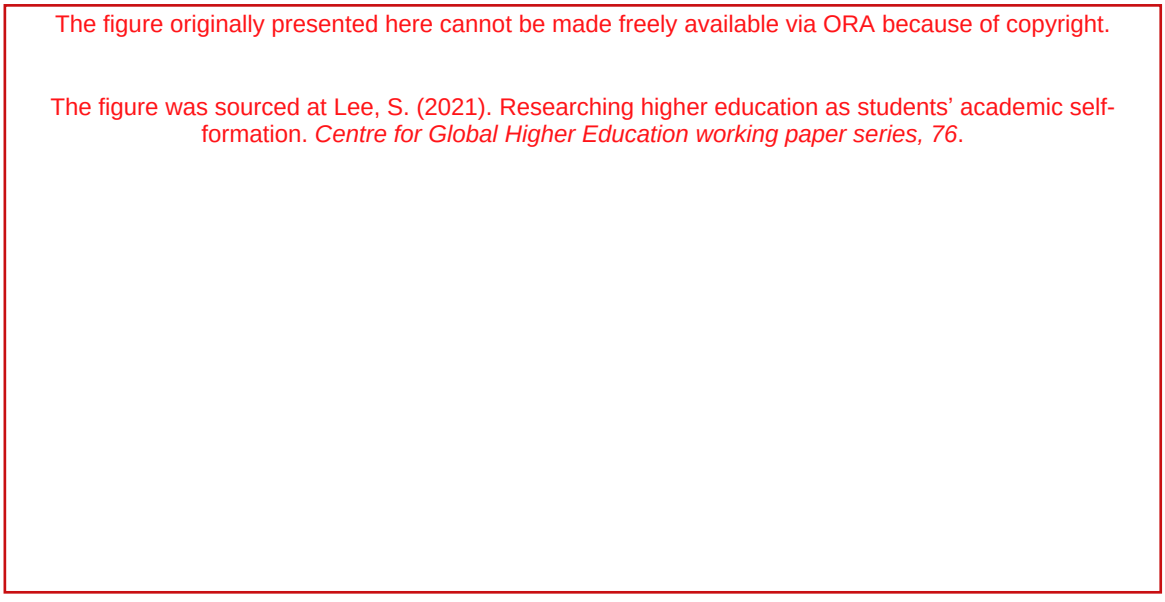
However, self-formation is an emerging concept, and research to date shows a lack of consensus on what this concept includes and excludes (Lee, 2021). Previous literature tends to equate self-formation with any individual transformative (Boni & Calabuig, 2017) and agentic (Kudo et al., 2018) student experiences in higher education. Concepts like self-reflection, self-monitoring, self-regulation, self-determination, self-actualisation, self-authorisation, and self-cultivation are considered significant components of self-formation (Marginson, 2023b; Reyes Viviescas et al., 2019; Ryan & Deci, 2000). The broad array of synonyms and related concepts implicate the comprehensive nature of self-formation. This all-encompassing conceptual breath presents challenges in defining and structuring the paradigm.

Despite challenges in conceptual development, literature on student self-formation has been critiqued for lacking empirical evidence across the broader context of higher education. Most existing literature focuses on international students' experiences because the significant cultural and social transitions in international education tend to

accelerate students' self-formation process (Marginson, 2014). Nevertheless, home countries also carry significant antecedent impacts in the literature on international students' self-formation (Xu, 2018; Yang, 2014), indicating that higher education, in a general sense, should be included in the self-formation discourse. This is supported by Lee (2021), who argues that students also undergo transformations in academic and sociocultural identity and engage in self-formation in higher education in their home countries.

2.2 Academic self-formation as the conceptual framework

Following the increasing emphasis on the role of knowledge in higher education (Ashwin, 2020), Lee (2021, 2024a, 2024b) developed an evidence-based theory specifying student academic self-formation. This study adopts and expands upon Lee's (2021) conceptual framework, which conceptualises student academic self-formation as 'the process and outcome of the agency-structure interaction mediated by students' evolving disciplinary reflexivity' hallmarked by three phases depicted in **Figure 1** (p. 110).



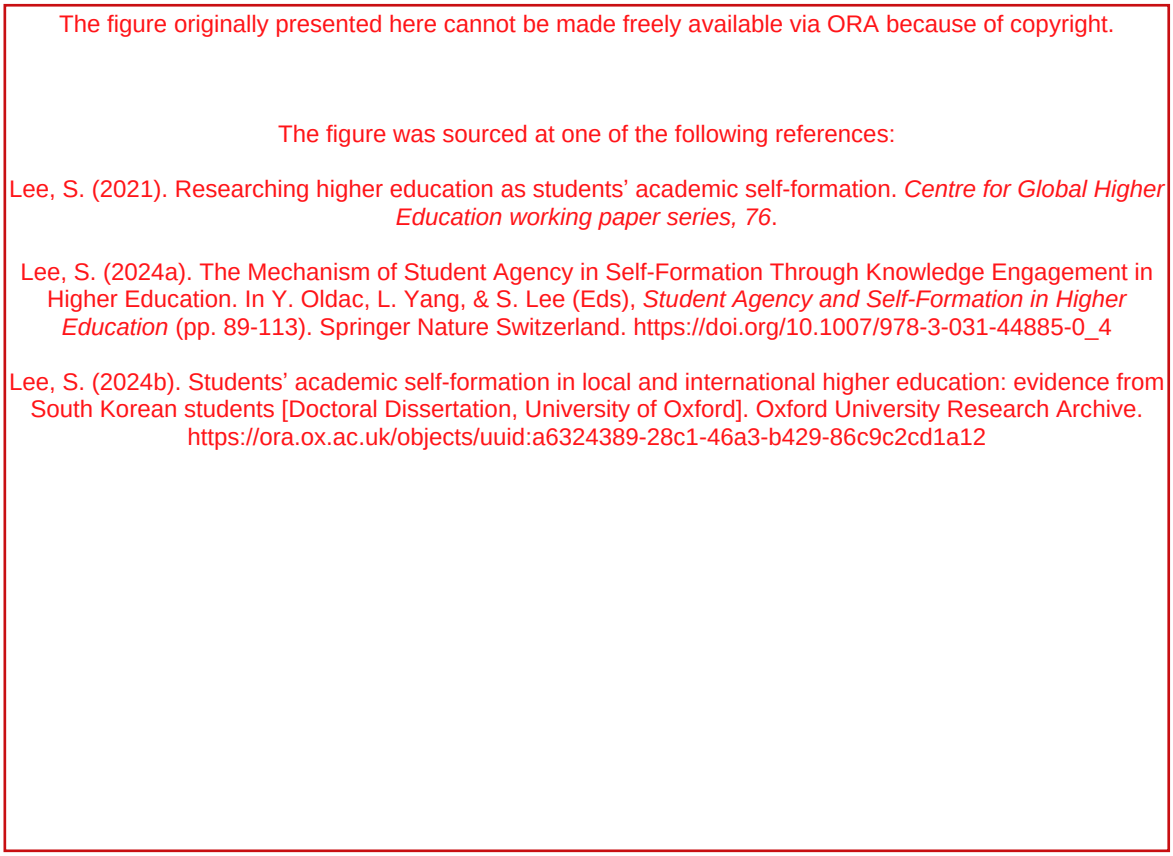
According to Lee (2021, 2024a, 2024b), the condition for academic self-formation is that students are strong agents with reflexivity to guide their motivations and

behaviours. Student agency is enabled and restrained by contextual resources from higher education, such as cultural norms, teaching and assessment methods, and student-teacher relationships. Students are aware of these influences and actively engage in reflexive practices to navigate and transform the educational journey. New self is constantly constructed through reflexive practices between agency and structure. The newfound self and motivations then become the condition for a new cycle of academic self-formation. Throughout the process, students' reflexivity evolves and is (re)shaped by their engagement with academic knowledge, which is also termed as 'disciplinary reflexivity' (Lee, 2024b), epitomises in students' repositioning their perceived self-knowledge-society relationship.

Lee's framework, aligning with Marginson's (2023a, 2023b) conceptualisation of self-formation, places reflexivity as a central component. Reflexivity sets the condition, mediates the transformation process, and ultimately becomes the product of academic self-formation. By introducing the concept of disciplinary reflexivity, Lee (2024b) argues that disciplinary knowledge, produced and shared within specific disciplines, functions as a specialised language that shapes how students perceive the world and their position within. As students utilise this specialised language to communicate to society (external dialogue) and themselves (internal dialogue), disciplinary knowledge mediates the reflexive practices and forms individualised reflexivity.

Based on Lee's (2021, 2024a, 2024b) framework, this study develops another conceptual framework (see **Figure 2**) characterised by the ever-happening interplay between reflexive agency and epistemic agency within the mechanism. This framework incorporates Lee's concept of the condition and product of academic self-formation, and the cyclical nature of the process. Nevertheless, to avoid a linear conceptualisation of 'condition-product', the framework underscores the mechanism of academic self-formation that encompasses the ongoing (re)formation of conditions and products enabled by the interplay of reflexive and epistemic agency. The following sections illustrate two key concepts of the conceptual framework, reflexive agency and

epistemic agency, and discuss the strengths of this framework.



2.2.1 Reflexive agency

As learning academic knowledge requires reflexive awareness, reflexive agency plays a significant role in student academic self-formation. According to Archer (2003), reflexivity is exercised through internal dialogues, through which individuals evaluate, clarify and negotiate their feelings, beliefs, desires, and personal projects. It involves a deep level of self-awareness and the ability to consider one's behaviour and decisions within broader social, cultural, and historical contexts. Reflexivity mediates between structure and agency by activating people's capacity to project actions based on the articulation between personal concerns and structural conditions (Archer, 2003). Academic knowledge can activate reflexive agency by allowing agents to imagine and generate alternative possibilities of actions (Lee, 2024b), making reflexive agency both a means and objective of knowledge engagement.

Reflexivity is socially and culturally formed and thus can be largely individualised.

Archer (2003) distinguishes four modes of engagement in internal dialogues to exercise reflexivity: autonomous reflexivity, communicative reflexivity, meta-reflexivity and fractured reflexivity. Autonomous reflexivity occurs when individuals rely solely on internal dialogues and prefer not to seek external feedback, typically exhibiting strong self-sufficiency and determination. Conversely, communicative reflexivity underscores the supplementary value of external dialogues (e.g., interpersonal exchanges) for the internal ones and occurs when people are unsure about self-resolutions made without external inputs. Meta-reflexivity involves critical examination of internal dialogues in relation to structural contexts, demonstrating evident awareness of self-monitoring and self-evaluation. However, fractured reflexivity may occur and lead to distress and disorientation as internal dialogues fail to provide instrumental guidance on actions.

Four modes of reflexivity reflect varying degrees of reliance on internal dialogues and external exchanges embedded in structure-agency morphosis. The multiplicity of one's positionality in different structural contexts allows these modes of reflexivity to coexist and be exercised simultaneously. However, Archer's interpretation of reflexivity is self-referential, personal shaping of subjectivity as opposed to Bourdieu's understanding of socially structured agency. Archer's conceptualisation in criticised for over-emphasis on the determined role of human agency without considering the unconsciousness of 'habitus', deeply ingrained habits and dispositions that renders agency 'habitual, repetitive, and taken for granted' (Emirbayer & Mische, 1998, p. 963). In particular, fractured reflexivity precisely underscores the relevance of 'habitus' when capability of reflection and decision-making is disrupted (Farrugia & Woodman, 2015).

Reflexivity is not ever stable but fluid. Engagement in higher education is constantly 'making and breaking' different modes of reflexivity over time (Archer, 2012). Archer's empirical research brought about some attributes for the stability and change in the mode of reflexivity, such as 'interpersonal relations', 'career/performative skills', and 'moral causes and issues'. While her work concludes that university experience impacts the stability and fluidity of reflexivity, it lacks a detailed analysis of what

components of higher education enable and/or constrain these shifts. Hence, investigating how students' knowledge engagement influences different modes of reflexivity will shed light on a nuanced understanding of the ever-becoming process of academic self-formation.

2.2.2 Epistemic agency

Epistemic agency refers to agents' capability of agentically engaging in and directing their knowledge-related practices (e.g., knowledge acquisition, knowledge production, and knowledge transmission) to be responsible for their own knowledge advancement (Damşa et al., 2010). Exercising epistemic agency involves two dimensions: what and how knowledge should be learned and generated (Paavola & Hakkarainen, 2005), both reflecting the self-authorship in knowledge engagement.

In broad terms, knowledge refers to the state of being acquainted or familiar with something in explicit and tacit forms (Bolisani et al., 2018; Lehrer, 2018; Nonaka, 2009). Knowledge encompasses the understanding, interpretation, justification and application of information. Different from the common-sense knowledge that people produce or acquire informally in daily lives, academic knowledge is systematically organised and taught within formal education and scholarly study. Academic knowledge applies to what scholars view as 'powerful knowledge'. In the learning process, powerful knowledge 'gives access to better and more reliable explanations of the world and abstract ways of thinking' (Clegg, 2016, p. 459), and thus enables learners to understand and engage with the world in a more profound and transformative way (Annala, 2022; Harland & Wald, 2018; Wheelahan, 2007, 2012).

Disciplinary knowledge, however, sets boundaries around the specific fields and subjects and provides more focused and specialised scopes for understanding and explaining the phenomena (Ashwin et al., 2017). Learning disciplinary knowledge involves identity and epistemic development, with the potential to shape the way learners engage with the knowledge internally (e.g., construction of understanding and

knowing) and externally (e.g., knowledge application in society; Kelly et al., 2008; Young, 2007; Young & Muller, 2013). As such, disciplinary knowledge plays a transformative role in students' negotiation of the self-knowledge-society relationship, as it 'permeates through the condition, resources, and product' of how students develop themselves through higher education (Lee, 2024b, p. 372).

Immersive knowledge engagement underpins knowledge required for supporting/challenging existing beliefs and developing original perspectives, such as critical thinking, data analysis, and developing reasoning (Hughes, 2019), contributing to students' epistemic agency development. These practices involve complex cognitive processes and demand active participation in knowledge creation, which resembles key characteristics of epistemic agency (Damşa et al., 2010; Hughes, 2019). Besides, generic skills, such as communication and time-management, are also important for the effective development of epistemic agency through learning practices. However, to achieve the self-transformative potential of knowledge engagement requires an alignment between students' personal projects and the focused areas of knowledge they engaged in (Ashwin et al., 2014).

In addition, feedback interactions are crucial for developing student epistemic agency in guiding and regulating students' relationship with knowledge (Nieminen & Ketonen, 2023). This can happen directly through conversations, debates, or collaborative projects with teachers and peers or indirectly through tools, books or articles that transmit knowledge. Teacher-student feedback tends to be more discipline-specific (Maton, 2013). Students may experience epistemic injustice if they feel that their learning is overly controlled by teachers and focusing on correcting mistakes and deficits (Nieminen & Lahdenperä, 2024). Peer feedback, particularly in collaborative learning, provides students with a sense of 'knowingness', empowering students to engage and contribute to knowledge production within and beyond the classroom to the ecology of institutions and broader society (Scott & Stanway, 2015; Van Heerden et al., 2017, p. 972)

2.2.3 Interplay of reflexive agency and epistemic agency

The continuous interplay of reflexive agency and epistemic agency constantly (re)shapes students' learning approaches, whether it leads to surface learning that 'happen[s] to them' or deep learning that is intrinsically motivated (Case & Marshall, 2009; Marton & Säljö, 1976; Richardson, 2005, p. 675) Surface learning, though often driven by external factors like rewards or avoiding punishments, is still a result of reflexive practices – a negotiation between the self and external structures and a stepping-stone towards achieving learning goals.

Reflexive and epistemic agency empowers students to actively seek, evaluate, and apply academic knowledge in personally meaningful ways. Reflexivity involves continuous self-examination and critique, which informs and triggers the exercise of epistemic agency - the active engagement in knowledge acquisition, construction, evaluation, and justification (Hughes, 2019). Meanwhile, the process of seeking, evaluating, and applying knowledge constantly shapes and reshapes students' epistemic and reflexive agency. The mutually facilitating interaction of the two fosters adaptive, effective and innovative learners and knowers (Kelly et al., 2008; Lee, 2024b; Young, 2007), perpetuating a cycle of learning and self-discovery. Students' understanding of knowledge and their learning objectives shift over time and across contexts (Ashwin et al., 2024).

The new conceptual framework highlights the interplay of reflexive and epistemic agency within the mechanism of academic self-formation. Based on the previous literature, the new framework is expected to enhance the explanatory power of the paradigm in three ways. First, understanding the role and functioning of epistemic agency in knowledge engagement offers a more comprehensive understanding of what the 'self' thinks of what he/she can do with the knowledge (Hughes, 2019). Second, the interplay of reflexive agency and epistemic agency helps explain students' intentional interpersonal interactions within learning contexts (Nieminen & Ketonen, 2023; Scott

& Stanway, 2015). Third. investigating the mechanism features and the formation of the mechanism contributes to understanding the process and the outcome of agency evolvement (Lee, 2024b).

Besides, this study adopts a broader definition of knowledge beyond a narrow focus on academics, potentially enriching the paradigm by integrating the discussion of academic self-formation with students' holistic development and employability. Disciplinary studies do not make up the whole part of higher education. Extracurricular activities and interaction with teachers and other students expose university students to a broader range of knowledge, such as communicative skills and time management skills that are more transferable, which can also play a mediating role and prepare college students for the changing society (Kezar & Moriarty, 2000; Pascarella & Terenzini, 2005). As such, the paradigm of self-formation has more potential to contribute to the discussion on the purpose and contribution of higher education.

2.3 PBL as student academic self-formation

PBL refers to a learning-teaching process where students learn by solving real-world, ill-structured/ill-defined problems, such as a set of phenomena or cases observable in the real world that requires explanation (e.g., theory) or strategic solutions (Askell-Williams et al., 2007). These problems are open-ended and lack clear goals, definite solutions, or a structured path to the solution, thus reflecting the ambiguities and uncertainties in real-life situations. The PBL process is highly individualised but usually contains five core features: (a) ill-structured/ill-defined problems as the start, (b) student-centred learning, (c) flexible engagement of supervising and teaching, and (d) ample time for self-study (Moallem et al., 2019). As such, PBL is not only a pedagogical method but a 'conglomerate of interventions' (Moallem et al., 2019, p. 25). Overall, the self-directed learning (SDL) environment and lifelong learning values embedded in PBL share some features with student academic self-formation.

2.3.1 SDL as an agentic process

A critical aim of PBL is to immerse students in an SDL environment or the 'learning how to learn' process (Hmelo-Silver, 2004). Substantial studies have proven that PBL fosters SDL as both a process and outcome of PBL (Candy, 1991; Hmelo & Lin, 2000; Kivela & Kivela, 2005), where students mobilise their willingness and capability to take control of their learning process rather than being directed by teaching (Loyens et al., 2008). This self-authorship enables students to think of themselves as 'personally responsible for what they believe' (Elgin, 2013, p. 148), setting their own goals, choosing resources, planning activities, evaluating the progress, and pursuing whatever learning trajectories and learning resources they deem essential to solving the problem at hand (Dolmans & Schmidt, 2000; Du Toit-Brits & Van Zyl, 2017; Loyens et al., 2008). They develop 'the internal capacity to define one's beliefs, identity and social relations' in learning contexts (Magolda, 2008, p. 269; Magolda et al., 2023).

Through SDL, students also constantly exercise their reflexive agency with various types of practices. Reflections on previous practices help students examine what they already know and what they need to learn based on their current knowledge and the context of the problem, allowing them to set realistic and relevant goals as well as decide on the strategically best ways to achieve their goals (Moallem et al., 2019). Different from these 'surface' functions, critical reflection, a process of questioning the pre-assumptions, common beliefs, or conventions of problems, is transformative (Mezirow, 2018). It stimulates epistemic evolvement by critically examining and reflecting on their understanding of knowledge, such as ontological and epistemological assumptions, which (re)shapes students' subjectivity towards their learning journey at a fundamental level (Elgin, 2013; Mezirow, 2018).

2.3.2 Lifelong learning as an ever-becoming process

Besides the SDL environment, PBL also provides the means for gaining lifelong learning skills (Becker & Maunsaiyat, 2004; Blumberg, 2000). Problems in PBL are often complex and situated in real-world contexts, which are inherently dynamic and ever-changing (Askell-Williams et al., 2007). This requires students to continuously

adapt their understanding and approaches as they gather more information and encounter new facets of the problem (Moallem et al., 2019). In contingent decision-making, the outcome of PBL is fundamentally open. Learning becomes a form of permanent and never-ending reorientation and adaptation to the changing economic and social contexts. Thereby, the focus of PBL is no longer merely on at-the-moment knowledge acquisition but on an ever-happening adaptation to transformation and uncertainty.

Influenced by self-directedness and reflexivity, students are intrinsically motivated and driven by the inner desire to achieve their dynamic learning goals. This notion about learning allows students to engage in ongoing adjustments and improvements where they identify what they need to know and what they are capable of doing with their knowledge across the changing contexts (Moallem et al., 2019). With this notion, students would not only meet their future practice with the 'right knowledge' but also with the right volition and skills to use that knowledge (Corno, 1989; Moallem et al., 2019). In that sense, PBL enables students to move away from traditional rote learning and toward lifelong learning in a constantly evolving society (Blumenfeld et al., 1991).

2.4 Related literature in the Chinese context

Since there is limited existing literature on Chinese student academic self-formation through PBL or the *Dachuang* programme, this section reviews the related literature separately, involving literature on Chinese student self-formation, their experience in PBL and the *Dachuang* programme.

2.4.1 Student self-formation in Chinese higher education

There is limited literature on Chinese students' academic self-formation, and the literature on Chinese students' general self-formation is underdeveloped. This section reviews the literature on Chinese student self-formation, explicitly focusing on the academic aspect.

Theoretically, Yang (2022) develops the Chinese way of self-formation based on the Confucian idea of *Xiushen* (self-cultivation). By reviewing the Confucian classics and comparing the ideas of *Xiushen* and *Bildung*, Yang advances a culturally-sensitive and context-specific approach to self-formation. She depicts a model of 'outward and inward perfectionism' in Chinese contexts, where individual self-transformation is deemed the key for social development (p. 1165). Within this model, individuals' knowledge acquisition is the foundation of achieving social development, linking the personal self with the social self through knowledge. Learning objective is usually closely related to the moral qualities of individual formation, such as 'individual's responsibilities in contributing to the good of collective spheres and maintaining a harmonious world' (p. 1173). Despite this, individualism and the exercise of free will are also reflected in the process of *Xiushen*, where learning is a voluntary and active process of 'critical reflections and 're-interpretations' of teaching instead of blind imitation. *Xiushen* as self-formation is an individualised personal journey. Yang's (2022) arguments echo Graziani (2009), whose study does not focus on self-formation but contributes to understanding the social role of self from the perspective of early Chinese self-cultivation. Yang's opinion about self-formation as culturally oriented is proved by Lee's (2024b) empirical study. These works shed light on the interviewing influences of personal agency and cultural heritages on self-formation trajectories.

Empirical research on Chinese students' academic self-formation primarily adopts qualitative methods (e.g., interviewing, observation, ethnography, and diary) and take international students as the research sample, ranging from undergraduate to doctorate students studying in the West like the UK, the US and other European countries (Xu, 2018; Xu et al., 2024; Yu, 2021). Some also research Chinese students in Asian countries (e.g., Singapore; Yang, 2014), where cultures and societies are perceived to be closer to Chinese contexts. Overall, these studies echo Marginson's (2014) view of international students as agents who actively form themselves through cross-cultural experiences as a response to the biased 'adjustment' conceptual paradigm that typically portrayed them as deficient. The literature also demonstrates that Chinese students'

self-formation is 'intimately entwined with other-formation' (Yang, 2014, p. 236). 'Self-consciousness of self-change is a process and product of self-reflection' (Xu, 2018, p. 834), largely based on the feedback from teachers, supervisors, and peers (Xu, 2018; Yang, 2014).

While these studies address the impacts of cross-cultural experiences on students' employability and identity construction (see Yu, 2021), they often lack depth in examing the learning processes and knowledge engagement involved. Most studies focus on the 'in-the-moment outcomes' of student self-formation more than the process (how students self-form themselves) and the longstanding outcomes (what makes student self-formation an ever-becoming project).

2.4.2 Chinese students' learning experience in PBL

Most previous studies on Chinese college students' experience in PBL focus on its application in medical education (e.g., Huang et al., 2013; Zhang et al., 2015; Zhou et al., 2016), and there are quite few studies in other practice-oriented majors such as language (e.g., Zhang, 2015), business (e.g., Zhao et al., 2017), and engineering (e.g., Du et al., 2013). Though different methods (e.g., interviewing, questionnaires, and experiments) have been adopted, these studies report similar findings that PBL contributes to students' capability-building. Compared with acquiring discipline-specific knowledge, students are better equipped with generic academic knowledge, such as problem-solving strategies, communicative skills, and interdisciplinary learning skills (Li et al., 2022; Walker et al., 1996; Zhao et al., 2017).

Comparative studies such as those by Li et al. (2022) and Liu et al. (2020) contrast PBL with traditional Chinese lecture-based teaching, while Zhou and Shi (2015) compare PBL applications between Chinese and Western contexts. These comparisons suggest that PBL, often seen as an 'imported good', sometimes encounters tensions in Chinese contexts. For example, Zhou and Shi (2015) investigate this potential tension from a cross-cultural perspective and conclude that PBL requires reconstructing learning-

teaching relationships. Li (2018) investigates PBL implementation in a disciplinary module and finds that while PBL is acknowledged for enhancing useful skills through project work, some students retain a preference for traditional teaching methods due to concerns regarding the 'integrity' of knowledge acquisition, impacted by their exam-oriented primary and secondary education experiences.

Based on in-depth interviews with Chinese teachers who experienced a shift from lecture-based teaching to PBL, Li and Du (2015) argue that Chinese teachers tend to 'maintain high interference' in students' learning process in PBL despite acknowledging the value of student autonomy (p. 18). This further indicates a dilemma between teachers' intention to promote SDL and their tendency to maintain a teacher-led pedagogy. Similarly, Li and Chen (2018) notice the polarised perceptions of PBL teachers' role, with most teachers viewing themselves as 'either dominator[s] or directors' for students (p. 18), partly influenced by the Confucian idea of the 'good teacher', who assumes fully responsibility for students' learning.

These studies underscore the complexities and tensions of implementing PBL in China, suggesting a need for further research into how PBL influences students' and teachers' perceptions of knowledge and learning, as well as the broader impacts on policymaking and teaching practices.

2.4.3 Chinese students' experience in the *Dachuang* programme

Students' learning experience is just a minor part of previous studies on the *Dachuang* programme. The studies mainly adopt quantitative methodologies such as structured questionnaires and statistical analysis to acquire an overall understanding of students' motivations, experiences, and learning outcomes (e.g., Tan, 2018; Zheng, et al., 2021).

Through *Dachuang*, students foster generic skills that are not specific to any particular discipline and are transferable in a wide range of contexts. For example, interaction with supervisors and team members can expose them to cross-disciplinary studies,

broadening their perspectives and raising their awareness of innovation (Li & Dai, 2017). Qi et al. (2021) concluded that participation in *Dachuang* stimulates SDL, during which students enhance their generic academic skills (e.g., literature searching and academic writing) and learn how to apply them to independent research projects. This also aligns with the findings of Ruan's (2018) empirical research based on the comparison between undergraduate students with and without experience of *Dachuang*.

Dachuang experiences also (re)shape students' knowledge engagement. Engaging in self-directed projects expands students' ways of engaging in knowledge by fostering a more active, experiential, and collaborative approach to learning. During the projects, students engage in real-world problems or business plans, which requires them to apply theoretical knowledge to practical situations (Xie, 2021). This application encourages students to analyse problems, evaluate evidence, and make reasoned decisions, not only deepening their understanding of the knowledge they have acquired in class (Liu & Lei, 2023) but also driving them to actively learn about cutting-edge disciplinary knowledge (He et al., 2024). In addition, collaborative efforts also allow students to learn from each another, broadening their understanding of disciplinary knowledge through discussion and feedback (Zhao et al., 2023). According to Qu and Chu (2023), the interdisciplinary approach helps students see a bigger picture and understand how various aspects of knowledge are interconnected.

As students accumulate more knowledge and skills, they also form or adjust their plans regarding long-term development. Many studies have pointed out the connection between *Dachuang* experiences and pursuing postgraduate studies (He et al., 2024). As the empirical study by Qi et al. (2021) suggests, medical students with *Dachuang* experience have a higher possibility of receiving a postgraduate recommendation. This is partially because participating in the project stimulates students' enthusiasm and initiative for learning, resulting in good academic performances like high GPAs and higher grades in graduate theses. Besides, students with more research experience and related academic capabilities are more likely to get admitted to postgraduate

programmes that are more research-oriented. Pan et al. (2022) and Zhao et al. (2023) argue that the challenging explorative experience during *Dachuang* arouses some students' interest and passion for academic research and academia, which becomes one important reason for them to continue their studies. Further, engagement in research projects paves the way for some students to enter academia (Qi et al., 2021; Wang & Zhang, 2021).

Although most studies demonstrate *Dachuang*'s positive role in student academic development, some researchers argue that the diversification of learning outcomes is attributed to differences in personal engagement (Zheng et al., 2021; Sheng & Sun, 2023). For instance, Zheng et al. (2021) find that the importance of roles undertaken by the students and the level of their engagement positively correlate with students' personal development. Later, this finding is elaborated on by Sheng and Sun (2023), who adopt a similar theoretical framework but a mixed method that combines surveys with open-ended interviews. It is found that individuals with a high level of engagement have a stronger sense of independence, higher self-motivation, and more advanced learning skills and strategies, allowing them to expand their scope of knowledge and deepen their understanding of the discipline. In contrast, some students merely join *Dachuang* to get credit, without making contributions or shouldering responsibilities to the project team. These students, without a proper mindset or strong determination, are unlikely to persist in completing long-term projects.

2.4.4 Research gaps

Overall, there is limited literature on Chinese students' personal development through PBL, neither within the *Dachuang* context. The research samples are limited to practice-oriented disciplines, which may overlook valuable perspectives from other disciplines like SSH subjects.

The literature on Chinese students' PBL and *Dachuang* experiences demonstrates a similar trend that students' learning experiences are (re)shaped by the integration and

tension between traditional Chinese teacher-centred learning philosophy and student-centred, project-based pedagogy. Thus, it is valuable to investigate students' experience in PBL from a cultural, contextual perspective and explore how the external factors that emerged from previous literature (e.g., teachers' feedback, teamwork and institutional policies) influence students' learning experiences.

Further, previous literature on PBL and *Dachuang* from students' perspectives tends to address the outcomes instead of the detailed, engaging process of how the outcomes come into being. As such, it is valuable to adopt the paradigm of student self-formation to investigate the process and the outcome, as well as the connections between them in students' PBL experiences.

Chapter 3. Methodology

Research methodology refers to the approach and rationales underlying the selection of methods to achieve the desired outcomes (Crotty, 1998). This chapter first introduces the research paradigm that underpins the philosophical and methodological foundation of the study, followed by an introduction to the research strategy. It then details the research methods, techniques and procedures for data collection and analysis. The chapter concludes with discussions on the translation approach, positionality, rigorousness and trustworthiness, challenges and limitations, and ethical considerations.

3.1 Research paradigm and approach

Research paradigm provides a specific lens for examining the phenomenon under study (Mertens, 2015) and philosophical assumptions that guide thinking and actions in research. Three key philosophical assumptions are ontological (the nature of the reality being studied), epistemological (the nature of knowledge and the way of acquiring knowledge), and axiological (the role of researchers' values in the research process; Creswell & Poth, 2018).

Based on a constructivist paradigm and a relativist ontology, I was intrigued by the

multiple constructed realities of students' experiences during the *Dachuang* programme and the 'rich description' of self-formation processes that I can approach through interactions with the studied population and the case (Enosh et al., 2008; Mertens, 2015, p. 95). Hence, instead of making assumptions about individual motivations and projects based solely on scholarly literature (Creswell, 2014; Denzin & Lincoln, 2005), I adopted a qualitative research design to make sense of students' representations through the interpretive process and meanings attributed to academic self-formation amid *Dachuang* (Mertens, 2015, p. 296). With an axiology that emphasises my own values to research rigour and ethics (Hammersley, 2007; Moon & Blackman, 2014; Ratner, 2002). I integrated my perceptions when interpreting the participants' experiences and opinions and enriched the concepts of academic self-formation based on these interpretations.

3.2 Case study strategy

Case study research refers to 'an intensive study of a single unit for the purpose of understanding a larger class of (similar) units' (Gerring, 2004, p. 342). I adopted this strategy for several reasons. First, the interpretive orientation in investigating a contemporary phenomenon within its real-life contexts aligns with my ontological and epistemological assumptions, allowing for a holistic and meaningful understanding of the population studied (Ragin & Amoroso, 2011; Thacher, 2006). Second, case study serves this research as the boundaries between student academic self-formation and contexts such as institutional settings, teaching approach, and peer influence are 'not clearly evident' (Yin, 2003, p. 13). Instead of focusing on a few variables (Merriam, 1988), I worked on the 'case' to encompass a wide range of contextual conditions that are highly pertinent to the phenomenon under study (Yin, 2003).

Combining descriptive and exploratory use of case study serves the empirical and conceptual development of the academic self-formation paradigm (Gerring, 2004; Yin, 2003). For the descriptive use, I identified a set of characteristics that define 'typical' learning experiences and chose the *Dachuang* programme that matched these

characteristics to uncover commonalities among the studied populations to develop a portrayal of shared experiences. For exploratory use, the *Dachuang* programme was selected as a PBL activity, a 'critical case' most likely to make the process of academic self-formation evident and visible (Flyvbjerg, 2011).

Despite these strengths, case study has limitations in producing generalisations. Compared with surveys and questionnaires, case studies often involve smaller sample size, making it challenging to apply findings in broader populations or contexts (Creswell, 2014; Creswell & Poth, 2018). However, case study research does not aim for positivist generalisability (Guba & Lincoln, 1989), but analytic generalisation beyond the case through case comparisons and contrasts (Yin, 2003). The case study of a specific PBL activity in a Chinese university prelude and generalise theoretical propositions in an under-explored field of student academic self-formation, as reviewed in Chapter Two. Therefore, the framework developed through this case study can provide a basis for generating new assumptions in similar contexts (e.g., similar PBL activities and other universities in China). On the one hand, comparing different cases helps identify similarities in patterns and themes across different contexts and strengthens the external validity of this study (Houghton et al., 2013). On the other hand, when the refuting findings occur, the comparison helps extract the significant contextual factors, which sparks new research directions for further exploration (Stoecker, 1991).

I purposefully selected University X in China as the case to investigate college students' experience in *Dachuang* for three reasons. First, University X is a 'Double-First-Class' university[2] in China, especially famous for its SSH major programmes. Students' academic aspect of self-formation can be more pronounced through their project experiences (Lee, 2024b). Second, University X established institutional policies encouraging students' participation and specifically encouraging projects aligning with

[2] 'Double-First-Class Universities' refers to a group of prestigious universities in China under the national initiative to develop world-class universities and disciplines.

China's 'Going Out' strategy[3]. Thus, it would be interesting to investigate whether and how these external structures impact students' motivations and experiences in *Dachuang*. Last but not least, I have many personal connections with University X, and I am familiar with the contexts of the studied case. Familiarity with the campus culture and related policies gives me insider knowledge about how *Dachuang* operates and functions distinctively at the University X.

3.3 Data collection

3.3.1 Semi-structured interviews

I adopted semi-structured interviewing as the data collection method as it included the participants as the co-constructor of knowledge, aligning with my constructivist conceptualisation of knowledge (Creswell, 2014; Ruslin et al., 2022). This approach allows interviewers and interviewees to 'discuss their interpretation of the world in which they live and express how they regard situations from their point of view' (Cohen et al., 2000, p. 267). Interviews were conducted with guiding questions to ensure relevance to the research topic (Cohen et al., 2000) and flexibility in tailoring interviews to individual participants, giving them the autonomy to decide what information to provide and for what purpose. The interview questions mainly cover students' motivation for participation, interaction with supervisors and teammates, reflections before, during, and after the programme and perceived learning outcomes. The interview protocol is attached in the Appendix (see Appendix E).

The interviews were conducted individually. Private conversations enable the participants to freely share their experiences and opinions with fewer concerns over confidentiality. This approach also helps avoid the potential social pressure in group interviews, especially since the research questions involve participants' interpersonal interactions with teachers and teammates. The interviews were conducted online to

[3] China's 'Going Out' strategy is a national policy initiative introduced in 1990s, aimed at encouraging and supporting Chinese enterprises to increase overseas investments and operations. Currently, this strategy has been expanded to other fields, such as culture and social development.

provide convenience and a safer environment for open communication, as all participants were based in different countries. Chinese Mandarin, the shared mother language of the participants and myself, is adopted as the medium language to alleviate anxieties concerning language barriers (Mertens, 2015) while providing rapport and a familiar environment that promotes expression.

3.3.2 Sampling and recruitment

Rooted in constructivism, I adopted purposive variation sampling to capture diverse perspectives and produce robust knowledge (Creswell & Poth, 2018). Unlike random sampling, I choose the samples that are most likely to yield relevant and verified data. The sample is 20 Chinese students who had PBL experience in the *Dachuang* programme during their undergraduate years at one Chinese university, University X. They all enrolled in SSH degree programmes during their undergraduate years (when they joined the *Dachuang*) but are different in gender, age, degree major, project types, project levels, and roles in the team. Of all the participants, there are five males and fifteen females, similar to the male-to-female ratio at University X. Participants were enrolled in twelve different major programmes involving humanities subjects (e.g., language) and social sciences subjects (e.g., diplomacy and finance). There are nine team leaders and eleven team members. Their projects cover all three types and all three levels of the project. **Table 1** provides a summary of the participant information.

Table 1: *Summary of participant information*

Participant	Year of college (when started the project)	Major	Role in team	Project type	Project Level
Qian	2	Humanities	Leader	Practice-based	City
Liao	2	Social sciences	Leader	Research-based	City
Cong	3	Humanities	Leader	Research-based	City
An	2	Humanities	Member	Research-based	Nation
Zhong	2	Humanities	Member	Research-based	Nation
Fan	2	Social sciences	Leader	Practice-based	Institution
Si	1	Humanities	Member	Practice-based	Nation
Zhu	3	Social sciences	Member	Practice-based	City
Chu	1	Social sciences	Member	Practice-based	Institution
Jia	2	Humanities	Leader	Research-based	City
Ran	1	Social sciences	Member	Practice-based	City
Yun	2	Social sciences	Leader	Research-based	Nation
Wei	2	Humanities	Leader	Research-based	Institution
He	3	Humanities	Member	Practice-based	City
Yue	1	Social sciences	Member	Entrepreneurship	Nation
Qiu	2	Social sciences	Member	Entrepreneurship	Institution
Wang	3	Social sciences	Member	Practice-based	Institution
Zhi	2	Humanities	Member	Practice-based	Institution
Yi	3	Humanities	Leader	Research-based	Nation
Wen	1	Humanities	Leader	Entrepreneurship	Institution

The sampling decisions include four major components. First, I chose SSH students to address the unexplored field in students' experience in *Dachuang* programme, whose majors are perceived as 'less practical' (compared with medicine-related subjects), contributes to a distinctive understanding of how societal expectations and the application of theoretical and conceptual knowledge to real-life situations shapes students' academic self-formation. Second, I employed a maximum variation sampling strategy to include students from diverse majors and roles in the team across different types of projects (Creswell & Poth, 2018). Third, I excluded students with over six months of educational experience outside China mainland before participating in *Dachuang*, focusing on those more typically nurtured in Chinese higher education. Fourth, I limited recruitment to students who had completed their projects within the last three years to ensure recency and intact memories of experiences.

Participants were recruited through poster advertising and snowballing. Recruitment poster (see Appendix B) was circulated in the university's group chats on WeChat by my acquaintances and participants who agreed to join were kindly asked to refer other suitable participants, particularly their team members. Interested individuals were invited to contact me directly via email or WeChat. This combination extended recruitment beyond my immediate contacts and allowed for the inclusion of participants involved in the same projects but in different roles, facilitating a detailed investigation into the dynamics and factors influencing academic self-formation.

3.3.3 Interview protocols

Pilot interviews were conducted in mid-April with three participants engaged in different types of projects (e.g., the research-based project, the practice-based project, and the entrepreneurship-based project). The pilots helped me refine my interviewing skills, familiarise myself with the questions, and identify some limitations of the interview protocol. For example, inspired by the participants' responses, I added questions related to students' ontological and epistemological assumptions (e.g., What is knowledge from your understanding?). Following the pilots, from mid-May to mid-June, I conducted 20 individual online interviews via Microsoft Teams, each lasting about 60 minutes on average. Since participants were students or working professionals across different time zones, I allowed them to choose their interview times instead of assigning slots.

3.4 Data analysis

3.4.1 Data preparation and transcription

Data analysis involves three phases that familiarised myself with the data: data preparation, coding and theme generation, and translation (Kiger & Varpio, 2020). Data preparation aims to address both efficiency and accuracy. Initially, auto-transcription was generated by Microsoft Teams, which, though convenient, contained inaccuracies, especially with homophones, Chinese slangs, and background noise that resulted in

garbled and missing words. To tackle this, I listened to the recordings and meticulously reviewed and edited the auto-generated texts. Some expressions were double-checked with the participants to ensure that the transcripts faithfully conveyed their original words (in Chinese). English expressions used by the participants to better convey intended meanings are retained in transcription.

3.4.2 Thematic analysis

I adopted thematic analysis to unveil the multiple realities in the participant's interpretation (Mauthner & Doucet, 2003) and to identify, analyse and report emerging patterns in line with research questions (Braun & Clarke, 2006). These themes represent the voices and 'constructs' of the participants, significant co-constructors of knowledge in my study. Thematic analysis goes beyond mere categorisation and description and has the potential to actively engage in the interpretation and transformation of data, which allows me to identify underlying patterns, connections and meanings related to the process of formation (Kiger & Varpio, 2020).

Thematic analysis was conducted following the guideline by Kiger and Varpio (2020) on NVivo 14, with inductive (bottom-up) coding serving as a supplementary approach to the deductive (top-down) coding. Deductive coding was initially developed with a provisional list of codes and themes derived from the conceptual framework and literature review. This ensured that the data important for research questions were captured in line with my theoretical assumptions about academic self-formation (Chiseri-Strater, 1996). Following this, I referred to these 'pre-existing' codes while staying open to new codes emerging from participants' original language. The former types were in Chinese, while the latter appeared in Chinese or English. I chose whichever language that most accurately conveyed the participants' meaning. The coding process was iterative. After initially coding of a portion of the data, I paused for two weeks and recoded the same data to compare and refine the results (Krefting, 1991). The codes were grouped into broader themes, and the overarching themes formed the headings and subheadings presented in Chapter 5. This open, data-driven coding aligns

with the inductive approach, which avoids being overly structured by the preconceived framework and compromising participants' voice. The combination enriched my pre-existing knowledge from the literature review by incorporating the authentic voices of participants and mitigating potential researcher bias (Braun & Clarke, 2006).

3.4.3 Translation

To avoid 'loss of meaning and nuance' (Mangen, 1999, p. 112) and over-involvement of my subjectivity, I postponed translation until completion of all coding and code-grouping. Participants' quotes were transcribed word-by-word, combined with a '"free" translation' strategy taking into consideration all conversational and contextual nuances, such as language habits and personality (Filep, 2009, p. 67). This allowed accurate 'reproduction' of my participant's voices and meanings. Given the participants' English proficiency, I also asked them to check the translated quotes.

For data presentation and writing, I combined the emic and etic approaches as suggested by Galperin et al. (2022). For the themes and codes, I used the etic approach to offer findings that can be analysed and compared across different cultures. However, regarding the specific Chinese notions and idioms, the emic approach was applied to provide details in cultural and social contexts, ensuring cultural specificity, which is important to this study.

3.5 Positionality

My researcher positionality encompasses my subjectivity (e.g., gender, race, personal experiences and philosophical underpinnings) and how these attributes interact with the population researched and the research itself (Callaway, 1992; Yates, 2013). These interactions happened throughout the research design and research practices.

My academic and personal biography frame the focus of the topic and the population of research questions (Chiseri-Strater, 1996) on the purpose and contribution of higher education. I pursue higher education not merely as a means to enhance employability

but as a process of self-formation (Holmes, 2013). My involvement in the *Dachuang* programme further shapes my focus on university students' engagement in PBL.

The research methods condition my positionality in the research as an insider/outsider (Merton, 1972). Based on my research question, the general inclusion criterion is university students with *Dachuang* experiences. Under this criterion, I recruited Chinese students, who tend to consider me as an 'insider', by which I may achieve rapport and build a close researcher-participant relationship more smoothly (Holmes, 2020). As similar-age Chinese students, our shared mother tongue and cultural background also increase the possibility for me to resonate with their narratives. This insider role contributes to collaborative sense-making with the participants, which 'alleviates my fieldwork' in data collection aiming for high accuracy (Adeagbo, 2021, p. 186). I am also an 'outsider' due to my 'prestigious educational background' and rich knowledge of the research topic. Thus, the participants tend to view me as 'more powerful' within the researcher-participant relationship, which causes 'role distancing' and distrust (Dickson-Swift et al., 2006, p. 865). Besides, this 'outsider' role also means that the participants and I are distinct in many ways, such as educational backgrounds and project types, which potentially enrich the discussion and broaden its scope (Fishman, 1992; Murphy, 1997; Stahl & King, 2020).

3.6 Rigorousness and trustworthiness

Research rigour is defined as the strict enforcement of standards throughout the research process to ensure trustworthiness (Davies & Dodd, 2002; Gutiérrez & Penuel, 2014; Guba & Lincoln, 1989). I will summarise how my research practices adhere to the criteria for rigour based on Guba and Lincoln's (1989) model of trustworthiness of qualitative research, involving credibility, transferability, dependability and confirmability.

According to Guba and Lincoln (1989), *credibility* refers to the 'isomorphism between the constructed realities of respondents and reconstructions attributed to them' (p. 237).

I kept monitored how my subjectivity impacted the interpretation of participants' voices (e.g., adding follow-up open-ended questions and managing translations) and conducted member-checking with the participants throughout data preparation, coding, translation, interpretation and presentation. *Transferability* requires the provision of sufficient information for readers to determine the applicability of results to other contexts. For transferability, contextual information such as participants' backgrounds and institutional policies was constantly reflected upon and transparently depicted in data collection and presentation. For example, quotations with the context and 'in-vivo' Chinese expressions of the participants are presented in the findings. To ensure the *dependability* or the consistency of findings, I thoroughly introduce the methodology and discuss the alignment between each decision. The code-recode procedure also contributes to dependability (Krefting, 1991). Last but not least, my reflections on positionality and its impacts, as well as the reflexive practices, ensured the *confirmability* of this study.

3.7 Challenges and limitations

There are some limitations in the research design. First, my insider role may risk the accuracy of the data collected as I tend to be overconfident about my interpretation of participants' responses. Recognising me as an insider, participants may also omit information they consider I should have known. Besides, my insider status tends to reduce the participants' contribution as knowledge co-producers. The interview protocol reflects my subjective interpretation clouded by my previous participation in *Dachuang* and as a reviewer of existing literature (Cohen et al., 2002). As such, the participants, who had little knowledge about self-formation, might perceive me as more knowledgeable in the discussed field, placing me in a higher position. Participants might seek to 'fill in' the established knowledge structure during the semi-structured interview, potentially reducing their chances of providing more distinct perceptions or constructs (Alshenqeeti, 2014; Emmel et al., 2007). To attenuate these influences, I raised open-ended follow-up questions to encourage her detailed elaboration (e.g., 'What do you mean by…'), allowing for a more objective exploration and

understanding of the participants' experiences (Breen, 2007).

Second, purposeful sampling may reduce the diversity of representation (Cohen et al., 2002). For example, I selectively recruited participants who had completed their project to ensure the richness of data because they tended to have more complete experience in *Dachuang*. However, the students who failed to get project approval from the organising committee or those who gave up the project may also provide distinctive perspectives on the plural trajectories of academic self-formation in higher education.

3.8 Ethical considerations

The research followed the ethical guidelines of the British Educational Research Association (BERA, 2018) and received ethical approval (Reference No. EDUC_C1A_24_137) from the Central University Research Ethics Committee (CUREC) at the University of Oxford (see Appendix A). All potential participants received the Participant Consent Form (see Appendix C), the Participant Information Sheet (see Appendix D), and the Sample Interview Question List (see Appendix F). 20 participants signed the form to confirm their participation. The participants were informed that they could withdraw from the study at any time before 30/06/24 for any reason under any circumstance.

Each participant was asked to give himself/herself a pseudonym, and any information that might reveal their identities (e.g., gender, year of college, project title, current studying/working places) was excluded from the writing. No sensitive topics were discussed. The collected data and the electronic copies of signed constant forms were securely stored with password protection on my personal laptop and in the University of Oxford OneDrive folder. Access was restricted to my supervisor and myself.

Chapter 4 Findings

This chapter reports the findings regarding the condition, mechanism, and product of academic self-formation in the *Dachuang* context in response to three sub-research

questions.

4.1 Condition for academic self-formation through *Dachuang*

Academic self-formation through *Dachuang* is conditioned by rich external structures, such as social norms, institutional policies, students' educational backgrounds and learning resources, and the intersection between higher education and their social sites, as well as internal structure centred on students' imagining, expectations, and deliberate choices of projects with swirling appropriation of reflexive agency and epistemic agency. Deliberate participation manifests as a balancing act between personal will and aspiration for improvement and conformity to external structures that shape possibilities for change. It is characterised by restrained reflexive agency and conditioned epistemic agency. The condition remains integral to the mechanism of self-formation where presupposing internal and external structures are mobilised as resources for pursuing new projects and developing social relations through *Dachuang*, while the openings created lead to new conditions for self-formation, forming a perpetuating autopoietic cycle.

4.1.1 Reformative reflexivity

Pre-participation in *Dachuang*, most participants' reflexivity tends to be reformative. Rather than coming with clearly defined outcomes, one-third of them saw *Dachuang* programme as an opportunity for reformative changes or, at the very least, a departure from the 'suppressive' and indoctrinating learning in high school. Qian, for example, pursued *Dachuang* as the starting point to explore the intrinsic motivation for learning, moving away from the structural constraints in an educational environment propelled by external competitive pressures:

> *I came from a province where the educational environment is highly competitive. I felt suppressed during middle and high school… (For Dachuang,) my own preference is the starting point and the fundamental reason for learning. (Qian)*

For Jia, *Dachuang* served as a 'make-up' for the regret of giving up a personal interest in drama due to the standardised and limited variety of learning resources available in high school:

> *In high school, I was eager to learn about drama. However, I had no resources and had no chance to do so. I initiated this project [on drama education] in Dachuang because I wanted to make up for this regret. (Jia)*

The will to change revealed strong alignment with university policies and prevailing trends in accumulating symbolic capitals from *Dachuang*. Many participated in *Dachuang* to fulfil University X's credit requirement for 'innovation and entrepreneurship training'. More than half of them pursue *Dachuang* in the belief that the 'record of participation' could enrich CVs and advance opportunities for further education and career. Participants like Si perceived this as a '功利 (*Gongli,* utilitarian)' expectation with negative but compelling connotations in prioritising criteria for 'well-performed students' and 'competitive applicants'.

> *I have decided to pursue a master's degree in a foreign country, so I need these practice-related projects to support my application … It could strengthen my personal statement. (Liao)*
>
> *My original motivation was quite Gongli because I was considering shifting to another undergraduate programme or [getting the chance of] '保研 (Baoyan, postgraduate recommendation)[4]'(Si)*

Some reformative actions result from and reproduce '内卷 (*Neijuan*, involuted development)', where students constantly strove to outperform others within a limited

[4] Postgraduate recommendation is a system in China where outstanding undergraduate students are recommended for admission to graduate programmes without taking the national postgraduate entrance examination. Undergraduate students are usually assessed based on academic performance (e.g., GPA, publication, and other academic experiences) and extracurricular activities (e.g., voluntary experiences).

resource pool. This leads to a focus on short-term gains over personal long-term development and reinforces a culture of comparison and conformity. For instance, Zhu decided to join the programme based on a perceived need to 'catch up' or surpass peers. The sense of 'participate or perish' creates anxiety in sustaining status and relative standing:

I felt I would lose some competitiveness if I did not participate. (Zhu)

4.1.2 Conditioned epistemic agency

Although *Dachuang* provided a student-centred learning environment, expectations for learning outcomes, the scope of resources and capabilities they can mobilise and the potential impacts of *Dachuang,* were all conditioned by students' perceived roles as members of the particular disciplinary communities. Some learning objectives were notably discipline-oriented, focusing on the 'enhancement' of professional knowledge and skills for major studies. Valorised types of problems and approaches to social phenomena are also shaped by disciplinary identities. An and Zhi, as language majors, expected to enhance their linguistic proficiency through literary engagement and interviews with native speakers. Though addressing the same social affair, Cong, An, and Zhong conducted research based on different sources of information (e.g., documents written in various languages based on 'realities' in different countries) as instruments for knowledge construction.

Besides unconsciously influencing research paradigms in *Dachuang*, disciplinary knowledge and identities also shape the types of social relationships to build through knowledge engagement. The interactive exploratory process between the disciplinary knowledge and resources acquired in class and their application to understanding social phenomena or solving practical problems fosters agentic inquiry into the diverse social values that learning and knowledge production can offer. This exploration of the social value of academic knowledge helps confront the homogenising single-logic norm of 'excellence' in higher education and enables students to discover their intrinsic value

in partaking in *Dachuang*. As language majors, Qian, Chu, and He based their research on voluntary language teaching to tackle educational inequality in underprivileged communities. Similarly, Yue developed an online platform to connect university students with social organisations with her knowledge and social networks in related fields. As she put it:

> *In the beginning, there were some utilitarian reasons [for participating in Dachuang] that I could not deny… such as enriching my CV… [For this specific project topic,] I'm motivated by altruism. If this project can help other people, I'll be willing to do it even if the project does not meet my personal interests. (Yue)*

In Yue's case, the value of altruism in SHHs somehow counterbalances the 'utilitarian' culture. Her epistemic agency in this stage, though conditioned by her discipline, enhanced reflexivity, leading to a shift from conformity to internalised intrinsic motivations. Similarly, Yun, leading a project on high school history textbooks, discovered 'a sense of mission and vocation' as a history student, indicating a development of social values through engagement with academic knowledge.

The participants' self-awareness of their strengths and advantages was also normally structured by their major studies. More than two-thirds of them, with or without clear reasons, regarded their command of disciplinary knowledge as their strengths and derived a sense of self-worth from meeting societal expectations of students in their fields. For example, participants with language majors tended to conduct research based on language target countries or communities where they could leverage their language abilities in data collection and analysis (e.g., reading literature in those languages and interviewing local people).

> *The reason [I chose this research topic] is that I major in Hungarian. '术业有专攻 (Shu ye you zhuan gong, Every profession or field of study has its own specialised knowledge and skills)', and I probably have some advantages in studying related topics…We can understand*

> *the information [written in Hungarian] from foreign websites, so we don't have to rely on second-hand data. This shows my advantages in data collection. (An)*

Others majoring in diplomacy, communication, and history, for instance, also considered that their disciplinary knowledge enabled them to approach social phenomena and design research from distinctive angles and produce original contributions to their fields. As Wang put it:

> *I utilised my major in journalism to understand this phenomenon from a communication perspective and tried to provide some solutions… (Wang)*

While most considered major studies the primary source of learning in higher education, some were less satisfied with this predetermined trajectory and remained open to emerging interests and diverse learning opportunities beyond major studies and classroom settings. Nevertheless, the extent to which epistemic agency is performed to interrupt the current normal state of affairs varies by individual wills and capacities. Participants who started *Dachuang* in freshman or sophomore years usually stay open to the knowledge of any form of any discipline. Many participants (e.g., Qian, Ran, Yue, Yun, and Zhu) simply hoped to 'improve' in a general sense and expand the scope of learning:

> *I was in my second year of college… I am always seeking opportunities to join academic activities to improve myself as much as I can. (Yun)*

> *At that time, I did not know how I should improve myself… but I believed I could learn something from the Dachuang experience, in any sense. (Yue)*

For those in the third or fourth year, *Dachuang* was leveraged to acquire resources, capabilities, and experiences in alternative areas of interest, which was often discovered through extracurricular experiences. For instance, Yi discovered new

interests in sociology from her club experiences and strategically took *Dachuang* as a platform to put her pre-existing ideas into practice. Wei joined *Dachuang* to reclaim epistemic agency in her newfound interest in sociology:

> *Dachuang allows for more freedom in choosing the topic, enabling me to research something that fits my interest. I major in English literature, but I'm also interested in sociology. For instance, I am interested in cultural exchange-related topics. However, as a literature student, I have few opportunities to learn about these topics in class. So, I think Dachuang is an opportunity for me to conduct sociological studies. (Wei)*

Some even broke out from the 'conditioned' aspiration and stereotypical expectations by embracing cold welcomes from the *Dachaung* organising committee. As a language major with rich experiences in theatre and play, Jia initiated a research project in drama education that largely echoed her interests. Jia initially felt pressured to conduct a project not in line with the conventional expectations for a language major student, but she found meaningfulness in contributing to educational equality, creating a strategic blend of individual and collective goals.

> *I can sense that drama education was not appealing to the authorities… but I think this project was the response to my own passion and my regret in high school. From this perspective, it is meaningful [to me]. (Jia)*

Participants' openness can be reflected in their expectations for self-exploration. In their interpretation, self-exploration is an agency-empowering process through which they discover and understand themselves at a deeper level. Many participants described their experiences as a trial-and-error process to adjust and optimise future academic and career trajectories. They saw self-exploration as one of the most critical missions during their undergraduate years. Qiu, for example, explained why she regarded the *Dachuang* programme as 'a necessary experience':

> *[When I joined the programme,] I was in my first year of college. I don't know what I really want. So, I decided to try more things and not close off any possibilities. I've been trying many different things, and the Dachuang programme is one of them. (Qiu)*

Participants' deliberate reflections and expectations before the programme demonstrate reformative reflexivity and conditioned epistemic agency centred on the desire to transcend existing boundaries or 'comfort zone' for new experiences and realms of the possible. Still, the conditions are dynamic and continuously (re)formed within the mechanism.

4.2 Mechanism of academic self-formation through *Dachuang*

The mechanism of academic self-formation involves the whole process of student's interaction with the resources for academic self-formation. It operates and functions throughout the whole process of academic self-formation, from the pre-programme to the post-programme, thus involving both conditions for academic self-formation and the product of academic self-formation.

The mechanism is also characterised by the dynamic interplay of reflexive and epistemic agency. Reflexive agency facilitates internal dialogue leading to self-evaluation, self-reflection, and decision-making based on external structures. Concurrently, epistemic agency enables the translation of these reflections and decisions into concrete learning practices, encompassing knowledge engagement and self-authorship of learning. These agentic practices are in part shaped by Chinese culture (e.g., teacher-student hierarchy relationships and pursuit of harmony) and the specific attributes of *Dachuang* (e.g., practical application-oriented, cross-disciplinary, and self-directed learning)

4.2.1 Construction of transformative reflexivity

Engagement in *Dachuang* has fostered transformative reflexivity, where intrinsic motivations, personal aspirations, and internal dialogue gain increasing weight.

Participants' sense of achievement and self-confidence were significantly fostered through engaging with knowledge, overcoming challenges, and confronting prevailing norms and ideologies. Through transformative actions, such as researching and conducting practice-based projects to support underprivileged groups in their community, students gained self-worth and recognised the transformative power of the knowledge they acquired. For example, Yi, the leader of a project addressing the use of technology to improve old people's life quality, emphasised that the potential social impact of the topic is her top concern:

> *In an ageing society, elderly people cannot adapt to increasing human-computer interaction occasions … which places them in a more vulnerable situation… It is a social issue that requires urgent attention… From my own perspective, completing the Dachuang project is not the end. I will develop it into a long-term project that carries sustainable social impacts. (Yi)*

With an increasing awareness of self-improvement, participants construct transformative agency by actively taking on challenges. Cong and Jia, for example, tended to break out of their comfort zone to cultivate the capabilities they recognised as lacking in their major studies. Their aims for capability development were specific, stemming from the work of meta-reflexivity. After critical self-reflection, they came up with a clearer idea about whatever capabilities they deemed important to their personal projects (e.g., pursuing interests, gaining a job). In most cases, due to the close connection between the *Dachuang* projects and society, these capabilities-to-build involve generic skills such as interpersonal skills, intercultural competence, and adaptability.

> *I intentionally pushed myself to break it (my comfort zone) … When doing the project, I intentionally assigned myself the task of interviewing because I wanted to improve my communication skills… I also wanted to reconnect with people who were talented in drama (the interviewees of her projects) … (Jia)*

More than half of the participants were aware of the limitations of their previous notions and practices, thinking about whether there was a correct action, what drove their thinking before action, and whether their own thinking was free from bias, cognitive errors, or delusion. For instance, Chu gained knowledge from direct interaction with the disabled population, which reconstructed her understanding and guided more ethical behaviour in later social practices. In her words:

> *When I prepared to meet my students, I was not sure how to greet them or whether I should say something (as if they were not disabled). But when I met them, I realised the most important thing is how to support them with my hands … I would never know this if I did not interact with them in person. (Chu)*

The exploratory nature of *Dachuang* enabled participants to develop the habit of actively making real-time adjustments and responding to unexpected changes in the external environment. Reflections became more forward-looking and solution-oriented. One-third of them adapted project plans to unforeseen disruptions caused by the COVID pandemic and unsuccessful collaboration with external stakeholders. They reassessed the feasibility of the original plans and modified them to align with their capabilities. For instance, Chu, facing difficulties in collecting sufficient questionnaire data during the pandemic due to limited participant availability, ultimately adopted a more descriptive, case study-based approach to data analysis. These experiences helped develop the participants' adaptive capabilities of addressing unforeseen obstacles within and beyond the project. Fan's reflection demonstrated a proactive and adaptable approach to knowledge and problem-solving. He was not content with directly accepting established arguments but actively seeking out solutions that were both contextually relevant and practically applicable:

> *Their (the authority's) advice on solving certain problems can be impractical or inapplicable… I should critically evaluate and sometimes disprove their perceptions based on the context. (Fan)*

Participants' ongoing personal experiences are mobilised as resources to facilitate their *Dachuang* projects. Liao's *Dachuang* experience highlighted a dynamic interplay between personal values, learning approaches, and knowledge construction. By integrating her evolving personal values gained through exchange experiences into her research project, she demonstrated a strong sense of self-authorship of her project. The transformative influence of her exchange study experiences during the project led her to reassess and adjust her existing beliefs and learning strategies. This demonstrated a high level of reflexive agency, as she actively questioned her assumptions and engaged in critical self-reflection.

> *After I went abroad and had close interaction with the locals… I questioned the meaning of my project. (Liao)*

Furthermore, Liao's ability to evaluate information critically and justify her newfound beliefs indicated epistemic diversity. She did not simply absorb new information passively but actively engaged with it, synthesising it with her existing knowledge and values to construct a more nuanced understanding. More examples will be elaborated in the next section.

4.2.2 Construction of epistemic diversity

Through engaging in cross-disciplinary projects, managing dissonance in thinking patterns, and adapting to varied learning-teaching relationships, students developed epistemic diversity towards the multiplicity of perspectives, knowledge bases and a more inclusive understanding of realities.

An expanded knowledge base, especially in non-disciplinary knowledge, empowers students to engage in knowledge acquisition and construction beyond academic discourses. The *Dachuang* experience, with its practice- and problem-based learning environment, enabled participants to acquire and construct diverse forms of knowledge, involving factual and conceptual knowledge, academic knowledge (incl. research skills

and practical skills), and tacit knowledge. This knowledge categorisation emerged inductively from the data.

Factual and conceptual knowledge, gained through direct experiences and observations, transformed students' perspectives and challenged their assumptions. Departing from the knowledge acquired from textbooks, participants increasingly valued the 'realities' and understandings obtained through observation and practice. They actively managed the intersections and tensions across multiple 'realities'. For example, Wei mentioned that the newly gained understanding by researching on translation strategies adopted in video localization challenged her preconceived notions about AI. She developed a more critical approach to different socially-constructed imaginings and realities.

> *It is said that the development of AI will reshape the translation industry, but my research project (on subtitle translation) made me realise the significance of human translation. (Wei)*

As a significant component of academic knowledge, research skills enabled participants to access and evaluate information from a wide range of resources, including scholarly articles, books and field works (e.g., interviewing and observation). Participants like He perceived they were more open to new ideas with increasing research capabilities to explore unfamiliar territories:

> *Previously, I would simply notice the existence of an issue ... Now, I delve deeper, moving beyond superficial observations to conduct a more thorough investigation and evaluation. (He)*

As participants acknowledged the importance of practical skills (academic skills that are applicable in non-academic discourse) and tacit knowledge (implicit experiential knowledge) in learning and social practices, they expanded their definition of knowledge and filled in gaps left by formal or codified knowledge, providing nuanced insights and understanding that might not be readily captured in explicit forms. For example, Qian realised the significance of tacit knowledge and broadened her

perceptions of her capabilities through gaining confidence from tacit knowledge:

> *Through this project, I engaged in many practices such as connecting with the disadvantaged communities, the staff from social organisations, and volunteer teachers. These practices not only offered me great confidence and motivation but also let me know that I could do many things other than my major studies [which I was not good at]. It was a great encouragement and support to me. (Qian)*

Participants who engaged in cross-disciplinary projects also widened their scopes and perspectives by taking in multiple lens and paradigms, which enhanced their cognitive flexibility. Participants like Chu, Fan and Wang stated that they gained exposure to different perspectives and knowledge domains by collaborating with team members from diverse major backgrounds and areas of expertise. This exposure enabled them to engage in meaningful conversations with others to explore different viewpoints and expand their understanding. Fan, as a diplomacy major student, was aware of his limited scope and was accustomed to understanding the issues from the perspective of politics. In cooperating with three team members with different educational backgrounds (e.g., journalism), he 'broke through the boundary of his major'. In his words:

> *I often think about issues from a political science perspective. The journalism students proposed thinking from the perspective of urban communication… [which] gave me a chance to approach the issue from the perspective of another discipline. (Fan)*

Interaction with the supervisor also enabled the participants to think outside the box of 'student thinking patterns'. Qiu learned from her supervisor's suggestion on being more down-to-earth with the project. Instead of designing the business plan merely from a theoretical assumption, she was inspired to be more realistic and pragmatic.

> *Our supervisor said that… We cannot just make assumptions on our own … I did see the difference between the teacher's thinking and that of the students. The supervisor is very realistic … I realise that I need*

> *to consider many more things in an entrepreneurship project. I have never learned about this in the past ten years from my textbooks and written exercises. (Qiu)*

Similar to Qiu's case, participants' interaction with supervisors shows a strong pattern of active integration of autonomous reflexivity and communicative reflexivity, allowing for more diversified perceptions about learning-teaching relationship. On the one hand, the Chinese hierarchical teacher-student relationship influences students to seek confirmation and suggestions from their supervisors and adopt supervisors' values regarding knowledge application[5]. On the other hand, the less rigid supervisory approach in *Dachuang* leaves more space for students to adopt independent thinking. The 'freer' learning environment embedded in the campus culture of University X, as Qian said, 'encourages students to practice critical thinking'.

Within the *Dachuang* programme, the relationship between student participants and supervisors is still characterised as a hierarchy, where the teacher holds a higher position and is viewed as a knowledge authority (Li & Chen, 2018). Supervisors are perceived as more experienced in project management in *Dachuang* and knowledgeable in their disciplines. As such, participants tended to exercise communicative reflexivity by asking supervisors for advice or confirmation. This also explains why fractured reflexivity is less frequently found in participants' *Dachuang* experience – even when encountering distress and confusion, there were supervisors to turn to for help. For example, almost all participants mentioned that they actively connected with potential supervisors when deciding on the topic, majorly because they were unsure about whether their topics aligned with mainstream ideologies and authoritarian preferences. Wang expected the supervisor to help her to '拔高立意 (*Ba gao li yi*, enhancing the depth and significance of the projects)' and expand the scope of the research topics to connect with broader socioeconomic, cultural, or philosophical

[5] According to the *Dachuang* orgranising instructions and institutional policy, social contribution of knowledge, mainstream ideologies and projects contributing to the national 'Going Out' strategy are highly valued. Projects related to the above topics are perceived to be favoured and preferred by the organising committed.

issues. Still, these suggestions were based on the decided topics and did not contradict Wang's original ideas:

> *The supervisors reminded us to add some theories and ideological discussions… including something related to politics… They mainly helped us to address the ideological significance of our projects. (Wang)*

When supervisors' suggestions contradicted their initial ideas, most participants were open to the supervisors' guidance and overall vision for the project, but they held some autonomy in the specific details or project implementation. Participants who were unsure about their own research ability and the potential challenges expected supervisor(s) to assess the feasibility of their projects. When discussing the project topic with the supervisor, An and Zhong primarily considered the alignment between the project design and their research abilities and interests. Although they valued their supervisor's expertise and academic reputation, they did not blindly follow the supervisor's suggestion but prioritised their own agency by actively participating in the discussion. Ultimately, they made an informed decision based on a combination of external input and their own preferences.

> *We listened to the supervisor's suggestion partly because she was an expert in our field… and she was excellent in academics. We thought she was right. Another important reason was that the decided topic was also on our list. (An)*

More than two-thirds of participants mentioned that their supervisors encouraged them to explore solutions when encountering challenges, partly because the assessment result of *Dachuang* projects is a 'bonus' instead of a 'must'. This gave participants the space to experiment and adopt the suggestions selectively.

> *We did not follow the supervisor's advice at once… We considered this suggestion when we read the literature and examined whether expanding the case analysis [as suggested] is necessary. Then we*

realised it was necessary to do so, so we took her suggestion. (Chu)

As students delved deeper into their *Dachuang*, their approaches to supervisors' suggestions also evolved significantly. With critical inquiry and empirical evidence gathered through firsthand observations, they developed a stronger sense of confidence and ownership over their knowledge, capabilities, and projects. This deeper engagement enabled them to appreciate social phenomena from multiple knowledge sources, diminishing the supervisor's role as the sole authority. The suggestions from teachers began to be seen as just one of many possible interpretations of reality and could be 'challenges' when the participants perceived their capabilities could not 'match the optimal solutions' proposed by the supervisor (e.g., Liao, Ran). As such, student-supervisor relationships reveal a gradual shift from a traditional teacher-centred model towards a more collaborative and student-centred approach, allowing for a more equitable and inclusive learning environment.

4.3 Product of academic self-formation through *Dachuang*

The product of academic self-formation under the mechanism involves a newly constructed self with an evolved academic self-forming agency encompassing evolved reflexive and epistemic agency. The interplay of the two stimulates continuous self-criticism and enables another cycle of academic self-formation, where the current outcome becomes part of the internal condition of the next round. This process enables the cycle of academic self-formation.

As the product of academic self-formation through *Dachuang*, students enhance self-awareness and critical thinking skills and become more pragmatic toward learning. These features originate from the increasing transformative reflexivity and epistemic diversity. As illustrated in 4.2, during the *Dachaung* programme, students develop more transformative reflexivity and tend to conduct more self-oriented and action-oriented reflections. Besides, students develop epistemic diversity, characterised as openness to multiple types and disciplines of knowledge, values of knowledge, and learning-

teaching relationships.

In the process of academic self-formation, transformative reflexivity and epistemic diversity mutually reinforce each other, contributing to a deeper and more inclusive understanding of the world, fostering meaningful social changes through knowledge engagement, and enabling the cycle of academic self-formation.

4.3.1 Interplay of transformative reflexivity and epistemic diversity

On the one hand, transformative reflexivity recognises that knowledge is not monolithic and that there are multiple ways of understanding reality. This openness to diverse epistemologies fosters a more inclusive and expansive approach to knowledge generation and acquisition. Participants like Liao and Zhong questioned the nature of knowledge. Zhong, for example, used to regard textbooks, literature and lectures as the 'primary source of knowledge'. After actively engaging in research, problem-solving and knowledge creation during *Dachuang*, she realised that knowledge was dynamic and constructed through experience and inquiry.

> *I used to regard knowledge as abstract concepts, but now I think the connections I discover or establish between two or more things can be a form of knowledge… (Zhong)*

Similarly, after completing interviews in her research project, Yi reflected on her epistemological assumptions and questioned whether knowledge existed independently of the knower or was shaped by the knower's perspective and experiences.

> *Knowledge is not necessarily objective, and it may involve subjective perceptions, which help us to understand how a specific community view a certain issue. (Yi)*

Further, transformative reflexivity involves questioning power dynamics in a knowledge system that tends to perpetuate inequality and exclusiveness, which could create space for less-represented voices and knowledge systems to be heard and valued.

The research findings from respected academic authorities are no longer absolute truth for me… (Fan)

On the other hand, epistemic diversity fosters collaboration and dialogue in learning contexts, leading to a more knowledge-sharing and collective knowledge-building process that enables transformative changes in the personal learning journey. Yun mentioned that she enjoyed collaborating with one of her teammates from another major and learned from this teammate during and even after the project. Adopting learning virtues and learning approach, Yun developed a transformative understanding of academia and a critical understanding of her graduate thesis. As such, exposure to diverse perspectives and knowledge systems potentially challenges Yun's assumptions and beliefs, prompting her to engage in deeper reflection and self-critique and leading to more transformative shifts in understandings and actions.

However, the tension between transformative reflexivity and epistemic diversity can hinder learning. As suggested by Yue's example of dealing with team conflicts, although transformative reflexivity encouraged each team member to critically examine their ideas and be open to different perspectives, this could be emotionally challenging. Then the frustration and depression arose from the need to reconcile her own deeply held convictions with potentially conflicting viewpoints.

But, if treated properly, this tension also provides opportunities for knowledge acquisition, especially generic skills and abilities. For example, Cong gained newfound confidence in his interpersonal communication abilities by successfully resolving a team conflict. Initially, the team faced challenges caused by members' decreasing passion for the projects, hindering their progress and causing frustration. As the project leader, Cong took the initiative to address this issue. By actively listening to teammates' concerns and proposing solutions, Cong improved the team's working vibes. Witnessing the positive impact of his efforts, he gained confidence in his ability to

navigate interpersonal interactions and facilitate collaboration. This newly found self-assurance had translated into a greater willingness to take on leadership roles in future projects and a more proactive approach to addressing communication challenges in other areas of his life. Facing a similar challenge, Jia discovered her weaknesses as a team leader when she failed to motivate other team members' enthusiasm, which led to reflections on future self-improvements.

> *There's one thing I want to improve about myself. I did not intentionally arouse my team members' initiative… (Jia)*

4.3.2 Co-work of transformative reflexivity and epistemic diversity

As discussed in the previous section, the interplay of transformative reflexivity and epistemic diversity contributes to collaborative learning and promotes social justice and equity, especially in the knowledge system. More importantly, within the mechanism of academic self-formation, co-work of the two stimulates self-criticism and enables the cyclical and iterative learning process. For example, Chu's critical self-reflection not only led to her instant decision but also shaped her understanding of knowledge, which influenced her future learning trajectory:

> *Before this project, I thought books were the only source of knowledge, but now… I think knowledge also comes from practice… We can never learn some knowledge if we only learn theories from the textbooks. This can be the value of case studies and practice-based learning. (Chu)*

Similarly, participants like Fan, Qiu and Ran did not see the completion of the project as the end of their learning from this experience. In a broad sense, participants employed meta-reflexivity to seek guidance for their future projects. In other words, self-reflections, especially self-criticism regarding knowledge and learning based on the *Dachuang* programme experience, had a sustainable impact on their future learning practices:

I should critically examine and even challenge the existing theories and knowledge based on the context of my research. (Fan)

I consider many things can be adjusted and updated. They are fluid [instead of stable]… Knowledge is not a natural being. Knowledge is created and generated… We should not only learn the knowledge but also trace the source of the knowledge. (Qiu)

I will not blindly listen to the information provided by representatives or recommenders. I will check and testify [the information] by myself. (Ran)

As the product of academic self-formation through *Dachuang*, participants' reflexive agency and epistemic agency would continuously interplay and evolve within the mechanism, influencing their personal projects even after they completed the *Dachuang* projects.

Chapter 5. Discussion

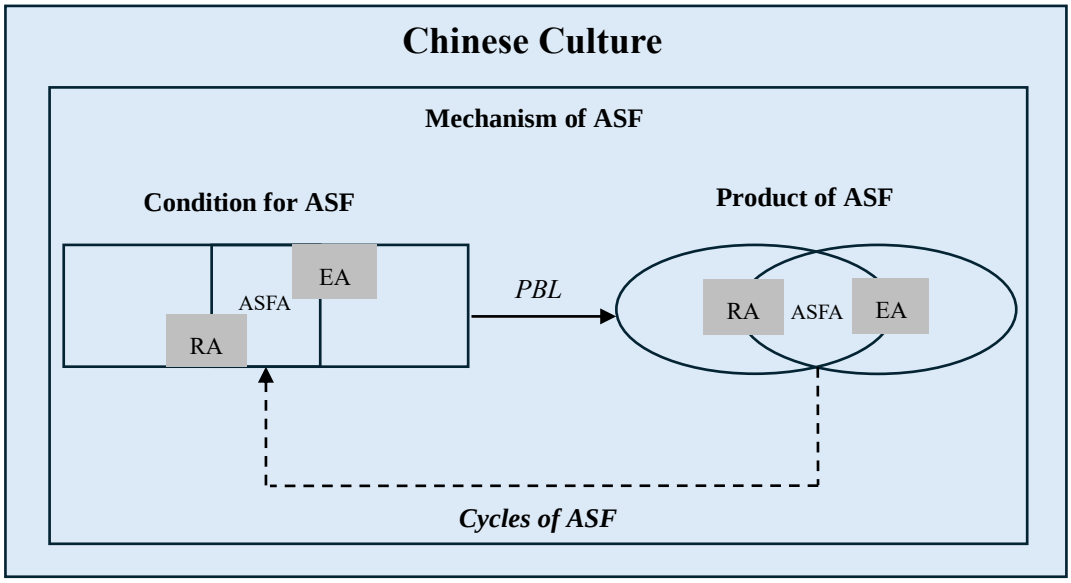
In relation to the literature, this chapter discusses 5.1) Chinese students' academic self-formation through PBL as a response to the research questions and 5.2) the concept of student academic self-formation in higher education, encompassing how the findings contribute to the conceptualisation of reflexive agency, epistemic agency, and the interplay of the two, as a conceptual contribution to the paradigm.

5.1 Chinese students' academic self-formation through PBL

As **Figure 3** demonstrates, Chinese students' academic self-formation through PBL demonstrates a pattern that begins with conditioned but partially open agency to increasingly transformative reflexivity and epistemic diversity as the product. This transformative process, as the mechanism of academic self-formation, is shaped by Chinese culture and the PBL approach that carries specific features of the *Dachuang* programme and the institutional context in which it is embedded. It is iterative and non-linear, enabled by a continuous interplay of reflexive and epistemic agency and their evolving interplay, where forming products of agency become new conditions for

further academic self-formation.

Figure 3: *Chinese students' academic self-formation through PBL*



Note. ASF (Academic self-formation), RA (Reflexive agency), EA (Epistemic agency), ASFA (Academic self-forming agency)

To begin with, the interviewed Chinese students are strong agents for academic self-formation (Lee, 2021, 2024b; Marginson, 2014, 2023b) within certain conditions. They seize the opportunity of PBL to achieve a desired self. Their goals and motivations are primarily derived from self-reflection and critical evaluation of the learning environment. This echoes Zimmerman's (2002) emphasis on the importance of goal-setting in students taking control of their learning and Ryan and Deci's (2000) self-determination theory, which posits that intrinsic motivation driven by autonomy is crucial for optimal learning.

Nevertheless, SDL in PBL is not fully autonomous as suggested in the previous literature (see Elgin, 2013; Loyens et al., 2008). It involves multiple engagements with interpersonal relationships, which can be external structures that contain resources for academic self-formation. These findings align with the prevailing ideas of agency-

structure morphosis, which primarily problematises the one-sided understanding of ‘either atomic individualism or largely attributed to social forces’ (Lee, 2024b, p. 319). To elaborate, students’ epistemic agency conditioned by the discipline reflects the ‘unconscious side’ included in Bourdieu’s habitus in that students tend to follow the social division of labour to shoulder their ‘moral responsibilities’ as a disciplinary member (Akram, 2013; King, 2010; Yang, 2022). Still, personal decisions based on the combinations of self-reflection and pursuit of passion and interests indicate the ‘analytic autonomy vis-à-vis transpersonal interactions’ grounded in human agency (Emirbayer & Mische, 1998, p. 974).

Despite the conditioned agency, the teamwork pattern embedded in PBL, especially the strong pursuit of harmony over project outcomes, shapes academic self-formation into an SDL process with open minds. This aligns with the findings by Walker et al. (1996) and Huang et al. (2013), who argue that Chinese students in PBL demonstrate collectivist values such as harmony, face-saving and team spirit. Respecting team members’ ideas encourages epistemic openness. Through collaborative learning, especially in cross-disciplinary projects, students are exposed to a wider range of disciplines and perspectives, further contributing to epistemic diversity and openness in understanding how they situate themselves in society through knowledge engagement (Lee, 2024a). Although students also encounter team conflicts, they learn from the experience of negotiation and adjustment and acknowledge the significance of generic skills and tacit knowledge (e.g., understanding the team’s communication style), broadening their understanding of knowledge by viewing knowledge as dynamic and contextual. In this regard, the findings challenge Walker et al. (1996), who contend that Chinese students in PBL over-pursue harmony and consensus at the cost of learning outcomes.

With structured social roles and intrinsic motivation, students conduct critical self-reflections more often through exercising meta-reflexivity. Aligning with Sheng and Sun’s (2023) findings, students who take leadership roles in teams tend to have more

initiative and internal driving forces. According to this study, team leaders take self-reflections more frequently and proactively than other team members. Zheng et al. (2021) observe a similar pattern and attribute it to the sense of responsibility assigned to leadership. However, the findings show that the sense of responsibility encompasses both external social norms assigned to leadership roles and self-authorship over the projects. According to this study, intrinsic motivations play a larger role in directing leaders' decisions and behaviours in cooperative learning, as evidenced by their strong passion for self-pursuit when initiating the projects.

Students' perception of 'teacher as supportive facilitator' enables guided autonomy in academic self-formation and gradually develops epistemic openness. This perception is embedded in the Chinese hierarchical teacher-student relationship, where teachers act more as knowledge authority (Shim, 2008; Xu, 2003), but shaped by the PBL contexts where 'problems' are ill-structured (Moallem et al., 2019) and the approach to get the 'answer' requires ongoing reflexivity (Becker & Maunsaiyat, 2004; Blumenfeld et al., 1991). Students develop SDL capacities and epistemic openness through exploratory ways of learning as a departure from conventional indoctrinating pedagogy, where the answer is definite and passed by teachers. In other words, students in PBL learn *from* but not *through* teachers' suggestions. Aligning with Lee (2024b), whose empirical research is based on Korean contexts and shares similarities in teacher-student relationships with Chinese contexts, the interviewed students usually actively conform to teachers' suggestions by internalising the 'external suggestions' as contributing to their intrinsic motivations. However, this study also demonstrates that students remain agentic and critical to teachers' suggestions based on their increasing engagement in the projects, partially impacted by the campus culture that encourages independent, critical thinking. These findings reflect the individuality and subjective nature of students' agency, which, consistent with Case (2013), supplements previous literature in which student agency is majorly examined as an indicator of homogenisation cultivated by teachers and institutions (Kirschner et al., 2018).

Influenced by the pragmatic notion embedded in PBL, teachers help students bridge the gap between academic discourse and social practices, expanding students' understanding of knowledge, especially the value of non-disciplinary knowledge. As students learn about the value of knowledge in non-academic discourses from both their teachers and first-hand practices, they also experience a shift from a 'student-thinking pattern' to a more mature one that focuses more on the value of knowledge in solving real-world problems, reflecting Yang's (2022) emphasis on the moral qualities of individual formation. The related findings, on the one hand, echo Lee's (2024) emphasis on the formation of disciplinary agency in students' realisation of the importance of combining theoretical disciplinary knowledge with real-life practice. On the other hand, the finding that students value non-disciplinary knowledge the same supplements Lee (2024a, 2024b) in that disciplinary knowledge, though in higher education characterised by specialisation, is not the only dominant type of knowledge perceived by students. This echoes Ashwin et al. (2024), who contend that students' perception of academic knowledge and their learning objectives evolves over time and across contexts.

The cultivation of pragmatic notions also carries institutional and disciplinary features. Influenced by University X's campus culture and institution-specific policy regarding *Dachuang* that addresses the 'Going-Out' strategy, many students expect their projects to contribute to cross-cultural communication and bring more international influences. Besides, the developed pragmatic notions of SSH students also differ from those in medical and engineering subjects (see Zhao et al., 2023; Zhong et al., 2024). SSH students tend to unpack the idea of pragmatics as 'altruist values' and turn them into intrinsic motivations such as an increasing sense of responsibility.

There are nuances between the findings on teaching-learning relationships in this study and those in previous literature on PBL application in China, partly due to the features embedded in the *Dachuang* programme. Different from maintaining high interference in students' learning (Li & Du, 2015), the supervision relationship in *Dachuang* is

structured in a way that allows students to exercise their own judgment. Compared with the in-class PBL (see Li, 2018), *Dachuang* provides a more open learning environment where students can choose learning contents and approaches. However, some students view it as 'restricted freedom' because they are aware that there are certain types of content appealing to the organising committee. As such, when discussing project topics with teachers, the interviewed students tend to accept teachers' suggestions on conducting projects favouring mainstream ideologies and state policies due to students' perceptions of teachers as more experienced 'knowledge authority'. In this regard, the students learn not only disciplinary and academic knowledge (e.g., research methodology) but also experiential knowledge, such as the strategy to get project approval in academia.

As discussed, students' academic self-formation is highly context-oriented. The context continuously shapes the interplay and evolvement of students' reflexive agency and epistemic agency. Further, the findings from this case study contribute to conceptualisation of academic self-formation.

5.2 Conceptualisation of academic self-formation

5.2.1 Conceptualisation of reflexive agency through academic self-formation

Overall, the findings align with Archer (2003, 2007) in that reflexivity is not about homogeneous processes of internal deliberation; rather, it is shaped by how we interact with the world around us and what matters most to us, mainly depending on the cultural and social contexts. All four modes of reflexivity by Archer (2003) manifest in the mechanism of students' academic self-formation. However, this typology tends to oversimplify the complexity of human reflexivity in actual practices. Instead of having one mode of reflexivity as the dominant, the findings show a high-level integration of different modes of reflexivity in response to one event, with the integration of autonomous and communicative reflexivity being the major pattern. This pattern can be shaped by the hierarchical teacher-student relationships in Chinese culture (e.g., teachers as the knowledge authority), as well as the pedagogy of the case programme

that encourages students' self-authorship of learning (Zheng et al., 2021). The interplay and tension between these two norms harmonise in students' internal dialogue, depending on students' priorities for personal projects. For example, students who expect to accumulate project experience beyond the aspiration to achieve personal pursuits tend to 'listen to their teachers' more. This process aligns with Archer (2003, 2007) in that the decisions are generated by referencing to agents' objective social circumstances and subjectively defined concerns.

Overall, higher education, especially the PBL experience, contributes to the gradual shift from reformative reflexivity to transformative reflexivity. This indicates a decline in conformity to vested interests and authoritative guidelines based on observation from Western societies (Archer, 2012). However, in non-Western societies (e.g., China in this case), meta-reflexivity does not necessarily lead to more incongruity and constraints for agentic choices. Instead, there is more strategic and creative integration and juxtaposition of diverse ideas, which differs from passive conformity and does not contradict individuals' subjectivity.

5.2.2 Conceptualisation of epistemic agency through academic self-formation

The influence of the disciplinary community emerges as a strong theme in conceptualising epistemic agency. In general, epistemic agency is shaped by the disciplinary community and their membership within. Students tend to initiate projects related to their major studies, which aligns with Dressen-Hammouda (2008), who argues that disciplinary identity increases students' reference to the core concerns and practices related to the discipline. Disciplinary identity, or the specialised embodied mental framework formed during major studies, provides students with a structure to perceive, interpret, and interact with the world (Goodwin, 2000; Lakoff & Johnson, 1999) and influences students' self-awareness as they tend to consider the mastery of disciplinary knowledge as their strength in learning. However, disciplinary identity does not produce homogeneous impacts. It potentially has a stronger influence on students in the early years of higher education than those in the final years. One possible

reason is that parents and society often pressure Chinese students to succeed academically and choose a prestigious major, as the construction and functioning of mental frameworks are socially and culturally dependent (Yang, 2022). Thus, students who 'enter the discipline' more recently tend to have more attachment with their major studies as a response to the external expectations.

However, students' exercise of epistemic agency is beyond the shaping of the disciplinary community. As findings suggest, students tend to develop epistemic diversity through higher education. In line with Salmento and Murtonen (2019), developing research capabilities provides students with tools and resources to engage in cognitive development, allowing them to challenge existing knowledge system and explore, acquire, and produce a broader range of knowledge that somewhat frees students from relying on disciplinary knowledge as the primary language for internal dialogue (Hyland, 2011). The findings provide an alternative perspective to evaluate the influence of research capabilities on epistemic development, as the capabilities not only involve students' knowledge about 'what they can/aspire to do' but also 'what they cannot/don't aspire to do'.

Further, students also enrich the layers of personal projects through higher education. Students' experience in higher education includes not only major studies accessing disciplinary knowledge, norms, and virtue but also varied extracurricular activities and different types of relationships, which expose students to a broader range of learning experiences and resources. This finding is consistent with Marginson (2023b) in that the extracurricular exposure strengthens 'a sense of ontological openness' that expands the scope of students' personal projects (p. 9). In this study within the *Dachuang* context, beyond the plans to further academic studies and enter academia as suggested in students' preliminary aspirations (Ruan, 2018), many students look forward to more varied learning plans, especially non-academic ones like taking internships in industry and carrying on voluntary practices to serve less-privileged communities. This further contributes to the multiplicity and complexity of students' social identities that carry

the features of both a disciplinary member and those of members within personal social relations (Yang, 2022).

5.2.3 Contribution of the interplay model

In response to Archer and Bourdieu, the interplay model contributes to a comprehensive and nuanced understanding of the synthesis of agency and structure in higher education contexts (Kemp, 2010). Further, it provides a more comprehensive and nuanced understanding of how students negotiate between the personal self and social self through knowledge engagement and how certain social and cultural contexts potentially shape a certain pattern of academic self-formation through higher education (Lee, 2024b; Yang, 2022).

On the one hand, incorporating the concept of epistemic agency into the discussion of reflexivity challenges contributes to understanding the agency-structure morphosis in higher education contexts. This study involves the social sites intersecting higher education and an expanded understanding of knowledge in the discussion (e.g., knowledge acquired and constructed through social practices) by addressing the evolvement of epistemic agency through PBL. Jumping out of the traditional understanding of higher education as an academic discourse, this study offers a better understanding of Bourdieu's habitus, a 'generative mechanism for producing socially embedded creativity' of students that enables them to constitute a socially meaningful life through knowledge engagement (Farrugia & Woodman, 2015). This supplements the self-determined, personal shaping of subjectivity proposed by Archer (2007, 2012), who potentially ignores the social base of human agency (Klemenčič, 2015, 2020).

On the other hand, as a complement to Bourdieu (1990), who holds a structuralist opinion that human behaviour is embedded in social and cultural structures, the findings expand the discussion of structured agency by demonstrating students' different responses to different types of external structures. Far from a mute determination, students take the sociological analysis of external structures based on

their self-reflections on personal capabilities and expectations for external resources. In the *Dachuang* context, for example, students show more conformity to the social norms (e.g., criteria for 'good students' and responsibility embedded in leadership) and institutional policies central to acquiring qualification (e.g., graduation policy), which they tend to internalise as 'personal values' in their previous educational experiences. In contrast, students view supportive institutional policies, teachers' constructive suggestions, and campus culture as 'more flexible', allowing for more negotiation and creative adaptation with higher involvement of autonomy.

Further, the overlapped domain of reflexive agency and epistemic agency comprise the academic self-forming agency, which situates the agency-structure debate in a more focused context of knowledge engagement. Based on this study, the academic self-forming agency can be defined as the capacity to self-reflect on personal ontological and epistemological assumptions that direct knowledge engagement practices concerning personal capability building. To elaborate, exercising academic self-forming agency in this study involves self-reflection on the learning-teaching approach, learning environment (e.g., institutional atmosphere and policies), interpersonal interactions with teachers and other students, and self-society relationships reflected in knowledge engagement, etc., and how these reflections direct the practices regarding personal capability building. Since the practice of academic self-forming agency is under the mechanism, the content and extent of reflections can be highly contextual-oriented. As such, students' academic self-forming agency is both shaped by the external structure and guides ever-happening, practice-oriented, conscious reflections on the external structure through knowledge engagement.

Chapter 6. Conclusion

This chapter starts with a summary of the study, followed by discussion of contributions, limitations, and recommendations for future research.

6.1 Summary of the study

Based on constructivist assumptions, this qualitative study investigates how students engage in academic self-formation through PBL using the case of *Dachuang*. The study explores the condition, mechanism, and product of students' academic self-formation by interviewing 20 Chinese students who participated in the *Dachuang* programme during their undergraduate studies at a 'Double-First-Class' Chinese university.

Findings show that students are active agents in academic self-formation through PBL, engaging in a continuous interplay of reflexive agency and epistemic agency during the interaction with external structures and relationships. These processes are primarily embedded in the cultural contexts (e.g., hierarchical teacher-student relationship, pursuit of harmony, and tendency for social division of labour) and shaped by other contextual factors such as learning approaches and institutional features. The evolving agency of Chinese students remarks a transition from conditioned reflexivity and epistemic agency to increasingly transformative reflexivity and epistemic diversity and openness. Academic self-formation is highly individualised by factors such as major subjects, phases of university study, team roles, previous learning experiences, and participation in other activities intersecting with higher education. The empirical evidence of this study refines Lee's (2021, 2024a, 2024b) conceptual framework and includes condition, mechanism, and product as three crucial components of the cycle of academic self-formation.

6.2 Contributions of the study

This study has conceptual and empirical contributions to the paradigm of higher education as student academic self-formation. Within this paradigm, the findings contribute to an expanded and dynamic conceptualisation of agency-structure morphosis. Further, the findings have practical implications for the organisation of the *Dachuang* programme.

First, the study refines Lee's (2021, 2024a, 2024b) conceptual framework for academic self-formation by introducing the ongoing interplay of reflexive agency and epistemic

agency. The refined framework has more explanatory power in understanding the complexity of agency-structure morphosis. Reflexive agency emphasises how external structures are mobilised by students as resources for academic self-formation while epistemic agency highlights the transformative role of students through knowledge engagement. The dynamic interplay of both agencies function throughout the mechanism of academic self-formation, where condition and product of academic self-formation are constantly on the making and integral to the cyclical mechanism. The conceptualisation of mechanism echoes Lee (2021, 2024a, 2024b) and Yang (2022) and provides a framework for future studies to further explore student academic self-formation in other contextual settings (e.g., in different cultures, societies, and learning environments).

Second, responding to Marginson's (2023b) suggestion, this study not only offers empirical evidence from domestic students for the paradigm but also enriches the understanding of student academic self-formation through a nuanced analysis of students of different phases of study, majors, and roles in teams. By taking PBL, especially PBL in the form of extracurricular activity, as the approach, this study expands Lee's (2024b) understanding of student academic self-formation, shifting from a specific focus on academic discourse and disciplinary knowledge engagement to a broader understanding of higher education that involves more sites intersecting with the educational discourse of higher education. This also further contributes to a more comprehensive understanding of the purpose and contribution of higher education.

Third, the study findings based on the interplay model of reflexive agency and epistemic agency suggest a synthesis of agency and structure in higher education contexts beyond Archer and Bourdieu (Kemp, 2010). On the one hand, the study figures out the unconscious side of reflexive practices within sociological discourse by involving the social sites intersecting higher education and an expanded understanding of knowledge in the discussion. On the other hand, the evolvement of epistemic agency, especially from discipline-conditioned towards epistemic openness and diversity,

indicates that external structures do not necessarily restrain agency, instead, have the potential to enhance agency freedom through higher education.

Last, this study contributes to the *Dachuang* programme both theoretically and practically. Compared with the widely adopted quantitative approach, the qualitative approach enriches the understanding of *Dachuang*'s educational significance by including more students' perspectives and increasing their representativeness, especially those from SSH majors. Instead of assessing learning outcomes merely based on the 'project product' and students' academic capability-building, the paradigm of student academic self-formation provides an alternative approach to making sense of the learning outcomes, addressing both the process and result of their *Dachuang* experiences. The findings of this study also call for increasing attention to students' overall experience in *Dachuang*, involving not only the initial project selection and final assessment phase but also the project-implementation phase, where students' interaction with supervisors and teammates can significantly impact students' agency development.

6.3 Limitations and future research

Despite these contributions, the current study has some limitations, many of which can contribute to future research on student academic self-formation and students' PBL experience.

The sampling and recruitment may harm the representativeness of data. Students from first-tier universities can help the study highlight students' academic experiences, but it would also be valuable to explore students' learning experiences at less prestigious universities and compare the differences in the mechanisms and external influential factors. Besides, the students who voluntarily registered as participants may feel satisfied or worthy of joining *Dachaung*, while those who refused to participate, failed to pass the selection, and failed to complete the project may also be worth investigating. As such, future research can expand the sampling. Exploring the reason behind these

‘refusals and failures’ contributes to a more comprehensive understanding of the mediating role of reflexivity between agency and structure and how these learning experiences influence the evolvement of epistemic agency and reflexivity. The findings may help address some possible influential factors, such as family support, socioeconomic status, academic performance and different majors within SSH, which are under-explored in the current study. Besides, it would also be interesting to address non-SSH major students, such as natural sciences and engineering students, who tend to be markedly distinct from SSH students due to the different education they receive (Snow, 1962). Cross-case comparison of similarities strengthens the external validity of this study (Houghton et al., 2013). When the refuting findings occur, the comparison helps extract the significant contextual factors, which sparks new research directions for exploration (Stoecker, 1991).

Second, as discovered during the interview, few participants found it hard to recall the memories, especially when I double-checked whether the impacts they mentioned directly resulted from the *Dachuang* experience. Thus, it is suggested that the longitudinal approach can be a better approach as the researcher would be able to closely follow participants’ learning process and collect the ‘fresh data’ such as their real-time self-reflections.

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Appendices

Appendix A: CUREC Approval

SOCIAL SCIENCES & HUMANITIES
INTERDIVISIONAL RESEARCH ETHICS COMMITTEE
DEPARTMENTAL RESEARCH ETHICS COMMITTEE

Department of Education
15 Norham Gardens, Oxford OX2 6PY
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[redacted]

14 April 2024

Research ethics approval

Research title: Personal project to develop academic self: students' academic self-formation through student-driven research project

Research ethics reference: EDUC_C1A_24_137

The above application has been considered on behalf of the Education Departmental Research Ethics Committee (DREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to confirm that, on the basis of the information provided to the DREC, ethics approval has now been granted for this study.

Please note the following:

Personal data: It is the responsibility of the PI to ensure that all personal data collected during the project is managed in accordance with the University's guidance and legal requirements.

In-person activities: Any data collection involving in-person interactions with participants must have an up-to-date fieldwork risk assessment in place; further guidance is available from the Safety Office's website.

Amendments: Please notify the committee if you intend to make any amendments to the information in your ethics application as submitted at date of this approval, as all changes must receive ethical approval prior to implementation. The amendment form is available on the SSH IDREC webpage.

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to staff.curec@education.ox.ac.uk / student.curec@education.ox.ac.uk or ethics@socsci.ox.ac.uk.

Yours sincerely

[redacted]

Central University Research Ethics Committee (CUREC)

CUREC 1A Application form for research projects in the social sciences and humanities with less complex ethical issues

The University of Oxford places a high value on the knowledge, expertise, and integrity of its members and their ability to conduct research to high standards of scholarship and ethics. The research ethics review process has been established to ensure that research involving human participants is conducted in a way that respects the dignity, rights, and welfare of participants, and minimises risk to participants, researchers, third parties, and to the University itself. It is assumed that all members of the University will take their responsibilities and obligations seriously, and will ensure that their research involving human participants is conducted according to established principles and good practice in their field and in accordance, where appropriate, with legal requirements.

Before completing this form, please refer to the guidance and flowchart on the Research Support website. Only type-written forms form will be accepted. Completed application forms should be emailed, along with relevant supporting documents, to your Departmental Research Ethics Committee (DREC) or to ethics@socsci.ox.ac.uk from your ox.ac.uk email address.

Please contact your DREC or the SSH IDREC if you have any questions about completing this form or the review process.

SECTION A: Filter for CUREC 2 application		
This section determines whether the application for ethics review should be made using this form (CUREC 1A) or the CUREC 2 form (for research with more complex ethical issues).		
Please indicate with an 'X'.	**Yes**	**No**
1. Does the research involve the deception of participants?	☐	☒
2. Are the research participants vulnerable in the context of the research, or classed as people whose ability to give free and informed consent is in question? For example, • Participants aged 16 or under (also answer question A5); • Participants aged 16 – 18 who can neither be considered competent youths nor recruited under Approved Procedure 25 • adults at risk; Note the University's Safeguarding Guidance and Code of Practice and its implications for researchers involving young people or adults at risk.	☐	☒
3. By taking part in the research, will participants be at risk of criminal prosecution or significant harm?	☐	☒
4. Does your research raise issues relevant to the Counter-Terrorism and Security Act (the Prevent Duty), which seeks to prevent people from being drawn into terrorism? Best Practice Guidance 07 on the Prevent Duty provides further guidance.	☐	☒
If you answered **'No'** to all the questions above, go to Section B. If you answered **'Yes'** to any question above, continue to question 5 below.		
5. Is your project covered by a CUREC Approved Procedure?	☐	☐
If yes, list the CUREC Approved Procedure(s) you will follow		
If you have answered '**No**' to all questions 1-4, go on to **Section B**. If you answered '**Yes**' to ANY of questions 1-4, and answered '**No**' to question 5, **stop** completing this form and do not submit it for		

ethical review. You will instead need to submit a CUREC 2 application form. If you answered **'Yes'** to **any** of questions 1-4, and your project is covered by an Approved Procedure, **go on to Section B**. If more than one Approved Procedure applies, contact the SSH IDREC or your DREC for advice on whether a CUREC 2 form should be submitted instead.

SECTION B: Researchers		
1. Name of Principal Investigator or student's supervisor	[redacted]	
2. Department or Institute	Department of Education	
3. University of Oxford email address	[redacted]	
Copy and paste the following six rows as necessary to complete for each additional researcher who will be involved in this study, including student(s) and those external to the University.		
4. Name of researcher or student	[redacted]	
5. Department or Institute	Department of Education	
6. University of Oxford email address	[redacted]	
7. Role in research	student	
8. Degree programme, if student research	MSc	
The whole research team		
9. Have the researchers undertaken research ethics and integrity training?	**Yes** ☒	**No** ☐
10. Please provide details of any research ethics and integrity training undertaken, including the dates of the training. Alternatively state relevant research experience.	By Mar 2024, the researcher has completed the modules (Foundations of Educational Research 1&2, Perspectives and Debates in Qualitative Research) about research methods training that covers ethical issues regarding interviews. She also completed the University's online training including Research Integrity: Introductory Core Course and Research Integrity: Research Involving Human Participants on Feb 7, 2024.	
11. State any conflicts of interest and explain how these will be addressed.	None.	

SECTION C: The research project	
1. Title of the research project	
Personal project to develop academic self: students' academic self-formation through student-driven research project	
2. Anticipated start date of the aspect of the research project involving human participants and/ or personal data (**dd/mm/yy**).	31/03/24 and as soon as receiving CUREC approval
3. Anticipated research end date (**dd/mm/yy**).	01/08/24.

4. Provide a brief lay summary of the aims and objectives of the research. This should cover the questions it will answer and any potential benefits. (max 300 words)	
The research aims to investigate how students engage in academic self-formation through student-driven research project. The research will focus on Chinese undergraduate students' experience in extra-curriculum activities in the form of problem-based student-driven research project and explore how the activity shapes the process and outcomes of student academic self-formation. The research intends to elaborate the framework of student self-formation by centring on the following research question: how dos students engage in academic self-formation through student-driven research project? Under this core research question are three sub-research questions: (a) what are the enabling or enhancing factors of student academic self-formation? (b) what are the constraining factors of student academic self-formation? (c) what are the outcomes of student academic self-formation? By conducting the research, the researcher expects to elaborate the framework of student self-formation by addressing the conceptual development and offering empirical evidence in this field. This research is also expected to provide a new perspective to examine the contribution of higher education and offers a more telling response towards the ideas shaped by human capital theory and deficit models. This research will also shed lights on the impacts of teaching on student academic-self-formation in higher education contexts.	
5. Please indicate the methods to be used (indicate with an '**X**'):	
Analysis of existing records	☐
Snowball sampling (recruiting through contacts of existing participants)	☒
Use of casual or local workers e.g. interpreters (refer to guidance in BPG 01: Researcher safety)	☐
Participant observation	☐
Covert observation	☐
Observation of specific organisational practices	☐
Participant completes questionnaire in hard copy	☐
Participant completes online questionnaire or other online task (refer to guidance in BPG 06: Internet-mediated research)	☐
Using social media to recruit or interact with participants (refer to guidance in BPG 06: Internet-mediated research)	☐
Participant performs paper and pencil task	☐
Participant performs verbal or aural task (e.g. for linguistic study)	☐
Focus group	☐
Interview (refer to guidance in BPG 10: Conducting research interviews)	☒
Audio recording of participant (you will generally need specific consent from participants for this)	☒
Video recording of participant (you will generally need specific consent from participants for this)	☒
Photography of participant (you will generally need specific consent from participants for this)	☐

Others (please specify below) I will use group message to recruit participants.	☒

6. Provide a brief summary of the research design and methods. What will research participants be asked to do? (max 300 words)
Please also submit a copy of the questions participants will be asked, if applicable, or some information about the sorts of topics that will be covered.

The research will adopt the interview method. Participants will be recruited through group chat message. In this way, the researcher can make sure the participants recruited are enrolled undergraduate students in a Chinese university. The researcher is expected to get the access to the university group chat through acquaintances, who will help the researcher send the recruitment poster and message in the group chat. The researcher will also adopt snowballing method, which will help pinpoint the target participants efficiently. The participants who are willing to join the research voluntarily will be asked to contact the researcher via email and/or WeChat directly. A written consent form and participant information sheet will be sent to the participants to review. The participants will be asked to complete the forms and send them back to the researcher by a given deadline.

The interview will be individual and semi-structured. The structured questions (see the document for interview question for details) will be sent to the participants via email in advance to let the participants have an overall understanding of the research topic. During the interview, participants may be asked further questions to clarify their responses or give more details. The interview is estimated to take 40-60 minutes per participant. The interview will be conducted online via Teams meeting and all the interviews will be video recorded and audio recorded by researcher's personal laptop, which is password protected and connected to eduroam, the university WIFI. Right after the recordings are transcribed by the researcher, all the copies will be permanently deleted. In the transcription, all the participants will be pseudonymous.

7. List the location(s) where the research will be conducted, including any other countries.	The interviews are expected to be conducted online. The researcher will be based in the UK and participants will be based in China. .
8. Clarify which parts of the research will be conducted in-person and which will take place remotely, e.g. online.	All the interviews are expected to be conducted online.

9. If your research involves fieldwork or travel and your department requires a travel risk assessment, will you have completed and returned a risk assessment form beforehand? Please indicate with an '**X**'. (This must be approved by your department before you travel. If you are travelling overseas, you are advised to take out University travel insurance.) Refer to guidance available from your Department, the Safety Office, the Social Sciences Division, and the Humanities Division, and on travel for University business.	Yes	☐
	No	☐
	Not required in this instance	☒

10. In the case of international or collaborative research, explain how you will address any ethical issues specific to the local context. Please provide details of the local review, approval or permission obtained or required. Refer to the BPG 16: Social science research conducted outside the UK and the Code of Conduct for Ethical Fieldwork. If there will be no local review, explain why not.
Please mention any stakeholder or community engagement that has been/ will be undertaken in relation to the research.

Please also address any physical or psychological risks for Oxford researchers and local fieldworkers in Section G.	
The researcher has carefully read through the BPG 16: Social science research conducted outside the UK and the Code of Conduct for Ethical Fieldwork. Since the research will involve participants who are enrolled students or graduates from the university in China, the researcher will ensure there will not be ethical issues that are against Chinese social norms and university regulations. Even if the research itself will not go through local ethics reviews or approval, the researcher will make sure that the interviewees are fully aware of their rights before, during and after the research and their right to deny, change the question or reject the interview itself at any point of the research.	
11. Name of departmental/ peer reviewer (if applicable)	N/A
12. External organisation funding the research and grant reference (if applicable)	N/A
13. Please refer to the CUREC Best Practice Guidance and list any that have been used to develop your research.	BPG 09 Data collection, protection and management, BPG 10 Conducting research interviews, BPG 16 Social science research conducted outside the UK, and Ethical Fieldwork Code of Conduct are used to develop my research.

SECTION D: Recruitment of research participants	
1. Number of participants	15-20
2. How was the number of participants decided?	Considering that there will be time limit for the research and word limit for the dissertation, the number of participants is decided under the consideration of practicability and feasibility. Yet the number of participants enables providing a holistic picture for the investigation.
3. Age range of participants	18-25
4. Inclusion criteria	- Chinese undergraduate students currently enrolled in a Chinese university who have experiences in 'Innovation and entrepreneurship training programme for university students' during their undergraduate years. - Students' major should be within the field of social sciences and humanities. - By the time participants take the interview, their research projects should not be completed for more than 3 years.
5. Exclusion criteria	- Foreign students in the university in China.

<table>
<tr><td></td><td colspan="2">- Chinese students whose mother tongue is not Mandarin.
- Chinese students who have attended schools in countries other than China before they conduct their research projects.</td></tr>
<tr><td rowspan="10">6. Indicate with an 'X' all intended recruitment methods
Please submit copies of the recruitment material that will be used, e.g. advertisement text, introductory email text.</td><td>Poster advert</td><td>☐</td></tr>
<tr><td>Flyer</td><td>☒</td></tr>
<tr><td>Email circulation</td><td>☒</td></tr>
<tr><td>Social media (e.g. Twitter, Facebook)</td><td>☒</td></tr>
<tr><td>Website</td><td>☐</td></tr>
<tr><td>In-person approach</td><td>☐</td></tr>
<tr><td>Snowball sampling</td><td>☒</td></tr>
<tr><td>Recruitment sites (e.g. Mechanical Turk)</td><td>☐</td></tr>
<tr><td>Existing contacts or volunteer database</td><td>☒</td></tr>
<tr><td>Other (please specify):
University's group chats on WeChat</td><td>☒</td></tr>
<tr><td>7. How will potential participants be identified and approached?</td><td colspan="2">The recruitment poster and message will be posted in the Chinese university's groups chats by the acquittances of the researcher representing the researcher. The potential participants will be asked to contact the researcher via email and/or WeChat directly if they are interested. A consent form and a participant information sheet will be sent to the participants via email to review. After the participants sign the forms, which indicates they agree to participate in the research, the researcher will ask them if they are aware of anyone else who also meet the inclusion criteria and are willing to take the interview.</td></tr>
<tr><td>8. Will informed consent be obtained from the research participants or their parents/ guardians? If not, please explain why not.</td><td colspan="2">The participants are expected to sign the consent form themselves before the interviews.</td></tr>
<tr><td>9. For each activity or group of participants, explain how informed consent will be obtained from the participants themselves and/ or their parents/ guardians, if applicable. How will their consent be recorded?

Please submit copies of all participant-facing materials for review. E.g.:
• Recruitment material (e.g. emails, posters)</td><td colspan="2">The consent form will be sent to the potential participants via email by the researcher. Since the interviews will be conducted online, all participants will be required to review and sign the consent form, have it scanned and send it back to the researcher via email. All of the signed copies will be uploaded to OneDrive folder via eduroam, the university WIFI. Along with the consent form, the interview question list will be sent to the participants to let them have an overall understanding of the research before the interview.</td></tr>
</table>

• Information for participants to read (or hear) before they agree to take part (e.g. written information or, if applicable, an outline oral information script). • A document to record informed consent. Further guidance and templates.	The recruitment poster, consent form, and document for information for participants to read will be attached.
10. Provide details of any payments and incentives and the rationale for providing these. Further guidance in Best Practice Guidance: 05 Payments and incentives in research.	None.
11. Describe how participants • may withdraw from the study • may withdraw any personal information they have provided from the study State any limits to withdrawal, for example once the data has been anonymised or at some other specified stage prior to publication. Make sure participants are aware of any withdrawal limits.	The participants may withdraw from the study at any time before 30/06/24 for any reason under any circumstance. If the participants wish to withdraw from the study, they are expected to notice the researcher as early as possible, which is stated in the participant information sheet.

SECTION E: Research data

All information provided by participants is considered research data for the purpose of this form. Any research data from which participants can be identified is known as personal data; any personal data which is sensitive is considered special category data. Management of personal data, either directly or via a third party, must comply with the requirements of the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018, as set out in the University's Guidance on Data Protection and Research.

In answering the questions below, please also consider the points raised in the Data Protection Checklist and Data Protection Screening Assessment and whether, for higher-risk data processing, a separate Data Protection Impact Assessment may also be required for the research. Advice on research data management and security is available from Research Data Oxford and your local IT department. Advice on data protection is available from the Information Compliance team.

For guidance on conducting internet-mediated research, refer to CUREC's Best Practice Guidance 06: Internet-mediated research.

1. What data will be collected? (Indicate with an '**X**')

Screening documents	☐	Task results (e.g. questionnaires, diaries)	☐
Consent records (e.g., written consent forms, audio-recorded consent, assent forms)	☒	IP addresses (refer to Best Practice Guidance 09: Data collection, protection and management for guidance)	☐

Contact details for the purpose of this research only	☒	Field notes	☐
Contact details for future use (guidance)	☐	Photographs	☐
Opt-out forms	☐	Information about the health of the participant (including mental health)	☐
Audio recordings	☒	Previously collected (secondary) data	☐
Video recordings	☒	Data already in the public domain. Specify the source of the data:	☐
Transcript of audio/ video recordings	☒	Other, please specify:	☐

2. During the course of the research, where will **each type of** research data be stored?	The electronic consent forms will be solely uploaded to the university OneDrive folder. Microsoft Teams will automatically generate both video recordings and audio recordings for the interviews. The video recordings will be deleted right after the interview. The audio recordings will first be stored in the researcher's personal laptop, which is password protected and solely connected to eduroam, the university WIFI during that period of time. Then, the recordings will be uploaded to and stored in the University of Oxford OneDrive. After that, the recording copies on the laptop will be deleted permanently. After the interview(s), the researcher will transcribe the recordings, and when possible, based on the auto-transcripts generated by Teams. The transcription will be done by the researcher alone and the documents will be stored in the University of Oxford OneDrive alone. Audio recordings will be deleted after being transcribed.
3. Who will have access to the research data during the project?	Only the researcher and the supervisor (Principal Investigator) will have access to the research and research data, which will be stated in the consent form for the participants to review.

4. Please complete this section if your research involves the use of secondary (i.e. previously collected) data.	**Please indicated with an 'X'.**	**Yes**	**No**
	Are data access agreements in place for access to and use of this secondary data? (If so, please attach these.)	☐	☒
	Did the individuals agree that their data could be used for this purpose?	☐	☒
	Could anyone (including members of the research team) link the data back to an individual or individuals? If this is a possibility, please explain how the associated ethical issues will be addressed:	☐	☒

5. How do you intend to share the research data at the end of the project?	Deposiing in a specialist data centre or archive	☐
	Submitting to a journal to support a publication	☐
	Depositing in an institutional repository	☐
	Dissemination via a project or institutional website	☐
	No plans to share the data	☒
	Other (please specify):	☐
6. How do you intend to report and disseminate the results of the research? (Indicate with an 'X')	Thesis publication	☒
	Publication in a peer reviewed journal	☒
	Publicly available report	☐
	Conference presentation	☒
	Publication on a website	☐
	Pre-registration	☐
	Report to a research funder	☐
	Providing participants with a lay summary of the results	☐
	Submission for academic assessment	☒
	Other (please specify):	☐
7. Explain what will happen to the data at the end of the research project. This question must be answered for each type of data, including completed consent forms.		
At the end of the research project, the electronic copies of signed consent forms and transcripts will be deleted permanently after 3 years of thesis publication. In case the student researcher loses access to Nexus 365 OneDrive after graduation from Oxford, the supervisor will store the data in the Nexus 365 OneDrive. The researcher may retain contact details in order to re-approach participants about future studies, which is stated in the participant information sheet.		

SECTION F: Protection of research participants and their personal data		
1. How identifiable will the participants be from the **research outputs**? (Indicate with an 'X')	Directly identifiable from the information included	☐
	Pseudonymised/ indirectly identifiable	☒
	Not identifiable – data is anonymous	☐
	Other, please specify:	☐
2. To what extent will the **data** be de-identified? How identifiable will any individuals be from the research data? Describe any measures you will take towards	The participant will be asked to give him/herself a pseudonym. As stated in the participant information sheet, participants' gender, major and graduation year will be identified. The institution name will not be identified, and the name will be replaced by the ranking within Chinese higher education system. The participants may inform the researcher if there is any other specific requirement regarding confidentiality after they learn about the research through consent form, participant information sheet, and interview question list.	

assuring confidentiality, potential risks to confidentiality.	
3. How will you ensure that third parties (e.g., interpreters and transcribers) are aware of and adhere to the measures described in this form?	There will be no third party involved during the whole process of the research.

SECTION G: Risks and benefits of the research
1. Will the research involve topics that could be considered sensitive? If so: a. Please provide more detail or supporting information (such as the interview questions) to show the range of questions; b. Explain what steps will be taken to reduce risk of distress; c. Consider seeking advice from within your Department or from the ethics committee including whether the application might benefit from additional ethics review (e.g., via a CUREC 2 application).
The researcher does not foresee sensitive topics involved in the research by design. The interview questions are designed to collect information regarding the participants' engagement in knowledge and the process and outcomes of academic self-formation. The questions will also touch upon the influence of social factors that shape their reflexive agencies and their understandings of a better self. It is anticipated that the interview questions will entail minimal risk. However, since the interview will be conducted in a seme-structural form, the researcher cannot fully anticipate the responses of the participant. In the event that the participants touch upon sensitive topics, the researcher will not hesitate to seek advice from the Department and the ethics committee. Still, the definition of 'sensitive topic' may vary from person to person, and the researcher cannot fully anticipate how the participants think about the interview questions. The researcher will tackle this issue by sending the participants documents before the interview, including consent form, participant information sheet, and a draft of interview questions. The aim is to let the participants fully aware of what the research is about, what topics they are invited to discuss, how the data will be used, and who will be accessible to the research and research data, ensuring that if they notice any questions and/or wordings that makes them feel uncomfortable they can report the issue to the researcher before the interview. During the interview, if the participants feel distress or offended in any case, the researcher will either end the interview or change the wordings and/or questions to reduce the risk of distress.
2. Describe any additional burden or risks to the participants or others, including the potential for any indirect negative consequences. Explain the steps you will take to address these.
The research is not anticipated to include other sorts of risk.

3. Describe any physical or psychological risks to the researcher(s) (including local fieldworkers or research assistants) and the steps you will take to address these.
The research is not anticipated to bring any physical or psychological risks to the researcher.
4. Describe any benefits of the research, both to participants and to others. Outline the processes put in place to enable equitable research (see BPG 16 Social science research conducted outside the UK for further guidance).
The participants will have a chance to reflect on their previous experiences in research skills development during their undergraduate years, which may help them contemplate on their future academic development (e.g., pursuing higher-level degree). As for other students, the research findings may inform them of the potential outcomes of participating in research skills development activities, if they are yet to decide whether they would like to join. As for the teachers (potential supervisors for students' research projects), the research may give them some insights regarding the role of teaching in student academic self-formation.
5. Comment on the societal impact.
Since the ultimate purpose of the research is to enrich the framework of student self-formation, the research is expected to contribute to the society by providing a distinct perspective to understand the contribution of higher education to society. Also, for Chinese society, the research may help the individuals, institutions and governments have a deeper understanding of how extra-curriculum activities aiming at research skills development impacts undergraduate students' academic development.
6. Give details of any other ethical issues or relevant information.
N/A

SECTION H: Professional guidelines		
Please indicate with an '**X**' at least one set of professional guidelines you will follow.		
Research specialism/ methodology	**Association and guidance**	
Anthropology	Association of Social Anthropologists of the UK	☐
Computer Science	ACM Code of Ethics and Professional Conduct	☐
Criminology	British Society of Criminology Statement of Ethics	☐
Education	British Educational Research Association Ethical Guidelines for Educational Research	☒
Geography	American Association of Geographers Statement on Professional Ethics	☐
History	Oral History Society of the UK Ethical Guidelines	☐
Internet-mediated research	Association of Internet Researchers Ethical Guidelines British Psychological Society: Ethics Guidelines for internet-mediated research	☐

	Association for Computing Machinery Code of Ethics and Professional Conduct	
Management	Academy of Management Code of Ethics	☐
Political Science	American Political Science Association (APSA) Guide to Professional Ethics in Political Science	☐
Politics	Political Studies Association. Guidelines for Good Professional Conduct	☐
Psychology	British Psychological Society Code of Ethics and Conduct	☐
Social research	Social Research Association: Ethical Guidelines	☐
Socio-legal studies	Socio-Legal Studies Association: Statement of Principles of Ethical Research Practice	☐
Sociology	The British Sociological Association: Statement of Ethical Practice	☐
Visual research	ESRC National Centre for Research Methods Review Paper: Visual Ethics: Ethical Issues in Visual Research	☐
Other professional guidelines		☐

SECTION I: Endorsements and signatures	
Please ensure this form is endorsed by the Principal Investigator (or student's supervisor), the Head of Department (or nominee) and, if student research, by the student themselves. **The SSH IDREC Secretariat accepts either option below. If you have a DREC, check which signature option it prefers.** • **Option 1: direct email endorsements** Each of the signatories should submit an email from a University of Oxford email address, indicating their acceptance of the responsibilities listed below. • **Option 2: signatures** Please scan the signed form and email it to us as a PDF. Pasted images of signatures cannot be accepted.	
Endorsement by the Principal Investigator/ student supervisor and student, if applicable	
I/ we the researchers understand my/ our responsibilities as Principal Investigator (and student, if applicable) as outlined in the guidance on the CUREC website. I/ we declare that the answers above accurately describe the research as presently designed, and that the ethics committee will be informed of any changes to the project which affect the answers to this form. I/ we will inform the relevant IDREC if the Principal Investigator changes.	
Name of Principal Investigator	[redacted]
Principal Investigator's signature	
Date	
Name of student (if applicable)	[redacted]

Student's signature	
Date	29/03/24

Departmental endorsement – from the Head of Department or nominee (Another senior member of the department may sign where the head of department is the Principal Investigator, or where the Head of Department has appointed a nominee. Example nominees include Deputy Head of Department, Director of Research, or Director of Graduate/ Undergraduate Studies.)	
On the basis of the information available to me, I confirm that: • I am aware of the research proposed and have read this application; • To the best of my knowledge, the proposed design and scientific methodology do not raise ethical concerns; • I support this research in principle, subject to ethical and other necessary reviews.	
Signature	
Name	
Role	
Date	

Appendix B: Participant Recruitment Poster

Department of Education
University of Oxford, 15 Norham Gardens, Oxford OX2 6PY

Ethics Approval Reference: EDUC_C1A_24_137

PARTICIPANTS NEEDED FOR EDUCATIONAL STUDY

'Academic self-formation through problem-based learning: A case study of Chinese undergraduate students' participation in the *Dachuang* programme'

Have you ever conducted your own research projects in **'Innovation and Entrepreneurship Training Programme for University Students'** during your undergraduate years? Do you want to dig deeper into how this valuable experience shapes who you are as a student in higher education?

If your answers are yes and yes, we would love to invite you to participate in a study about student academic self-formation! Sounds a bit vague but interesting, right? Then, let us know how you make sense of your self-formation, and you are literally contributing to the conceptual development in the field of education! This study is for a master's dissertation at the University of Oxford. The study aims to investigate how students' engagement in student-driven research projects impact the process and outcomes of academic self-formation.

I am looking for volunteers, **aged 18-25 Chinese undergraduate students** to join a 45-minute **online interview**. The volunteer is expected to:

- Major in social sciences and humanities (e.g., language, marketing, international relations, law);
- And have participated in a research project as a group leader/member in 'Innovation and Entrepreneurship Training Programme for University Students' in the past three years;

- And have **NOT** attended schools, colleges and universities in countries other than China.

This study has been reviewed and received research ethics approval. There will be no sensitive topics or risks of distress involved in the research by design. You will not be identifiable in the research outputs.

Thank you!

Appendix C: Consent Form

Department of Education

University of Oxford, 15 Norham Gardens, Oxford OX2 6PY

Consent to take part in 'Academic self-formation through problem-based learning: A case study of Chinese undergraduate students' participation in the Dachuang programme'

Central University Research Ethics Committee (CUREC) approval reference: EDUC_C1A_24_137

Purpose of Study: To investigate how students' knowledge engagement through research skills development activities impacts their academic self-formation.

	Please tick or initial each box if you agree with the statement
I confirm that I have read and understand the information sheet. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any point until **30/JUN/24**, without giving any reason.	
I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.	
I understand the extent to which I could be identifiable from any publications or conference presentations.	
I consent to being video and audio recorded.	
I understand how audio recordings will be used in research outputs.	
Use of quotations: Please indicate your preference (select *one* option): a) I do not wish to be quoted. **or**	

b) I agree to the use of quotations in research outputs if I am not identifiable (such as using a pseudonym). ☐

I give permission for you to contact me again to clarify information. ☐

I understand how to raise a concern or make a complaint. ☐

I agree to take part. ☐

_____	dd / mm / yyyy	_____
Name of participant	Date	Signature

_____	dd / mm / yyyy	_____
Name of person taking consent	Date	Signature

Appendix D: Participant Information Sheet

Department of Education
University of Oxford, 15 Norham Gardens, Oxford OX2 6PY

Academic self-formation through problem-based learning: A case study of Chinese undergraduate students' participation in the Dachuang programme

PARTICIPANT INFORMATION SHEET

Central University Research Ethics Committee Approval Reference: EDUC_C1A_24_137

1. Introductory paragraph

You are being invited to take part in a research project, operated by a MSc student in Department of Education in University of Oxford. Before you decide and participate as an interviewee, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask the researcher if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part in the research.

2. Why is this research being conducted?

The research is being conducted as a dissertation project for the researcher to complete her MSc degree. The research will focus on Chinese students who have participated in extra-curriculum activities aiming at research skills development. The research aims to build up the framework to understand student academic self-formation by investigating the undergraduate students' experience of conducting their own research projects. The research is also expected to explore how the process of knowledge construction, or immersion in disciplinary knowledge, contributes to student academic self-formation. The findings will also provide empirical evidence for the conceptual development of higher education as student self-formation.

3. Why have I been invited to take part?

You have been identified as a potential participant with full consideration of the inclusion criteria and exclusion criteria. You, as a Chinese undergraduate student studying social sciences or humanities in a Chinese university who have experience in conducting your own research projects in Innovation and Entrepreneurship Training Programme for University Students ("大学生创新创业训练计划") within 3 years ago, have been invited through your university group chat or your acquaintances. Including yourself, 15-20 other Chinese undergraduate students from your university are invited to participate in the research as interviewees.

4. Do I have to take part?

No. It is up to you to decide whether to take part. You can withdraw yourself from the research, without giving a reason at any time before 30/06/24. However, please do advise the researcher of your decision as early as possible if it is convenient to you. Once you make the decision of withdrawal, the data that has already been collected will be deleted permanently by the researcher.

5. What will happen to me if I take part in the research?

First, you will receive a consent form and a draft of interview questions along with this sheet. You may review the documents, print, and sign the consent form and email it back to the researcher if you agree to join the research. Then, you will be invited to join a one-on-one interview. The interview is expected to be conducted online via Microsoft Teams. The time will be discussed and decided by both of you and the researcher according to your preference.

With the given question list, you may prepare your responses in advance. If you notice any questions and/or wordings that makes you feel uncomfortable, please feel free to contact the researcher before the interview. You may also report the issue during the interview. As a semi-structured interview, the researcher (interviewer) may ask additional or further questions for you to clarify your response or ask you to provide more details about your response. The interview questions will centre on your experience of conducting your own research project in Innovation and Entrepreneurship Training Programme for University Students. The questions will include your expectations for and reflections of your research skills development, your participation as a team leader/member, and your interaction and communication with the project supervisor throughout your research project.

With your consent, the researcher would like to audio and video record you, the aim of which is to have an accurate record of the interview conversation. The video recording file will be deleted right after the interview. The audio recordings will be transcribed by the researcher alone after the interview. The audio recordings will be deleted after transcription, and the transcript documents will be safely stored and protected until they are completely deleted, three years after the initial research publication. The interview is expected to take approximately 40-60 minutes.

6. What are the possible disadvantages and risks in taking part?

Although the researcher does not foresee sensitive topics or risks of distress involved in the research by design, the interview may trigger your less positive memories or experiences in higher education, which is not the researcher's intent. Please immediately contact the researcher if any of those incidents occurs before, during, and/or after the interview. The researcher may opt you out of the research if you wish to do so.

7. Are there any benefits in taking part?

While there are no immediate benefits for those people participating in the research, it is hoped that this research will give you an opportunity to reflect on your previous experiences in research skills development during your undergraduate years, which may help you contemplate on your future academic development (e.g., pursuing a master's or doctoral degree, taking jobs in academia).

8. What information will be collected and why is the collection of this information relevant for achieving the research objectives?

The researcher is interested in your experiences of conducting your own research projects in the extra-curriculum activity and your views of how this experience may facilitate your self-development in the academic aspect. The information you provide will help me better understand the role of research skills development and knowledge engagement in student academic self-formation in order to answer my research questions: how do students engage in academic self-formation through student-driven research project? Under this core research question are three sub-research questions: (a) what are the enabling or enhancing factors of student academic self-formation? (b) what are the constraining factors of student academic self-formation? (c) what are the outcomes of student academic self-formation?

Only the researcher and supervisor will have access to the research data. Identifiable data (including signed consent forms, audio recordings and transcript documents) will be only stored in the University Oxford OneDrive for Business. During the interview, you are welcome to give yourself a 'fake name' to replace the real name. The name of your institution will be anonymised. Only information about your gender, major and graduation year will be reported. You may also inform the researcher if there is any other specific requirement regarding confidentiality.

The researcher would like to use this data in future studies, and possibly to share this with other researchers (e.g. in online databases). The data will be stored for 3 years after the publication or public release of the thesis.

9. Will the research be published? Could I be identified from any publications or other research outputs?

The research will be written up as a student's dissertation of MSc Education. On successful submission of the dissertation, it may be deposited both in print and online in the Oxford University Research Archive where it will be publicly available to facilitate its use in future research. The analysis of data may also be in a written form, as part of academic publications and/or conference presentations. The researcher would like your permission to use direct quotations but without identifying you in the analysis as mentioned in the previous section.

10. Data Protection

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the research. The University will

process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest. Further information about your rights with respect to your personal data is available from the University's Information Compliance web site at https://compliance.admin.ox.ac.uk/individual-rights.

11. Who has reviewed this research?

This research has received ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: EDUC_C1A_24_137).

12. Who do I contact if I have a concern about the research or I wish to complain?

If you have a concern about any aspect of this research, please contact us and we will do our best to answer your query. The researcher will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:

The Chair, Education Departmental Research Ethics Committee
Email: student.curec@education.ox.ac.uk
Department of Education
University of Oxford
15 Norham Gardens
Oxford, OX2 6PY

13. Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Appendix E: Interview Protocol

Interview Protocol

Warming-up

- Could you please briefly introduce yourself to me?

Before the project

- Why did you join the *Dachuang* programme?
- Are there any specific goals you wanted to achieve during *Dachuang*?
- What was the topic of your project?
- How did you come up with the idea of the project topic?
- Did you foresee any challenges or difficulties before you started?
- Use three words to describe yourself as a university student before you start the project.

During the project

- Did you encounter any challenges during the project?
- How did you manage the disciplinary knowledge you acquired from the university in your research project?
- Describe your interactions/relationships with your supervisor during your research project.
  a) (If not mentioned) Why did you choose X as your project supervisor(s)?
  b) (If not mentioned) What was your original expectation for supervision?
- Describe your interactions/relationships with other team members, if any.
  a) (If not mentioned) How did you form the team?
  b) (If not mentioned) How did you split the work in team?
- Give me some examples of what you did well during the research project.
- Give me some examples of what you could improve during the process.
- Did you do any reflections during the project?
  a) If yes, what were the themes of the reflection?

After the project

- Use three words to describe yourself as a university student after you complete the research project.
- Do you think this experience will influence your future choices?
  a) (If not mentioned) What about career development/higher level of education?
- Do you think this experience influenced your understanding of knowledge and learning?
- Did you do any reflections after the project?
  a) If yes, what were the themes of the reflection?

Others

- Could you please share any impressive experiences during *Dachuang*?
- What is the most significant difference you find about yourself after *Dachuang*?

Thank you so much for participating in this interview. Do you have anything to share beyond the questions we have talked about? Do you have any questions regarding my study?

Appendix F: Sample Interview Questions (sent to participants)

Sample Interview Questions

Before the project

- Why did you join the *Dachuang* programme?
- Are there any specific goals you wanted to achieve during *Dachuang*?
- What was the topic of your project?
- How did you come up with the idea of the project topic?
- Did you foresee any challenges or difficulties before you started?
- Use three words to describe yourself as a university student before you start the project.

During the project

- Did you encounter any challenges during the project?
- How did you manage the disciplinary knowledge you acquired from the university in your research project?
- Describe your interactions/relationships with your supervisor during your research project.
- Describe your interactions/relationships with other team members, if any.
- Give me some examples of what you did well during the research project.
- Give me some examples of what you could improve during the process.
- Did you do any reflections during the project?

After the project

- Use three words to describe yourself as a university student after you complete the research project.
- Do you think this experience will influence your future choices?
- Do you think this experience influenced your understanding of knowledge and learning?
- Did you do any reflections after the project?

Others

- Could you please share any impressive experiences during *Dachuang*?
- What is the most significant difference you find about yourself after *Dachuang*?