

**Understanding Teachers' Experiences of Participation in an
Institution-Led Teaching and Learning Change Programme in a
Chinese Private University**

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A thesis submitted to the University of Hertfordshire in partial fulfilment of the
requirement of the degree of Doctorate in Education

August 2025

Abstract

This research addresses the development of strategies to enable institution-wide pedagogical change in the Chinese private higher education sector. Conducted at a private university in a major Chinese city, this research explored teachers' experiences of participation in an institution-led teaching and learning change programme aimed at enhancing its undergraduate education by encouraging teachers' uptake of a university-guided innovation. The research employed a qualitative-dominant mixed methods design and Rogers' (2003) Diffusion of Innovations (DoI) theory was used as its theoretical lens. The initial qualitative strand involved semi-structured interviews with 11 participants. Existing data from teachers' reflective commentaries, carried out as part of their programme participation, was also reviewed. Key findings from this strand revealed that career progression, monetary reward and surrounding environment are critical drivers to teachers' decisions to adopt the university-guided innovation. In addition, the teachers' implementation process underwent three developmental stages: initial exploration, critical reflection and continuous adoption.

In the follow-up quantitative strand, a questionnaire grounded in the perspectives of programme participants was developed and distributed to all participants to survey their experiences of participation on a larger scale. A total of 120 participants completed the questionnaire. A synthesis of the qualitative

and quantitative strands revealed that teachers assigned more weight to career progression and monetary reward than other extrinsic influences in their decisions to adopt the guided innovation. In addition, the provision of monetary reward and teachers' vision of rank promotion mitigated the barriers in their implementation process and encouraged them to continue the adoption of the guided innovation. Moreover, a combination of extrinsic and intrinsic motivation inspired participants to adapt the guided innovation to enhance student learning.

This research concludes that a reward and recognition career pathway is the critical catalyst for jump-starting academics' uptake of pedagogical innovations and fuelling their continuous adoption and refinement of these innovations. The research contributes to the practice of institution-wide pedagogical change by offering three key insights. Firstly, sustainable rewards from institutions are critical to enable institutional change in teaching and learning over time. Secondly, extrinsic rewards for teaching activities should be linked to performance to prevent undermining academics' intrinsic motivation. Lastly, a balanced approach between institutional oversight and academic autonomy is necessary to support the effective implementation of university-guided innovations. This mixed methods research adds to the work on the diffusion of pedagogical innovations and its findings could be used to guide institution-led teaching and learning initiatives in the Chinese private higher education sector.

Acknowledgements

I would like to express my gratitude to my supervisors, Karen Mpamhanga, Martina Doolan and Martin Crisp. They are the lights illuminating my doctoral journey. Thanks to their patient guidance, I built my self-confidence, developed my ideas, and advanced my research along the journey.

I am grateful to all my colleagues who participated in my research. Their contribution enhanced my understanding of their professional practice. I am committed to improving their practice after my doctoral journal.

Many thanks to all the teaching staff of the University of Hertfordshire in the EdD sessions. They offered me valuable insights for my research.

Thanks too, to my colleagues in this EdD cohort. Although we came from different institutions, we supported each other during the doctoral journal.

I would also like to express my gratitude to the local education commission and my institution that funded my doctorate.

Finally, my gratitude to my family, your support continuously offered me confidence fuelling my doctoral journey particularly during my UK visits.

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Chapter 1 Introduction

This research explores teachers' experiences of participation in an institution-led teaching and learning change programme in a private university in China and contributes to the development of institutional strategies for enabling institution-wide pedagogical change in the Chinese private higher education sector. Chapter 1 of the thesis presents an introduction of my research. I start the chapter by discussing the drivers and barriers to higher education teachers' uptake of pedagogical innovations¹. Next, the rationale for my research is explained. The research background is outlined and the theoretical frameworks underpinning my research are briefly described in this chapter. Next, I clarify my research purpose, research questions and methodology. Intended thesis audience are recommended and a structure of the thesis is presented at the end of the chapter.

1.1 Academics' uptake of pedagogical innovations

Teaching is one of the primary missions of higher education. To improve the quality of teaching, university-led educational reforms are initiated to enable institution-wide pedagogical change (Coburn, 2003; Mestan, 2019; Teixeira Antunes et al., 2021). As teachers are change agents for delivering pedagogical

¹ Pedagogical innovations in this research refer to innovative teaching and learning approaches.

innovations into teaching and learning, understanding the drivers and barriers to their uptake of pedagogical innovations is critical to the implementation of institutional change programme for teaching and learning.

In response, researchers have examined factors affecting academics' uptake of pedagogical innovations. A large number of studies have investigated extrinsic influences on academics' innovation adoption for teaching and learning. Institutional support and strategies are often reported as key drivers to enabling institution-wide pedagogical shift among educational practitioners (Graham et al., 2013; Garrison and Vaughan, 2013; Singh and Hardaker, 2014; Vaughan et al., 2017; Hill and Smith, 2023). On the other hand, extra time commitment serves as a barrier to academics' uptake of pedagogical innovations (Graham et al., 2013; Brown, 2016; Francom, 2020). In addition, researchers have examined intrinsic influences on educational practitioners' innovation adoption including their intrinsic beliefs in competencies and specific pedagogies (Ertmer and Ottenbreit-Leftwich, 2010; Vongkulluksn et al., 2018; Cheng et al., 2021).

However, only a small number of studies have examined academics' innovation adoption in institution-led teaching and learning change programmes (Newton, 2003; Porter and Graham, 2016; Mestan, 2019). Many of the studies on academics' uptake of pedagogical innovations focused on individual and

course-level issues and less on institutional change programmes (O'Dea and Stern, 2022; Hill and Smith, 2023; Kandiko Howson and Kingsbury, 2025). Therefore, there is a scarcity of research that shares academics' voices in the context of institution-led teaching and learning change programmes.

This research grew out of a university-led educational reform encouraging academics' uptake of innovative teaching and learning approaches in a private higher education institution in China. University-led educational reforms are strategies for enabling institutional change in teaching and learning. As private universities in China are predominantly teaching-intensive institutions, understanding academics' experiences of participation in those institutional change programmes is critical to the development of strategies for scaling up academics' uptake of pedagogical innovations and improving the quality of undergraduate education in the Chinese private higher education sector.

As an insider researcher, I explored my colleagues' experiences of participation in the educational reform in my institution and intended to contribute to their professional practice, the private undergraduate system in China, and the wider higher education sector. Next, I outline the background to my research.

1.2 The research background

The research was carried out in a private university in China. The educational

reform initiated by the university was called the *huoli* programme. The purpose of the university-led programme was to improve undergraduate education by introducing innovation and change in teaching. As it is challenging to find a direct translation for the Chinese word *huoli* in English, I will discuss details of the programme in Chapter 2 “Research context” and use the Chinese word when directly referring to the programme and its related practices (e.g., *huoli* teaching and learning approaches). The programme encouraged teachers to adopt a university-guided innovation, namely a set of innovative teaching and learning approaches to actively engage undergraduates in learning. The programme received sustainable support from the university in the following aspects:

- More than 200 teachers in seven cohorts participated in the university-led programme from 2016-2022. Programme participation had been institutionalised since 2022 and once every two years, the institution accredits a total of 30-40 undergraduate courses (Shen university, 2022)².
- Programme participants repeatedly received monetary reward from the university for the teaching of their accredited courses.
- The university reformed its promotion system and set up a teaching-oriented career pathway for academics two years after the initiation of the programme. At the time of writing, a total of 68 exemplary programme participants had been promoted to new academic ranks which were

² The case institution is referred to by the pseudonym *Shen University*.

exclusive to this career pathway. The promotion activity takes place once every two years.

Further details about the research background are presented in Chapter 2 “Research context”.

Although the university-led programme had been running in my university since 2016, the university offered programme participants limited chance to make their voices heard. Therefore, I aimed to explore the drivers to their uptake of the university-guided innovation and the challenges encountered during their programme participation so that the professional practice pertaining to the university-led programme could be improved in the future. In addition, the findings of my research contribute to inform the development of strategies for initiating institution-wide pedagogical change in the Chinese private higher education sector.

As I intended to use theories as theoretical lenses to inform the design of my research and the analysis of research data, I briefly introduce the overarching theoretical framework guiding my research in the next section.

1.3 Theoretical framework

My research is situated in educational practitioners’ adoption of innovative

teaching and learning approaches in an institutional change programme. The innovative teaching and learning approaches are pedagogical innovations outlined by the institution. The central phenomenon of teachers' uptake of innovations in my research is encapsulated in Rogers' (2003) Diffusion of Innovations (DOI) theory. Rogers (2003: 5) defined the "diffusion of innovations" as:

"The process in which an innovation is communicated through certain channels over time among the members of a social system."

The above definition identifies four elements or constructs in a diffusion process, which are:

- Innovation,
- (Communication) channels,
- Time, and
- Social system.

The central phenomenon in my research is underpinned by the four elements in Rogers' (2003) theory as programme participants learned the *huoli* teaching and learning approaches (innovation) from their colleagues or the institution (communication channels) and adopted the innovation in seven cohorts over a time span of six years (time) within the institution (social system).

In addition, Rogers' (2003) theory also intends to explore what factors affect people's adoption decisions and their implementation process over time. The issues that Rogers' (2003) theory intends to address are in line with the purpose of my research. In this regard, there is a strong link between my research and Rogers' (2003) theory.

Moreover, the four diffusion elements described in Rogers' (2003) theory provide a conceptual framework for the investigation of the diffusion of pedagogical innovations in my research. Further details about the diffusion elements are outlined in Chapter 4 "Theoretical framework".

The rationale for using Rogers' (2003) Diffusion of Innovations theory in my research is to:

- Provide a preliminary framework for the design of the research (e.g., the framing of interview questions),
- Offer an interpretive lens in data analysis (Creswell and Creswell Baez, 2021) and
- Improve the transferability of the research by shedding light on new research underpinned by Rogers' (2003) Diffusion of Innovations theory.

However, I am aware that Rogers' theory is not sufficient on its own because the theory arose out of agricultural and marketing settings. Therefore, some of

the conclusions derived from those settings might not be applicable to higher education teachers. In this regard, I used other theories such as Hall's (1979) Concern-based model for teachers' innovation adoption to complement the interpretation of research data. Further details about the theoretical frameworks employed in the thesis are discussed in Chapter 4 "Theoretical framework".

1.4 Research purpose

I classify the purpose of my research into my practical and intellectual goals (Maxwell, 2013).

- **Practical goal:** An exploration of teachers' experiences of participation in this university-led programme. The practical goal aims to identify drivers and barriers to teachers' adoption of pedagogical innovations and improve their professional practice. In addition, the research findings are intended to inform policy makers of enacting institutional policies supporting institution-wide pedagogical change in private universities in China. Moreover, I will pay special attention to the effect of extrinsic rewards on academics' intrinsic motivation. Lessons learned from the research are also intended for institutional administrators and practitioners in the wider higher education systems in the arrangement of extrinsic rewards for teaching activities so that they can formulate better policies raising the profile of undergraduate teaching.
- **Intellectual goal:** A contribution to the understanding of the diffusion of

innovations in educational settings. It seemed that existing literature on the diffusion of pedagogical innovations usually focused on only one single diffusion element such as innovation attributes (Blumberg, 2016), communication channels (Sargent, 2015) or time (Ali and Georgiou, 2025). In this regard, the connections between different diffusion elements (i.e., innovation attributes, communication channels, time, and social system) in a diffusion process are sometimes neglected. Therefore, the intellectual goal of my research intends to make an original contribution to the exploration of the synergistic interplay of different diffusion elements in higher education settings.

1.5 Research questions

This research aims to explore teachers' experiences of participation in the university-led educational reform and intends to inform the practice of institutional change programme for teaching and learning in the Chinese private higher education sector. To serve the purpose of my research, the main research question was formulated as follows:

What can be learned from teachers' experiences of participation in a university-led educational reform in a private university in China?

Teachers' experiences of participation were further classified into two stages,

namely (1) their adoption decisions and (2) implementation process in an over-time sequence to explore teachers' innovation adoption over a wider time span. Therefore, the research sub-questions were formulated in alignment with the two stages of innovation adoption.

Sub-question one (adoption decision):

What factors are impacting teachers' decisions to participate in this university-led educational reform?

Sub-question two (Implementation process):

How are teachers implementing their teaching and learning approaches in this university-led reform?

To answer the research questions, I clarify the methodology of my research in the next section.

1.6 Research methodology

The research employed a qualitative-dominant mixed methods design to explore teachers' experiences of participation in this university-led programme. Both qualitative and quantitative methods were used in the research. The research was initiated with a qualitative strand to explore the research phenomenon. A quantitative strand followed up the initial qualitative strand to

further explore teachers' programme participation and enhance the understanding of the research phenomenon. Further details about the research methodology are discussed in Chapter 5 "Research design".

1.7 Intended thesis audience

It is intended that the conclusions of my research will support researchers, educational developers, policy makers and institutional administrators in understanding the diffusion of pedagogical innovations in higher education settings. Educational developers can build on the lessons learned from this research to scale up university-guided innovations among academics and enable institutional change in teaching and learning. In addition, lessons learned from the research are intended to assist policy makers in the design of teaching-oriented career pathways aiming for raising the profile of undergraduate education. Moreover, institutional administrators may find the conclusions of this research helpful in the administration of extrinsic rewards for teaching activities.

1.8 Thesis structure

The thesis consists of the following chapters:

- Chapter 2 presents the research context in detail. It comprises the initiation and routinisation of the university-led educational reform. The reward and recognition system pertaining to the reform is outlined.

- Chapter 3 outlines how I developed different strands of literature search and critically synthesises the literature on extrinsic and intrinsic influences on academics' uptake of pedagogical innovations.
- Chapter 4 discusses the theoretical frameworks guiding my research process. The rationale for using those frameworks is explained.
- Chapter 5 describes an overview of the qualitative-dominant mixed methods design. My philosophical position, data collection and analysis, and strategies for enhancing the rigour of the research are discussed.
- Chapter 6 contains the findings of the initial qualitative strand.
- Chapter 7 comprises the findings of the follow-up quantitative strand. A synthesis of the two strands is presented.
- Chapter 8 presents a discussion of the research findings.
- Chapter 9 concludes the thesis by presenting the conclusions and implications of my research.

Chapter 2 Research context

This chapter presents a description of the context of this research. Based on a review of institutional policy documents and institutional data about the university-led educational reform, I outline the initiation and routinisation of the reform, i.e., the *huoli* programme in this chapter. The purpose of this chapter is to:

- (1) Present a summary of the professional practices (e.g., promotion activities) pertaining to the university-led programme and
- (2) Provide a rich description of the details of the professional practices in which the research participants engaged so that the transferability of research conclusions can be enhanced in similar contexts.

2.1 The research setting

The research was carried out in a private university in a large city in China. The university offers 30 undergraduate degree programmes including education, health, engineering, business, art and design, and linguistics. There are approximately 11000 undergraduates in this university. To illustrate the context in which my research is situated, I present a brief introduction of undergraduate education systems in China.

At the time of writing, there are 1308 universities³ which offer undergraduate degree programmes in China (Ministry of Education, 2024). Of the 1308 universities, 68.6% of them are public universities and the rest are private universities (Ministry of Education, 2024). Public universities are predominantly funded by the government while private universities receive limited funds from the government. In addition, most of the Chinese private universities are teaching-intensive institutions focusing only on undergraduate education. For example, in 2022, there were 596 public universities providing master's or doctor's degree programmes while only 6 private universities were entitled to offer post-graduate degree programmes in China (Ministry of Education, 2023).

As teaching constitutes one of the primary missions of universities, higher education institutions across public and private sectors in China initiated institution-led change programmes to improve student learning experiences. It is in this context that the *huoli* programme in the case institution was designed and routinised. In the next section, I present an overview of the programme.

2.2 Overview of the programme

This section presents an overview of the university-led programme. Figure 2.1 illustrates the timeline and major events relating to the programme from its initiation to routinisation.

³ Adult higher education institutions (e.g., open universities) are not included.

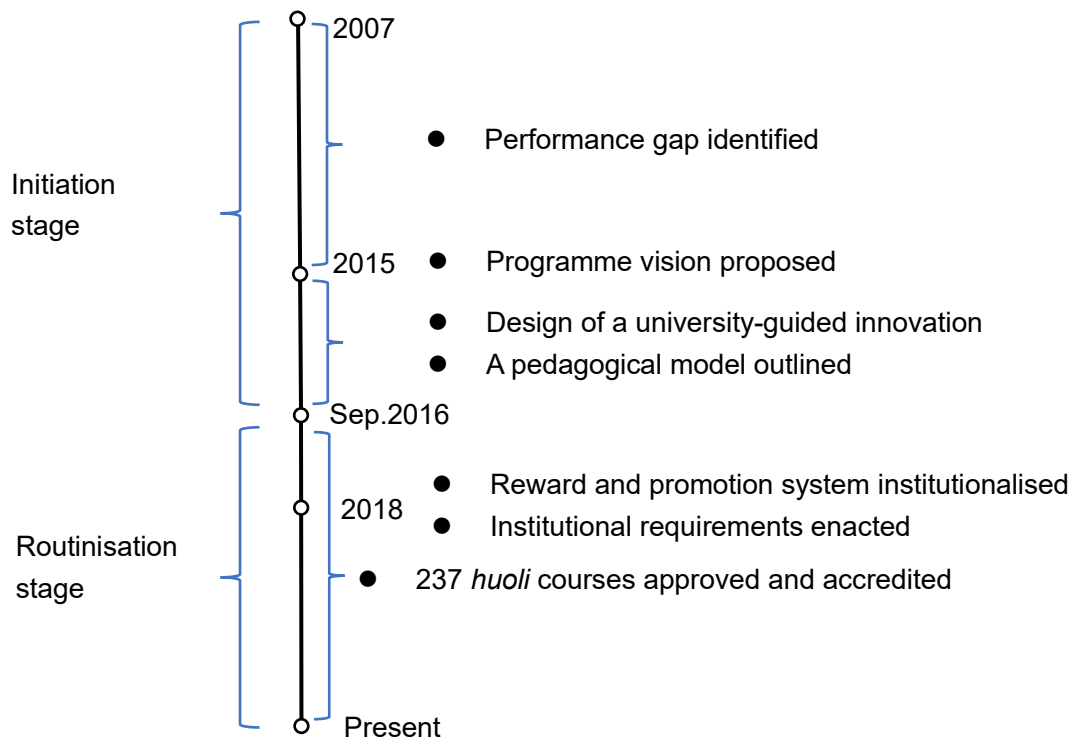


Figure 2.1 Timeline and major events of the university-led programme

The timeline shown in Figure 2.1 reveals that the university-led programme is divided into two stages, i.e., its initiation and routinisation.

In the initiation stage:

- The institution intended to address low student engagement in its undergraduate class sessions, which is a widespread phenomenon in undergraduate education systems in China. A performance gap between lecture-based teaching and high-quality undergraduate education was identified by the institution and then the vision of the university-led programme was proposed.

- A guided innovation, namely *huoli* course was designed and a pedagogical model assisting teachers' course design was outlined by the institution prior to programme initiation. I will describe the guided innovation and the pedagogical model in the next section.

In the routinisation stage:

- A total of 237 *huoli* courses were approved and accredited in seven cohorts from 2016-2022. *Huoli* courses are undergraduate courses in which teachers piloted innovative teaching and learning approaches advocated by the institution.
- A reward and promotion system was institutionalised two years after the launch of the programme to encourage teachers' adoption of the guided innovation. The reward and promotion system was exclusive to programme participants in this institution.
- Institutional requirements for programme participation were enacted and the completion of these requirements repeatedly provided teachers with monetary reward.

In the next section, I present the aim of the *huoli* programme.

2.3 The aim of the *huoli* programme

“A performance gap can trigger the innovation process.”

Everett M. Rogers, *Diffusion of Innovations* (2003:422)

The *huoli* programme is an institution-led educational reform or institutional change programme for teaching and learning. To better understand the aim of the programme, I reviewed institutional academic plans and traced evidence of how the institution identified the urgency to initiate the educational reform. Prior to the launch of the *huoli* programme, the institution stated the aim of the programme as follows:

“The core mission of the huoli programme is the transformation of teaching and learning from traditional ‘teacher-centred’ to ‘student-centred’ mode. By collaborative or explorative learning facilitated by teachers, teaching and learning requiring high-level cognitive skills and participation is achieved. In particular, lecture-based teaching must be replaced” (Shen University, 2016a: 19).

The above quote reveals that the *huoli* programme aimed to initiate institution-wide pedagogical change. The institution encouraged its academics to adopt student-centred pedagogies such as collaborative or explorative learning. The impetus for change is underpinned by the institutional assumption about the limitations of lecture-based teaching. In particular, the institution was eager to phase out lecture-based teaching. The motivation for replacing lecture-based

teaching is evidenced in the following quote.

“There is no huoli in the classroom. The students are dozing off, swiping their phones, listening to music, or gazing into space in class. No matter how well-designed course objectives, teaching plans, or textbooks are, they will be of no use. This is a ‘common problem’ in the Chinese higher education system and also a ‘chronic problem’ at our campus” (Shen University, 2016a: 18).

The above quote further underpins the aim of the *huoli* programme. The institution assumed that traditional lecture-based teaching contributed to low student engagement in learning. Therefore, student-centred pedagogies must be introduced to enhance student learning experiences and improve learning outcomes. The institution’s intention to enhance undergraduate learning was repeated 11 times in its academic plans from 2005-2020. The intention perhaps arose from the intense competition for student enrolments among Chinese private universities.

The reference to “common” or “chronic” problem in the above quotes suggests that there are tough challenges of improving student engagement in the Chinese higher education system and the case institution, a Chinese private university. Next, I outline some of the challenges of making changes to

undergraduate class in China.

Firstly, academics are under heavy pressure from publications for academic promotion (Tian and Lu, 2016). Existing reward and recognition systems in many Chinese universities still prioritise research over teaching (Xing and Deng, 2018). In such circumstances, the pressure discourages some academics from piloting innovative teaching and learning approaches in undergraduate teaching because those academics are concerned that their investment in teaching might compromise their research output (Xing and Deng, 2018). As higher ranks count directly to higher pay in universities, some academics choose to increase their effort in research output so that they can be promoted in academic ranks and benefit from increased salaries (Xiao and Liu, 2024).

Secondly, many private universities in China are constrained by their tight budget and they can only provide limited funding for academics' teaching and research activities (Wang et al., 2024). As a result, there is a considerable gap in remuneration between academics in private universities and their counterparts in public universities (Xu and Zhang, 2017). Accordingly, some academics' motivation for their professional practice is undermined and the staff turnover in private universities is relatively high (Yang and Zhou, 2019).

Lastly, the current social context in China may have affected private university

teachers' engagement in teaching activities. Academics are under heavy financial pressure from the high cost of living in cities (Fan and Qi, 2021). As a result, heavy financial pressure could have oriented some of them toward professional activities that count toward increased salaries. In addition, China has undergone a transformation of social morality. People are becoming less receptive to the traditional ideology of sacrificing individual well-being for the collective benefits in contemporary China (Tang, 2012). The pursuit of individual well-being such as extrinsic rewards in particular is respected and championed in China. Hence, there is a shift in the values that motivate teachers and some of them are becoming more materialistic (Bian, 2019).

The above challenges mainly speak to teachers' perspectives while students' readiness for change should not be underestimated. For example, students' resistance to innovative pedagogies was reported in both the Western and Chinese contexts (Huang et al., 2015; Wilson, 2023).

Perhaps recognising the tough challenges facing the implementation of institutional change programmes, the case institution in my research initiated a university-led educational reform aiming for improving its undergraduate education by inspiring its academics' devotion for teaching through reward and recognition. In the next section, I present the initiation of the programme.

2.4 The initiation of the university-led programme

In this section, I start to outline a rich description of the programme by first presenting the vision of the programme.

2.4.4 Programme vision

In the “outlines of ten-year strategic plans 2015-2025”, the institution used a word *huoli* to conceptualise the vision of the university-led programme.

“Huoli is our determination to replace traditional lecture-based teaching with various student-centred learning activities such as teacher-student interaction, independent learning, group discussion, open debate, and the like to actively engage students in learning and foster their critical and creative thinking” (Shen University, 2015: 5).

The above quote delivered an institutional definition of *huoli* and its implementation strategy as shown in Table 2.1.

Table 2.1 The definition and implementation strategy of *huoli*

<i>Huoli</i>	Description	Quote evidence
Definition	Student-centredness and student empowerment in thinking abilities	<i>“To actively engage students in learning and foster their critical and creative thinking”</i>
Implementation strategy	Replacement of lecture-based teaching with student-centred pedagogies	<i>“Replace traditional lecture-based teaching with various student-centred learning activities”</i>

Table 2.1 shows that *huoli* comprises two dimensions, which are (1) student-centredness and (2) student empowerment in thinking abilities. Student-centredness refers to active student engagement in learning activities while student empowerment speaks to the fostering of critical and creative thinking abilities. In addition, the exemplary teaching and learning approaches outlined in the programme vision were all student-centred pedagogies and thus, these pedagogies further underlined the institutional vision of enhancing student engagement in learning activities. In this sense, *huoli* in the institutional context embodied students being active in learning activities and the cultivation of their critical and creative thinking abilities.

In comparison, the word *huoli* in Chinese language could be interpreted as “being active or enthusiastic” or “life and vitality” (Institute of Linguistics Chinese Academy of Social Sciences, 2012). There are connections between the institutional definition of *huoli* and the interpretations of the word in Chinese language. For example, one of the purposes of introducing student-centred pedagogies in this case institution was active student participation or students “being active or enthusiastic” in learning activities. However, if *huoli* is interpreted as “life and vitality”, it carries the connotation of the growth of plants, animals, or human beings. Thus, the fostering of student thinking abilities implies the growth of students.

In this regard, there are multiple interpretations of the word *huoli* in Chinese language. The interpretations are contingent upon local contexts and personal beliefs. For example, Ye (1997) was the first scholar who proposed the idea of *huoli* class in China and she interpreted *huoli* as the growth of teachers and students in teaching and learning process. However, Sun and Wei (2023) argued that there is no generic interpretation of *huoli* class in China although the word is a widely used term in educational settings. In this sense, *huoli* in the context of education carries the connotation of high-quality teaching and learning performance or excellence of teaching and learning. However, the interpretation of the excellence is subject to contexts and individuals' understanding. In addition, I explored the words of active learning or blended learning for the translation of *huoli* in my research as the university-led programme encouraged the adoption of active and blended learning approaches. However, active or blended learning refers to specific pedagogies and these two terms could not capture the meaning of *huoli* because *huoli* also implies student learning outcomes after the introduction of innovative pedagogies.

Consequently, I intend to retain the word *huoli* in my thesis because there is no direct translation of the word. In addition, the discussion of the interpretation of *huoli* in this section served to shed light on research findings relating to teachers' diversified understanding of *huoli* evidenced in my research. In the next section,

I present how the institution designed an innovation aiming for achieving the vision of *huoli* in its undergraduate education system.

2.4.5 Design of a university-guided innovation

The institution laid out plans of designing a university-guided pedagogical innovation for the *huoli* programme as evidenced in the following institutional document.

“The implementation of the huoli programme (What is huoli?).

First, investigate innovative pedagogies employed in overseas universities.

Second, adapt these pedagogies fit for the aptitude of Chinese students.

Third, design a pedagogical model which can be implemented institutionally”

(Shen University, 2016a: 9).

The above quote shows that the institution first referenced pedagogies from overseas universities because in the national context of the reform and opening-up policy initiated in the late 1970s, the Chinese were often eager to learn advanced practices from developed countries. Although the institution stated to adapt these international examples as evidenced in the above quote, I have not identified evidence of the adaptation process from the institutional documents. In this regard, staff and students’ readiness for new pedagogies was perhaps not fully considered at this stage.

In addition, the above quote highlights the origin of the *huoli* pedagogical model, which became a basis of the institutional change programme. The model serves two major purposes.

Firstly, the model aimed to clarify the meaning of *huoli*. It seemed that there was a large amount of uncertainty about the interpretation of *huoli* within the institution. For example, a question mark was attached to the term *huoli* as evidenced in the above quote. The institution realised that academics might have difficulty in translating the term *huoli* into explicit course designs. In response, the institution proposed three steps as outlined in the above quote to clarify the definition of *huoli*. The pedagogical model symbolises the ultimate goal of the clarification process prior to the launch of the programme.

Secondly, the model served to provide academics from all disciplines with guidelines on the design of their *huoli* courses. For example, the institution described the model as a paradigm of *huoli* course (Shen University, 2016a). In this regard, the model informs academics how to design their *huoli* courses.

Accordingly, the institution identified the design of the pedagogical model as one of its prioritised tasks prior to the launch of the programme. In January 2016, the institution set up a task group to initiate the *huoli* programme. The task group comprised 17 members including the chancellor, vice chancellors, deans,

and experienced teachers from all disciplinary schools (Shen University, 2016a). The task group took the following steps to design a university-guided pedagogical innovation and its pedagogical model.

(1) Investigation (March 2016-May 2016)

Firstly, led by the chancellor of the institution, a group of teachers visited universities in the United States to learn state-of-the-art teaching pedagogies. Upon their return, they demonstrated teaching and learning approaches facilitated by Virtual Learning Environments (VLEs) to the task group (Shen University, 2016a). In addition, the visitors were impressed that their American counterparts used a combination of assessment strategies to grade students. The assessment strategies were later reported to the task group of the *huoli* programme (Shen University, 2016a).

Secondly, the task group conducted a survey to investigate student learning experiences within the institution (Shen University, 2016a). In April and May 2016, the survey was distributed to all students and 1496 students responded. 61.3% (n=917) of the respondents indicated that there should be improvement in learning experiences. 52.5% (n=786) of them reported that they learned by rote. 39.4% (n=590) of them responded that they relied on rote memorisation to pass exams. The survey revealed that (1) a large percentage of the students in this institution were not satisfied with existing teaching pedagogies and (2) many of them were passive learners. In addition, the results of the institutional

survey are consistent with Chinese undergraduate students' perceptions of their learning experiences evidenced in existing studies (Wu and Chen, 2015; Fan, 2016). The consistency underlines a typical picture of student learning experiences among undergraduates in the Chinese higher education system.

Thirdly, members from the task group searched existing literature to learn the latest developments in teaching pedagogies. A total of 21 publications on pedagogies were recommended to the institution. Among the recommended publications, 16 of them spoke to the delivery of flipped learning and one related to technology-enhanced learning (Shen University, 2016a). The recommended publications suggested that the task group intended to include flipped learning and technology-enhanced learning in the design of the university-guided innovation. Moreover, 15 publications were written by American authors. In this regard, the U.S. visit conducted by the task group of the *huoli* programme could have influenced the list of recommended publications.

Finally, experts in pedagogies from local and nearby cities were invited to deliver a series of training workshops for academics from seven disciplinary schools (Shen University, 2016a). Six training workshops covered the practice of flipped learning and one workshop was aimed at introducing constructivist learning which underlined the active role of students in knowledge construction. The topics that these workshops covered indicated that the task group inclined

to use flipped learning and student-centred pedagogies in the conceptualisation of the university-guided innovation.

At this stage, teachers from different disciplines presented 16 pedagogical models to the institution. The task group of the institution held three workshops on the discussion of these 16 models. The institution concluded that it was necessary and possible to design a pedagogical model covering all disciplines within the institution. In addition, academics were encouraged to adapt the model outlined by the institution to the specific needs of their *huoli* courses.

Of the 16 models, four of them used time as a golden thread categorising diverse teaching and learning approaches into pre-class, in-class, and after-class stages (Shen University, 2016a). These four models share a similar design with the pedagogical model later outlined by the institution. The similarity suggests that these four models influenced the design of the institutional model.

At the next stage, the institution summarised all key elements of *huoli* and finalised the design of the *huoli* pedagogical model.

(2) Synthesis and Summary (June 2016)

Based on prior investigations, the task group summarised key elements of *huoli* course (Shen University, 2016a).

- The transformation from teacher-centred pedagogy to student-centred pedagogy
- The transformation of teachers' role from lecturers to facilitators of student learning
- Four modes of learning: Collaborative learning, learning by discovery, blended learning (or technology-enhanced learning), and flipped learning
- Higher-order learning, active student engagement
- Supported by advanced educational technologies

There is evidence illustrating that prior investigations from March 2016 to May 2016 shaped the formation of key elements of the university-guided innovation. For example, flipped learning, collaborative learning and learning by doing were traceable to the topics of teacher training workshops. The use of educational technologies in teaching and learning approaches (e.g., VLEs) was recommended by staff who visited overseas universities.

In particular, principles regarding the design of the *huoli* pedagogical model were outlined (Shen University, 2016a):

1. Drawing on the advantages of both innovative and traditional pedagogies
2. Encouraging the students to learn actively and deeply in accordance with their aptitude
3. Enhancing the students' creative and critical thinking so that the chronic

problem of low student engagement in undergraduate class is addressed

4. Replacing lecture-based teaching so that effective teaching is achieved
5. Advanced strategies: objective-oriented, task-driven, scenario-driven, and collaborative learning
6. Self-directed learning: multi-dimension assessment, moderate academic workload, knowledge application, and project exploration
7. Flexible approaches: case-driven, mind map, activity participation, in-class presentation
8. A generic pedagogical model while discipline-specific models are encouraged.

The above principles in bullet points further articulated the purpose of the institutional change programme. In addition, these principles outlined the pedagogies that the case institution intended to introduce in its undergraduate education. For example, bullet point 1 emphasised making full use of the strengths of both innovative and traditional pedagogies. However, this bullet point and bullet point 4 are contradictory as bullet point 4 required teachers to phase out lecture-based teaching, a traditional pedagogy in the Chinese education system. Bullet points 2~3 explained that the programme aimed to (1) foster the students' creative and critical thinking and (2) enhance student engagement in class. Bullet points 5~7 listed the pedagogies that the institution expected its staff to adopt. In particular, bullet point 8 encouraged the

adaptation of the *huoli* pedagogical model to the specific needs of different disciplines. Compared to the *huoli* elements summarised by the institution, these principles in bullet points further enriched the teaching and learning approaches that the institution planned to promote and hence, contributed to the design of the *huoli* pedagogical model.

After four months of preparation for the launch of the university-guided innovation, a pedagogical model of *huoli* course was proposed and presented to all academics in the institution in June 2016.

2.4.6 Pedagogical model

The pedagogical model of *huoli* course (Shen University, 2016b) is shown in Figure 2.2.

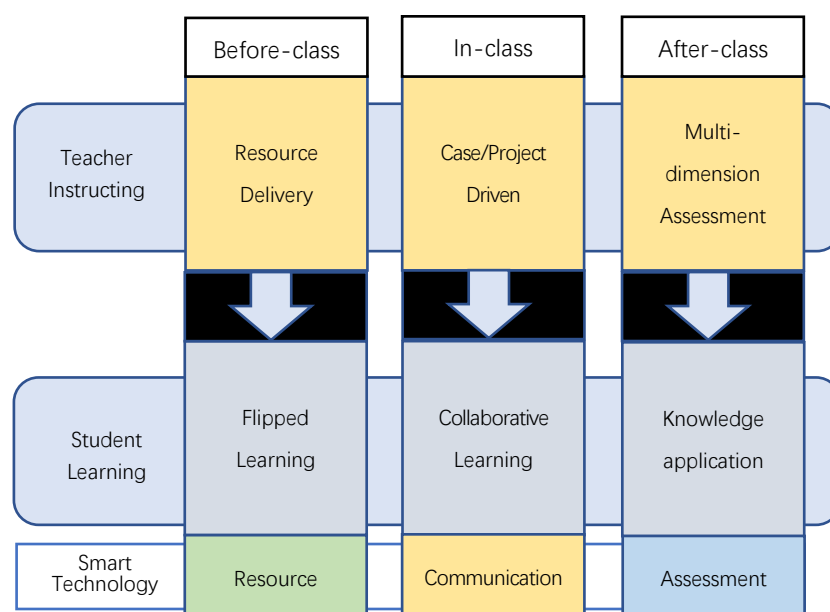


Figure 2.2 The pedagogical model outlined by the institution

Note: multi-dimension assessment refers to using a combination of assessment methods (e.g., project, essay, mini-test, group presentation, timed exam) throughout the course to grade students.

An investigation of the pedagogical model reveals its characteristics and limitations in the following aspects:

- The model is an amalgamation of the institutionally identified *huoli* elements and institutionally recommended teaching and learning approaches. For example, as shown in the previous section, many of the key *huoli* elements (e.g., the use of educational technologies) and institutionally recommended pedagogies (e.g., case-driven learning) are incorporated into the model.
- The model implies a mission-oriented innovation and uses time as the golden thread including *huoli* elements (i.e., the mission of the programme) into the model. It serves as a guideline with which academics could assess and act. The model lists innovative teaching and learning approaches, also identified by the institution as solutions to low student engagement in class.
- The model carries a pro-innovation bias. It assumes that in terms of improving student learning experiences and outcomes, the recommended teaching and learning approaches necessarily outperform lecture-based teaching. The pro-innovation bias contrasted sharply with the institutional context that both the institution and its academics lacked practical experience in implementing these teaching and learning approaches before the launch of the institutional change programme.
- The model highlights the adoption of innovation while lacks a description of

the consequences of its adoption. This is underlined by the fact that the model recommends student-centred teaching and learning approaches while downplays the role of student empowerment as initially outlined by the programme vision. On the contrary, consequences of innovation adoption such as improved student learning outcomes are not mentioned in the model.

- The model fails to include institutional readiness for change into its design. The implementation of innovative teaching and learning approaches entails the participation of both teachers and their students. For example, most of the academics within the institution completed their degree programmes at Chinese public universities. As lecture-based teaching is the dominant pedagogy at many Chinese public universities (Shi and Liu, 2022), academics in the case institution may not be ready to implement these innovative pedagogies. In particular, many Chinese students learn in lecture-based modality in high schools and they may have limited experience in these student-centred learning approaches. In addition, the recommended pedagogies might not always fit with the aptitude of the students within the institution.

In summary, the model reflects the context in which the institutional change programme was carried out. The case institution sensed an urgency to encourage its academics to replace lecture-based teaching with a combination of innovative teaching and learning approaches. Therefore, the model

emphasises the introduction of pedagogical innovations in its undergraduate education while consequences of innovation adoption and institutional readiness for change were not considered in the model.

As institutional guidelines such as the programme vision and pedagogical model were finalised in the initiation stage, the institution started to approve the construction of *huoli* courses and routinise the programme.

2.5 The routinisation of the programme

The institution adopted an "incremental roll-out" strategy in the implementation of the *huoli* programme. A quota system was introduced when the programme was initiated. The system allocated quotas on the number of piloting courses for each disciplinary school. During teachers' programme participation, they were required to organise demonstration lessons and submit their reflective commentaries as part of the accreditation procedures of their *huoli* courses. The practice of demonstration lessons referred to programme participants' showcasing of exemplary teaching and learning approaches in the presence of their colleagues in the classrooms so that they could act as role models of practitioners of the university-guided innovation. The reflective commentaries assumed the role of project reports. The institution approved the construction and accreditation of seven cohorts of *huoli* courses from 2016 to 2022 as shown in Table 2.2.

Table 2.2 *Huoli* courses approved from 2016-2022

School	2016 Autumn	2017 Spring	2017 Autumn	2018 Autumn	2019 Spring	2021 Spring	2022 Autumn
Education	5	5	5	4	10	17	15
Health	2	2	2	0	2	2	7
Engineering	5	5	9	6	8	3	3
Business	5	5	7	3	4	3	5
Art & Design	5	4	6	2	5	4	3
Linguistics	5	5	5	3	7	2	3
General Education	3	3	6	1	4	7	5
Total	30	29	40	19	40	38	41

Note: The accreditation of *huoli* courses was not routinised until 2022 partly due to lack of voluntary participants, Covid-19 lockdown, and institutional arrangement. Since 2022, the accreditation process was institutionalised and takes place once every two years (Shen University, 2022).

Table 2.2 shows that there were adopters in all seven disciplinary schools due to the presence of the quota system. Therefore, it was possible for teachers to learn from early adopters about programme application, organisation of demonstration lessons, and delivery of innovative teaching and learning approaches. The influence of colleagues' adoption, namely the role of communication channels in the diffusion of the university-guided innovation is presented in the chapter of research findings.

As academics' enthusiasm for the programme varied widely in different disciplinary schools, the quota allocated to some schools was not fulfilled because there were not enough voluntary applicants since the programme was initiated. Accordingly, the institution removed the quota system in 2018. After

the removal of the quota system, teachers were in competition with their colleagues inside and outside their disciplinary school for programme application. However, for teachers from a disciplinary school where its staff are very active in applying for the construction of *huoli* course, their applications will not be confined to the original quota system allocated to the school. In addition, those teachers have a chance to claim the approval from the institution if they could win the competition with applicants from other schools. For example, Table 2.2 illustrates that programme participants from School of Education in the case institution outnumbered their counterparts from other disciplinary schools after 2021. The phenomenon encouraged me to adopt a sampling strategy for exploring the reason behind it. Details of my sampling strategy is presented in Chapter 5.

As the institution intended to encourage academics' uptake of the guided innovation through reward and recognition and a reward system was institutionalised two years after the initiation of the *huoli* programme, I introduce the reward and recognition career pathway for programme participants in the next section.

2.5.1 Career pathway for programme participants

To reward and recognise teachers' uptake of innovative teaching practices, the institution designed a new career pathway for programme participants. The

pathway provided them with monetary reward and rank promotion as shown in Figure 2.3.

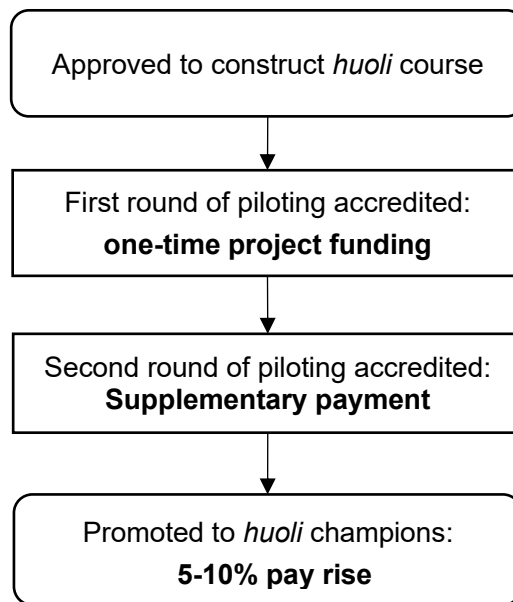


Figure 2.3 The career pathway for programme participants

Figure 2.3 illustrates that the career pathway provided three types of rewards:

(1) One-time project funding. After programme participants completed the first round of piloting, they were required to submit their reflective commentaries for the first accreditation procedure. Once their *huoli* courses were accredited by the institution, a sum of one-time project funding (approximately 30% of an academic's monthly salary in this institution) was awarded to them. The funding could only be used for programme participants' course development.

(2) Supplementary payment. After programme participants completed the second round of piloting, they were required to submit new reflective commentaries for the second accreditation procedure. Once they progressed beyond this stage, programme participants were rewarded supplementary

payment for the teaching of their *huoli* courses. The supplementary payment is additional monetary reward (30% boost) beyond their regular wages. For example, if a teacher is paid £ 100 for each class session of *non-huoli* course, the participants of the university-led programme will be paid £ 130 for each class session of the *huoli* course. In addition, teachers could obtain the reward repeatedly. However, they were required to complete of a set of teaching and learning approaches, i.e., the institutional requirements for programme participation to obtain the monetary reward. Details about the institutional requirements are discussed in the next Section 2.5.2 “institutional requirements for programme participation”.

(3) Promotion to *huoli* champions. After programme participants passed the second accreditation procedure, they were qualified to compete for the promotion of *huoli* champions. The official name of *huoli* champion was called “star teachers of *huoli* course”. In Chinese language, stars represent shining role models in a social system. For example, the case institution nominates a group of “star employees” for the recognition of excellent performance in their positions at the beginning of each academic year. In the diffusion of innovations, there are champions who actively promote the adoption of innovations (Rogers, 2003). As the institution designed the new academic rank to promote the uptake of the university-guided innovation among academics, I translated the new academic rank as *huoli* champion. The champions were financially rewarded and they received a boost of pay rise by 5-10%.

It needs to be mentioned that programme participants could collect the aforementioned rewards all together. For example, a *huoli* champion could receive both champion subsidies and supplementary payment for the teaching of their *huoli* course. In addition, the promotion of *huoli* champions did not conflict with existing research-oriented promotion system (e.g., associate professors or professors) in the institution. In this sense, a professor or associate professor could be promoted to *huoli* champion. Therefore, programme participants could collect rewards from the two career pathways at the same time. Consequently, the new promotion system was not a substitute for the original one. On the contrary, the system provided academics who were passionate about teaching with an additional career pathway rewarding and recognising innovation and change in undergraduate teaching.

In December 2018, 26 programme participants were promoted to *huoli* champions by the institution based on a set of selection criteria. The promotion of *huoli* champions takes place once every two years and since then, the reward and recognition system was institutionalised (Shen University, 2022). At the time of writing, a total of 68 programme participants had been promoted to *huoli* champions. The *huoli* champions accounted for approximately 30% of total programme participants and 13.6% of total academics in the institution. The impact of the institutionalisation of the reward and recognition system on academics' uptake of the guided innovation is presented in Chapter 6.

The promotion of *huoli* champions entailed winning teaching prizes or undertaking teaching-oriented research projects at provincial level (Shen University, 2022) in any of the following three areas:

- Development of undergraduate courses
- Reform in undergraduate degree programmes
- Teaching competitions

Although the institution provided academics with monetary reward for their uptake of the guided innovation, the reward was promised upon the completion of the institutional requirements for programme participation, which is outlined in the next section.

2.5.2 Institutional requirements for programme participation

The institutional requirements for programme participation are a set of teaching and learning approaches delivered on the institutionally approved VLE platform.

The design of the institutional requirements drew on the pedagogical model outlined by the institution (see Figure 2.2) and thus, were also structured into three stages, i.e., pre-class, in-class, and after-class. Details of the requirements are shown in Table 2.3.

Table 2.3 Institutional requirements for programme participation

Stage	No.	Teaching and learning approaches	Description
Pre-Class	1	Course website	Programme participants were required to construct a course website on which their students could access the learning materials enumerated in the left column of the table.
	2	Syllabus	
	3	Slide show	
	4	Course handout	
	5	Video clip	
	6	Pre-class assignment	
In-Class	7	Attendance taking	Programme participants were required to deliver at least seven different categories of online teaching and learning approaches listed in left column of the table. For each category of teaching and learning approaches that teachers selected, it should be performed one to five times throughout the course. The in-class teaching and learning approaches were conducted on mobile phones.
	8	Rush-to-answer	
	9	Random selection quiz	
	10	Mini quiz	
	11	Opinion poll	
After-Class	12	Take-home assignment	
	13	Posts in online forum	
	14	Test	
	15	Sending announcements	
	16	Learning analytics*	

Note: Learning analytics refers to using statistical data on the institutionally approved VLE to monitor students' learning progress so that teachers can intervene and provide assistance to individual students.

The procedures of awarding monetary reward for teachers' completion of the institutional requirements are shown in Figure 2.4.

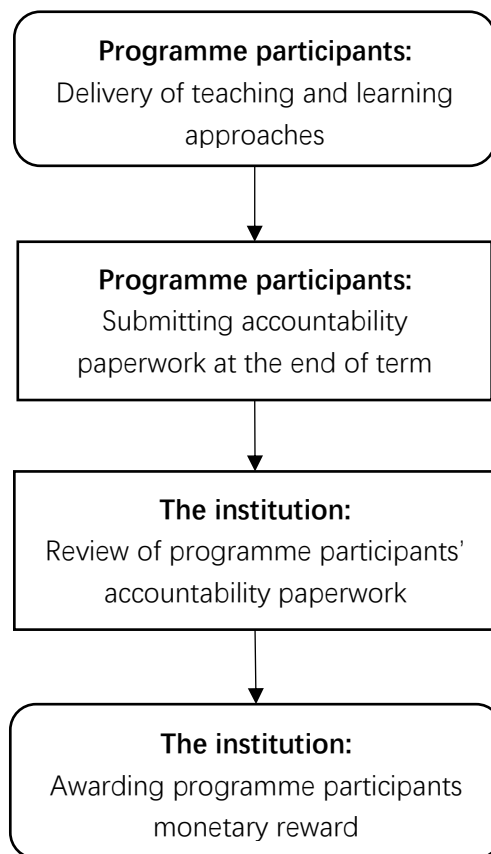


Figure 2.4 Procedures of awarding monetary reward

1. Programme participants were required to deliver a set of teaching and learning approaches throughout the course on an institutionally approved VLE, i.e., the Online learning centre/ Learning app.
2. At the end of term, programme participants were required to submit accountability paperwork documenting the completion of the institutional requirements.
3. An institutional task group was commissioned to review the accountability paperwork submitted by programme participants.
4. Monetary reward or supplementary payment was awarded to programme

participants if the institutional requirements for programme participation were completed.

The institutional requirements for programme participation could have impacted the university-led programme in the following two aspects:

- In addition to the programme vision and pedagogical model, the requirements also embodied the institutional definition of *huoli*, or high-quality teaching and learning performance in the institutional context. The definition was manifested in the form of particular teaching and learning approaches that programme participants were required to deliver throughout the course.
- The requirements comprised a set of quantifiable measures such as five opinion polls throughout the course. The completion of the institutional requirements did not require a performance standard. Thus, the institutional requirements could have reduced high-quality teaching and learning performance in the institutional context to a regime of quantitative-oriented metrics.

In 2021, the institution conducted a series of interviews to investigate the programme. Some interviewees used an emotionally impactful word, “chicken ribs” to comment on the institutional requirements (Shen University, 2021). The word “chicken ribs” in Chinese context refers to meaningless practices.

Although the interviewees knew their comments would be reviewed by institutional managers, they used the word to describe their professional practice designed by the institution. Therefore, the word “chicken ribs” is an indication of programme participants’ strong disaffection with the completion of the institutional requirements. The comment on the institutional requirements encouraged me to explore the root of the disaffection and improve the professional practice of my colleagues.

2.6 Summary of the chapter

This chapter presented an overview of the university-led programme from its initiation to routinisation. The institutional guidelines for the guided innovation (i.e., the programme vision and pedagogical model), the reward and recognition system pertaining to the programme, and the institutional requirements for programme participation were presented in detail. The above-mentioned institutional guidelines, reward system, and institutional requirements represent institutional strategies for raising the profile of undergraduate teaching and thus, warrant further exploration in my research for the following reasons:

- An examination of the impact of the institutional guidelines on academics’ implementation process might assist institutional administrators in the design of guided innovations.
- An investigation of how the reward and recognition system impacts teachers’ adoption decisions is critical to understand the drivers to their

uptake of university-guided innovations. In addition, the reward and recognition system might inform policy makers of the design of career pathways rewarding and recognising innovation and change in undergraduate teaching.

- An exploration of teachers' perceptions of the institutional requirements might reveal how the metrics-driven measures of defining the quality of teaching and learning performance engage or alienate academics. As the interview data collected by the institution revealed traces of teachers' disaffection, an exploration of the institutional requirements might assist institutional administrators and governments in educational sectors in the conceptualisation of high-quality teaching and learning performance that engages academics.

In the next chapter, I present a critical review of existing literature on teachers' uptake of pedagogical innovations in educational settings.

Chapter 3 Literature review

This chapter provides a review of relevant literature on academics' uptake of pedagogical innovations. I start the chapter by outlining an overview of teachers' uptake of pedagogical innovations in higher education. Next, strategies for the literature search are presented. A critical review of extrinsic and intrinsic influences on teachers' innovation adoption is provided. The implications of the review for my research are presented at the end of the chapter.

3.1 Teachers' uptake of pedagogical innovations

I start this section by first reviewing bibliometric studies which systematically analysed existing research on teachers' uptake of pedagogical innovations. The review of bibliometric studies in this section aims to achieve the following purposes:

(1) To identify the major drivers and barriers to teachers' innovation adoption reported in existing research. The drivers and barriers synthesised in these bibliometric studies were used as search terms in the process of retrieving articles from academic databases.

(2) To establish the methodological contributions of my research by finding out the methodological trends in my research field. In particular, the methodological limitations of existing literature were sometimes reported in these bibliometric studies.

(3) To identify key authors, publications, and journals of a particular research field. These authors, publications, and journals were used as sources of expanding literature research.

In addition, to focus on the latest trends regarding the diffusion of pedagogical innovations, articles published before 2014 were excluded. Using a combination of search terms “systematic review” AND “pedagogical innovation”, a total of 12 articles were retrieved from the online library of the University of Hertfordshire. Table 3.1 shows the results of the search.

Table 3.1 Overview of factors affecting teachers’ uptake of pedagogical innovations

References	Number of articles reviewed	Innovations	Key findings concerning academics’ adoption
(Lelescu et al., 2025)	37	AI	Three dimensions of influencing factors: individual characteristics including teacher beliefs, institutional strategies, and social-ethical context
(Tan, 2025)	43	AI	Lack of teachers’ perspectives, Impactful influences: psychological and behaviour factors, and individual characteristics
(Nikolic et al., 2024)	29	AI	Need for ethical guidelines, and institutional support and training
(Al-kfairy, 2024)	40	AI	Lack of research on contextual and psychological factors, Lack of longitudinal studies
(Batista et al., 2024)	37	AI	Need for institutional strategies
(Hart, 2023)	28	Educational technology	Attention to teacher beliefs, Need for institutional support and management
(Smith and Hill, 2019)	97	Blended learning	Lack of teachers’ perspectives, Lack of institution-level and longitudinal studies

(Brady et al., 2019)	65	Technology-enhanced assessment	Lack of longitudinal studies, Need for institutional support
(Bond et al., 2019)	1777	Educational technology	Lack of institutional support
(Kebritchi et al., 2017)	104	Online learning	Need for professional development programmes
(Brown, 2016)	51	Blended learning	Attention to teacher beliefs, Teachers' heavy workload, Need for enabling institutional environments and professional development programmes
(Singh and Hardaker, 2014)	340	eLearning	Lack of research on the interplay between institutional influences and individual adoption

Table 3.1 informs my review of literature on teachers' uptake of pedagogical innovations in the following two aspects.

Firstly, technological advances chart the development of teaching and learning in educational settings. The advances are underpinned by the topical trends of these papers. Blended learning, online learning, and technology-enhanced learning dominated the topics of these review papers published from 2014 to 2023. After 2020, there are a surge of articles on the adoption of generative AI among students and teachers due to the rapid advancements in AI technology. These technology-enhanced innovations for educational purposes created opportunities for improving learning experiences and also added challenges concerning the role of teachers and their students. For example, the diffusion of generative AI brought serious concerns over ethics (Nikolic et al., 2024). As

a result, the landscape of teaching and learning is being changed by these innovations and there is a plethora of research on pedagogical innovations enhanced by emerging technologies. As the *huoli* programme in my research also advocated the introduction of technology-enhanced pedagogies, my research draws on a large body of literature on teachers' adoption of technology-enhanced teaching and learning approaches.

Secondly, key findings regarding factors impacting teachers' innovation adoption are divided into two groups, which are extrinsic and intrinsic influences. Extrinsic influences are dominated by institutional factors and nine of the 12 articles called for providing institutional strategies and support. In particular, three articles mentioned the necessity for professional development or training programmes (Brown, 2016; Kebritchi et al., 2017; Nikolic et al., 2024). In addition, teachers' individual characteristics and their concern over heavy workload were also discussed (Brown, 2016; Lelescu et al., 2025; Tan, 2025). In relation to intrinsic influences, teachers' psychological needs and their value beliefs were commonly investigated (Brown, 2016; Hart, 2023; Al-kfairy, 2024; Lelescu et al., 2025; Tan, 2025). In particular, Lelescu et al. (2025) identified social context as one of the key factors affecting adoption decisions and Singh and Hardaker (2014) emphasised the interplay between individuals and institutions. In this regard, these extrinsic and intrinsic influences involve factors at different levels of contexts.

In addition, these review papers also suggest that there is a lack of longitudinal research (Brady et al., 2019; Smith and Hill, 2019; Al-kfairy, 2024). Therefore, teachers' adoption experiences over a wider time span are under-researched. Moreover, several highly-cited authors in the field of blended learning (e.g., Charles Graham and Randy Garrison) and impactful journals on educational technology (e.g., *British Journal of Educational Technology* and *Internet and Higher Education*) were identified.

In summary, the review in this section provides me with sources of expanding literature search in the follow aspects.

- Firstly, technology-enhanced pedagogies have been a trending topic in teaching and learning research in the past decade. I drew on these articles to obtain an overview of teachers' uptake of pedagogical innovations.
- Secondly, drivers and barriers to teachers' uptake of pedagogical innovations include extrinsic and intrinsic influences. These extrinsic and intrinsic influences constitute two major bodies of articles in this chapter.
- Lastly, I have identified several impactful journals and authors relevant to my research focus. I can dig deeper into a particular discourse (e.g., institutional policies for initiating teaching and learning change programmes) by continuously tracing the articles from these journals or authors.

Next, I present the strategies for literature search.

3.2 Strategies for literature search

Drawing on the brief review of teachers' uptake of pedagogical innovations in the previous section, I used the following strategies to search literature:

Firstly, I used a list of terms to search for articles where the terms appeared in the articles' title, abstract, or keywords. Indicative search terms are "blended learning", "technology-enhanced learning", "hybrid learning", "flipped learning", "online learning" and "teaching innovation". In addition, I narrowed down the number of retrieved literature by using a string of search terms and Boolean Operators (AND OR) such as "higher education" AND "teachers" AND "blended learning" or "teachers" AND "institutional implementation" AND "teaching innovation". Moreover, as I started to explore the effect of extrinsic rewards on teachers' intrinsic motivation, I included a new set of search terms such as "extrinsic motivation" and "intrinsic motivation". The research databases employed in my literature search include the online library of the University of Hertfordshire, EBSCO, and ERIC (Education Resources Information Centre). Doctoral dissertations were retrieved from the British Library (online).

Secondly, I receive updates on new articles from journals of educational technologies such as *British Journal of Educational Technology*, *Internet and Higher Education*, and *Computers and Education*. These are the three journals that contributed most frequently cited articles on blended learning (Halverson

et al., 2012). In addition, *British Journal of Educational Technology* was ranked 12th by Clarivate Journal Citation Reports (2023) among all 269 journals in the group of “Education & Educational Research” (Hennessy et al., 2024). Moreover, I also reviewed latest publications on teachers’ adoption of pedagogical innovations in other journals such as *Teaching in Higher Education*.

Thirdly, I searched publications from prominent authors on related topics. For example, I reviewed publications from Randy Garrison and Charles Graham on blended learning. They are the most cited authors indexed by Halverson et al.’s (2012) review of blended learning publications from 2000 to 2011.

Lastly, I also searched publications in which authors reviewed existing literature on institution-wide pedagogical change (Deacon et al., 2023) and effect of extrinsic rewards on intrinsic motivation (Cameron and Pierce, 1994; Deci et al., 1999; Byron and Khazanchi, 2012; Van den Broeck et al., 2021) as my subsequent literature review revealed new leads on the connections between different bodies of literature.

Because my research was carried out in the context of the Chinese private higher education sector, I also reviewed Chinese literature on (1) undergraduate education in Chinese universities, and (2) academics’ perceptions of their professional practices (e.g., undergraduate teaching in

particular) in the Chinese public and private universities. In addition, as the university-led programme in the case institution used monetary reward to encourage teachers' uptake of innovations, I also reviewed studies on university reward and recognition systems in China. The Chinese literature was retrieved from databases including Wanfang, Weipu, and Chaoxing.

Next, I start to discuss existing research findings of teachers' uptake of pedagogical innovations. To further understand how extrinsic and intrinsic influences manage to motivate a person to perform a particular task, it is necessary to explore the relationship between a person's motivation and underlying psychological needs because these needs predict human behaviour. The discussion of motivation and psychological needs is presented in the next section.

3.3 Motivation and psychological needs

American psychologist Edward L. Thorndike (1874-1949) pioneered research into the relationships between motivation and behaviour. He formulated the law of effect theory which posits that animal behaviours can be influenced by consequences of receiving or avoiding an outside stimulus (Thorndike, 1911). B.F. Skinner (1904-1990), a prominent psychologist, built on Edward L. Thorndike's work and proposed the theory of operant conditioning which predicts the effect of extrinsic stimuli on animal or human behaviours (Skinner,

1953). In contrast with classical conditioning, human behaviours affected by operant conditioning are voluntary, which suggests a learning process on the part of stimulus recipients. Stimulus recipients may modify their behaviours if they learn that desired behaviours will be rewarded. Operant conditioning was widely used in the design of reward system in education and early child development in particular (Hu, 2024). For example, by awarding verbal praises, teachers can modify a student's behaviour because when the student receives their first reward, they learn that desired behaviours lead to good consequences.

However, Skinner's theory does not fully explain the psychological needs accounting for reward recipients' behaviours (Labrador, 2004; Chen, 2023). In addition, the theory focuses on extrinsic rewards such as verbal praises and does not specifically address other types of motivations (Ryan and Deci, 2000). Therefore, to fully understand the rationale behind a person's motivation to perform a task, it is necessary to explore the relationship between different motivations and underlying psychological needs. I start the discussion by first outlining the classification of motivations.

Motivation is commonly classified into extrinsic and intrinsic motivation. This extrinsic and intrinsic topology was used in much of existing research (Hendijani et al., 2016; Fischer et al., 2019; Van den Broeck et al., 2021; Poupard et al., 2025). Extrinsic motivation usually refers to a person performing an activity for

a reward which bears little relevance to the activity itself while intrinsic motivation relates to performing an activity for the enjoyment of the activity (Deci, 1971). A person's psychological needs might underpin various extrinsic and intrinsic motivation for performing certain tasks and the exploration of these psychological needs could then be used to explain and predict human behaviour (Reiss and Havercamp, 1998).

Deci and Ryan (1985) proposed the cognitive evaluation theory which explains the relationship between a person's psychological needs and their intrinsic motivation for performing certain tasks. The theory identifies the perception of competence and autonomy as basic psychological needs accounting for a person's intrinsic motivation for engaging in specific activities. Competence relates to the perception of mastery while autonomy refers to the feeling of choice. Deci and his colleagues later included relatedness into a person's basic psychological needs which intrinsically motivate the person to undertake specific activities (Gagné and Deci, 2005). Relatedness speaks to the need for belonging or collaboration with others during performing professional activities. In this regard, the psychological needs for competence, autonomy, and relatedness are argued to account for the intrinsic motivation for a person to perform certain activities. However, Deci and his colleagues' earlier research on exploring the relationship between a person's psychological needs and their intrinsic motives was sometimes situated in experimental studies such as

inviting participants to solve a puzzle (Ryan et al., 1983). Many of these experimental studies are not close to real-life situations (Reiss, 2012). In addition, cognitive evaluation theory does not posit any intrinsic feelings drawn from receiving an extrinsic reward.

In contrast, Reiss (2004) disputed the extrinsic-intrinsic dualism. He argued that human beings' motivation is multifaceted and proposed the theory of 16 basic desires. The theory identifies 16 different motives including power, curiosity, independence, status, social contact, vengeance, honour, idealism, physical exercise, romance, family, order, eating, acceptance, tranquillity, and saving. All these 16 motives are argued to be underpinned by a person's intrinsic feelings or desires (Reiss, 2012). Even some seemingly extrinsic motivation is driven by intrinsic feelings. For example, eating is linked to the intrinsic feeling of satiation because food might carry cultural values and thus, eating could fulfil a person's biological and psychological needs. Accordingly, the motivation for a pay rise could be driven by the psychological need of feeling self-important. In this regard, Reiss' identification of intrinsic feelings is not confined to the feelings gained from performing a specific task (e.g., drawing a picture). His theory also includes intrinsic feelings gained from a person's career progression, family connection, academic learning, and value beliefs. Many of these intrinsic feelings are related to a person's life motives beyond their professional engagement. Therefore, Reiss' theory captures intrinsic feelings from many

more diversified real-life activities compared to Deci and his colleagues' cognitive evaluation theory.

There are two explanations for the dispute. Firstly, the dispute arises from the context in which human beings' intrinsic feelings are identified. Reiss' (2004) theory of 16 basic desires speaks to a wider and diversified context while the psychological needs or desires that Deci and his colleagues identified focus on the feelings gained from performing a specific task. Secondly, Deci and his colleagues' cognitive evaluation theory only identifies human beings' basic psychological needs. In this sense, these needs lack contextual description or richness. For example, the perception of competence could also be classified as feeling self-important as described in Reiss' (2004) theory.

Therefore, the dispute of the extrinsic-intrinsic dualism suggests that the psychological needs accounting for a person's behaviour might involve different levels of contexts. Situating research in a wider context would reveal more distinct psychological needs that could provide additional insights into human beings' behaviour.

Therefore, in the review of existing literature, I will place the discussion of academics' uptake of pedagogical innovations in a wider context. I start the discussion by firstly reviewing the impact of extrinsic influences on academics'

innovation adoption evidenced in extant literature.

3.4 Extrinsic influences on academics' innovation adoption

Extrinsic influences on teachers' innovation adoption usually include their individual characteristics, cost of innovation adoption, institutional policies, and peer influences. First, I outline the impact of academics' individual characteristics on their innovation adoption.

3.4.1 Individual characteristics

Research into individuals' adoption decisions is separable from their characteristics. These characteristics include their demographics and personality traits. Individual adopters' demographics usually include their age, social status, educational backgrounds, and earnings. In higher education, gender, age, and academic ranks are frequently studied (Bokolo et al., 2020; Richardson et al., 2020; Guo et al., 2024). The impact of these demographics on academics' adoption decisions sometimes suggests a strong connection with institutional influences. For example, younger academics are sometimes less engaged in teaching activities due to the pressure of "publish or perish" policy (Xu, 2021). This phenomenon is an indication of the influence of institutional factors on individual decisions. Therefore, it is insufficient to focus on factors at individual level.

Personality traits constitute another field that has been frequently investigated. Costa and McCrae's (1985) Big Five Model is perhaps the most popular categorisation of personality traits (Zell and Lesick, 2022). The model identifies conscientiousness, extraversion, agreeableness, neuroticism, and openness as five overarching personality traits. Of the five traits, extraversion and openness might affect an individual's decision to adopt innovations as extraversion increases the chance of acquiring outside information from heterogeneous communication networks and openness reflects an individual's willingness to accept new ideas. Innovativeness, in my argument, represents a sub-trait of openness and is frequently studied to investigate the impact of academics' personality traits on their adoption decisions in higher education settings (Baig and Yadegaridehkordi, 2024; Blumenschein and Hannisdal, 2024; Gutiérrez-Leefmans et al., 2025; Singh and Strzelecki, 2025). However, the effect of extraversion on academics' uptake of pedagogical innovations is under-researched perhaps because extraversion concerns academics' interpersonal communication networks and they may be reluctant to disclose their personal information, which poses a challenge to measuring the personality trait of extraversion.

Another challenge of measuring academics' personality traits lies in the validity of the measurement. Researchers tended to use Likert-type scale questions to

ask respondents to self-rate their level of innovativeness. For example, in Singh and Strzelecki's (2025) research, participants were required in an online questionnaire to rate their willingness to try new information technologies. The authors used the Likert-type scale data drawn from participants' self-ratings to measure their personal innovativeness. However, Porter and Graham (2016) suggested that survey respondents might over-estimate their level of innovativeness. As a result, the analysis of the data collected from self-rating surveys can be affected.

Once the adoption decision is made, academics need to invest time in the practice of pedagogical innovations. The next section outlines the influence of time commitment.

3.4.2 Time commitment

Time commitment underlines the cost of adopting pedagogical innovations for individual academics and it is frequently reported by researchers as one of the major barriers to academics' uptake of pedagogical innovations (Brown, 2016; Mestan, 2019; Stefaniak and Carey, 2019; Vigentini et al., 2020). The barrier is attributable to the fact that teachers need to learn and manage the practice of new pedagogies. For technology-enhanced pedagogical innovations, the upfront cost of innovation adoption on the part of teachers usually entails the

development of digital skills and creation of course materials (Francom, 2020).

In addition, the delivery of innovative pedagogies sometimes requires extra time and effort to prepare and manage (Borrego et al., 2010). Frequent reports of teachers' extra time commitment to innovation adoption in existing literature illustrate that time is one of the major resources required for academics to conduct their professional activities or adopt innovations.

In addition, academics' concerns over extra workload are partly influenced by the competitive relationship between research and teaching activities in higher education. The competition between research and teaching activities for academics' time commitment also reflects the conflict of interests that can be gained from universities. The next section presents institutional policies affecting academics' uptake of pedagogical innovations.

3.4.3 Institutional policies

Institutional scaling of pedagogical innovations requires universities to (1) re-allocate their resources and (2) reduce uncertainty among academics.

Institutional policies on resource allocation

To win academics' buy-in, universities need to re-allocate their resources to (1) improve the infrastructure and (2) enhance the relative advantage of innovation

adoption. University infrastructure such as the availability of VLEs, Internet and computer access is critical to institutional implementation of pedagogical innovations because initial negative experiences might discourage teachers from continuing the adoption of pedagogical innovations (Dintoe, 2019; Ismail, 2023; Koloti et al., 2026). In addition, researchers have been continuously calling for rewarding teaching activities (Børte et al., 2023; Kottmann et al., 2024) because university reward and recognition systems can greatly enhance the relative advantage of practising particular professional activities. However, research into the effect of rewards has encountered two major challenges.

Firstly, it is challenging to conduct research into academics' actual responses to extrinsic rewards for teaching activities because existing university reward and recognition systems are often research-oriented and those systems usually do not provide academics with monetary reward for their uptake of pedagogical innovations (Zhao, 2020; Zhang, 2022). Incentives for teachers' innovation adoption were sometimes presented in the form of funding or teaching awards instead of pay rises or academic promotions (Vaughan et al., 2017). This is situated in the context that current academic culture still salutes research output instead of teaching activities. In higher education, research output is often prioritised over teaching activities (Xing and Deng, 2018). As a result, research measuring teachers' perceptions of the weight of extrinsic rewards is usually based on questionnaires and participants were required to rate their

perceptions on these hypothetical rewards (Porter and Graham, 2016; Huang, 2019; Chen, 2024; Bao and Chen, 2025). Academics' practical responses to various extrinsic rewards for teaching activities in real-life environments are under-researched.

Secondly, investigation into teachers' perceptions of reward and recognition for teaching activities can be influenced by (1) teachers' moral code and (2) the sensitive nature of the topic. As caring for student learning and growth is listed as teachers' code of conduct globally and teaching practice is a moral endeavour (Shapira-Lishchinsky, 2020), survey participants could have provided socially desirable answers. In addition, teachers might be guarded against commenting on sensitive topics particularly in interviews. Perhaps influenced by their moral code and the sensitive nature of the topic, existing literature has demonstrated that academics' perceptions of university reward and recognition systems for their uptake of pedagogical innovations were widely split (Martin et al., 2013; Porter and Graham, 2016; Habib and Johannesen, 2020; Al-kfairy, 2024).

In addition, the impact of extrinsic rewards on academics' orientation of their professional practice can be influenced by the social context of a particular region or country. For example, Tong and Liu's (2019) research suggested that the Chinese are generally more concerned about their jobs or careers than

other life activities such as entertaining. The concern is perhaps related to the high cost of living particularly in large cities. In addition, a balanced approach between pursuing individual well-being and contributing to the collective is being championed in contemporary China. However, research on the impact of extrinsic rewards on academics' innovation adoption often focuses on individual or institutional influences, e.g., Porter and Graham (2016) and Liu's (2018) studies. Influences drawn from the social context of a particular region or country are sometimes neglected.

Institutional policies on uncertainty reduction

Innovation adoption is an uncertainty reduction process as academics might not be aware of the presence of pedagogical innovations because the practice of teaching activities is sometimes less observable by peer colleagues than other innovations such as the use of mobile phones. To raise academics' awareness of new practices, universities need to outline institutional purposes (Graham, et al., 2013), explicitly clarify their definitions (Garrison and Vaughan, 2013), and organise professional training programmes (Moriña and Perera, 2025). Clear institutional policies regarding the purpose and definition of pedagogical innovations are critical for uncertainty reduction (Mestan, 2019; Vaughan et al., 2017). However, disaffection among academics can arise if the guided innovation was intended for economic considerations or "cost saving" (Porter et al., 2016; Heinonen et al., 2019). Teachers' disaffection with their

institution's financial motives reflects the presence of their intrinsic motivation and concern for student learning. For example, academics at a university in the Maldives were concerned that an institution-led blended learning initiative might compromise the quality of teaching because all the face-to-face learning was intensively delivered at weekends without supplementary online learning in between face-to-face sessions (Ali and Georgiou, 2025). In this case, the blended learning initiative did not outperform traditional practices in improving the quality of student learning. In this regard, the concern also underlines teachers' psychological need for perceived competence. The Maldives example suggests that the uptake of innovative teaching and learning approaches might evoke teachers' intrinsic motivation and their underlying psychological needs.

In addition, professional development programmes, or teacher training projects are indispensable to improve teachers' professional competence of delivering innovative teaching and learning approaches (Taylor and Newton, 2013; Abusalim et al., 2020; Groen et al., 2020). Existing research has demonstrated that professional development programmes provided teachers with vicarious experiences prior to the delivery of innovative teaching practices (Evans et al., 2020). Moreover, professional development programmes also serve as communication channels facilitating the flow of information among academics. Further details about how the flow of information contributes to the diffusion of pedagogical innovations are discussed in the next section.

3.4.4 Peer influence

In the diffusion of pedagogical innovations, the presence of teachers' colleagues serves three roles, which are (1) facilitating the flow of information, (2) creating peer pressure on non-adopters and (3) shaping teachers' learning communities.

Firstly, it was reported that teachers prefer information from their colleagues who are near them, namely near peers (Porter et al., 2016). Borrego et al. (2010) argued that "word-of-mouth" information from near peers is effective in raising the awareness of innovations among potential adopters. However, the flow of information about innovation also entails interactions between colleagues from different departments or even institutions because near peers always share similar information. In this sense, the flow of information in the diffusion of pedagogical innovations usually entails both internal and external communication networks (Rogers, 2003). Stasewitsch et al. (2022) recommended universities use educational reforms to create external communication channels facilitating the flow of information across different departments within an institution because academics' interpersonal communication networks are relatively small.

Secondly, the pressure of colleagues' adoption, namely peer pressure in educational settings was described in existing literature (Smith, 2012; Boland,

2020). Peer pressure was attributable to teachers' social pressure for non-adoption (Chan and Ngai, 2012) and their observation of colleagues' "successful adoption" (Ertmer and Ottenbreit-Leftwich, 2010). While "successful adoption" in existing literature sometimes relates to pedagogical effectiveness, extrinsic influences gained from adoption such as public esteem, monetary reward, or academic promotions should not be underestimated. However, because rewarding teachers' uptake of innovations is not frequently practised in higher education (Oh and Park, 2009), little is known about how university reward systems create peer pressure which, in turn, influences academics' adoption decisions.

Thirdly, researchers reported that teachers' informal mentoring supported them in exploring innovative teaching and learning approaches (Nicolle and Lou, 2008; Ertmer et al., 2012). In addition, Ertmer et al. (2003) investigated the positive role of the presentation of exemplary teaching practices through multimedia technologies in shaping teachers' learning communities. While in China, Sargent (2015) concluded that the practice of demonstration lessons contributed to the flow of information about innovation and the practice shaped teachers' learning networks. Demonstration lessons refer to a type of academic activities in which teachers showcase exemplary teaching practices in the presence of their colleagues. Sargent's (2015) research highlighted the role of context-specific practices such as demonstration lessons in activating teachers'

communication channels and learning communities in the Chinese context.

This section has presented the review of the first strand of extant literature, i.e., extrinsic influences on teachers' innovation adoption. The discussion of extant literature suggested that extrinsic influences alone are not sufficient in accounting for teachers' decision-making process for innovation adoption. For example, teachers sometimes questioned the motives of institution-guided innovations as discussed in Section 3.4.3. In this regard, intrinsic influences are also involved in adopters' decision-making process. Therefore, to explore how intrinsic influences affect academics' innovation adoption, I start to review the second strand of existing literature, namely intrinsic influences on teachers' innovation adoption in the next section.

3.5 Intrinsic influences on academics' innovation adoption

Intrinsic influences comprise teachers' belief systems, their professional identity and academic culture in relation to the implementation of pedagogical innovations. The next section begins with my review of existing literature on teachers' belief systems for adopting pedagogical innovations.

3.5.1 Teachers' pedagogical belief

Teachers' *pedagogical belief* refers to their belief in the effectiveness of particular pedagogies (Ertmer, 2005). For example, a teacher with student-centred pedagogical belief may perceive that student-centred pedagogies are more effective in promoting student learning compared with teacher-centred pedagogies. Teachers' pedagogical belief reflects part of their existing values prior to innovation adoption. The belief is underpinned by their perception of competence, which is part of a person's basic psychological needs (Gagné and Deci, 2005). Drawing on Rogers' (2003) Diffusion of Innovations theory, greater compatibility or alignment between teachers' prior pedagogical belief and pedagogical innovations is conducive to adoption. Ertmer et al. (2012) argued that teachers' pedagogical belief could be in alignment with the classroom practices they enact. For instance, a teacher with teacher-centred pedagogical belief tends to enact teacher-centred pedagogies such as didactic teaching. Considering the role of teachers' intrinsic beliefs in the enactment of pedagogies, researchers further investigated drivers to change in teachers' pedagogical belief. For example, based on a review of 14 existing studies, Tondeur et al. (2017) concluded that the relationship between teachers' pedagogical belief and classroom practices was interactive. In this sense, prior experience of implementing classroom practices might affect teachers' pedagogical belief, and vice versa. Therefore, it is recommended for institutional administrators to provide teachers with support in the initial stage

so that positive feedback might serve as enablers to change in their pedagogical beliefs (Guskey, 2002; Ertmer, 2005).

Although Ertmer et al. (2012) highlighted the alignment between teachers' belief systems and their enacted classroom practices, the argument might not hold true if there are external interventions or interference. Based on a review of 17 doctoral theses, published papers and book chapters, Basturkmen's (2012) research demonstrated limited correspondence between teachers' belief systems and their enacted classroom practices. The research concluded that contextual barriers might prevent teachers from translating their pedagogical beliefs into corresponding teaching practices. Kopcha et al. (2020) further confirmed that teachers' enactment of classroom practices was subject to a combination of external environments, intrinsic beliefs and emergent conditions. Although the above-mentioned research findings were based on small-scale samples, those findings shed light on the mechanism behind teachers' decision-making process for innovation adoption in the following two aspects:

- Teachers' intrinsic beliefs in particular pedagogies are involved in their decision-making process for innovation adoption.
- External interventions might alter the trajectory of teachers' enactment of classroom practices.

The studies reviewed in this section suggested that intrinsic influences such as

teachers' pedagogical belief is critical to their decisions to adopt pedagogical innovations. Therefore, I continue to review other intrinsic influences on academics' uptake of pedagogical innovations in the next section.

3.5.2 Teachers' professional identity and moral code

In addition to teachers' intrinsic beliefs in pedagogies, their professional identity (e.g., the intension for improving professional competence and gaining professional autonomy) also plays an influential role in affecting their decisions to adopt pedagogical innovations.

The vision of improving professional competence or becoming better teachers is illustrative of the presence of teachers' professional identities (Chee et al., 2015). Consequently, student learning outcomes are part of their intrinsic motivation for piloting innovative teaching and learning approaches (Drysdale et al., 2013). Porter et al. (2016) reported that teachers questioned institutional motives for economic considerations or increasing student enrolments in the implementation of university-guided innovations. Teachers' questioning of institutional motives highlights the potential conflict between institutional visions and teachers' intrinsic motivation for adopting pedagogical innovations.

Teachers usually value professional autonomy in the practice of teaching and learning approaches and prefer to gain control over the design of their teaching

practices (Singh and Hardaker, 2014). Consequently, in the implementation of university-guided innovations, they reported the perception of taking directives from institutions (Newton, 2003). Thus, disaffection is likely to emerge among teachers in their implementation of institutional requirements.

Teachers' intrinsic motivation for improving professional competence and gaining academic autonomy highlights their psychological needs regarding their professional life. These psychological needs are partly influenced by the moral code accorded to the teaching profession. For example, Shapira-Lishchinsky (2020) reviewed professional moral codes from 30 countries and the research identified that teachers' professionalism and caring for students are commonly cited in code of conduct for teachers in China and globally. Therefore, teachers' intrinsic motivation for engaging in professional practices is a reflection of their professional strivings. However, as Reiss (2012) suggested that a person's intrinsic feelings are multifaceted and can be influenced by various life strivings (e.g., family and career), the influence of academics' life strivings on their intrinsic motivation for performing professional activities is under-researched.

In addition, Reiss' (2012) theory of 16 basic desires (see Section 3.3) suggests that extrinsic and intrinsic influences can be inextricably linked. Therefore, to further explore the interactive relationship between extrinsic and intrinsic

influences on teachers' decision-making process, I review relevant literature in the next section.

3.5.3 Interactions between teachers' intrinsic beliefs and extrinsic influences

Ertmer (1999) argued that the relationship between extrinsic and intrinsic influences is interactive and she posited that teachers' intrinsic motivation could moderate their perceptions of extrinsic influences. By using path modelling based on survey responses from 624 teachers, Vongkulluksn et al. (2018) deduced that intrinsic motivation could moderate teachers' perceptions of extrinsic barriers. For example, when there is a lack of hardware supporting the delivery of particular student-centred pedagogies, a teacher with student-centred pedagogical belief might find alternative hardware to implement those pedagogies. A limitation of the research is that there was no qualitative data delineating how teachers' intrinsic motivation moderated their perceptions of extrinsic barriers.

Although Vongkulluksn et al.'s (2018) research has demonstrated the moderating effect of intrinsic influences on extrinsic barriers, the reverse direction of the moderating effect, namely, the impact of extrinsic influences on teachers' intrinsic belief systems is not fully investigated. This is partly because

in the implementation of technology-enhanced learning, extrinsic barriers in terms of Internet and computer access had been greatly alleviated (Ertmer et al., 2012) and thus, teachers' intrinsic beliefs received researchers' focused attention. However, extrinsic influences on teachers' innovation adoption are not confined to Internet and computer access. Institutional policies such as university reward systems as shown above are also part of the extrinsic influences. In this regard, the moderating effect of extrinsic influences on teachers' intrinsic motivation warrants researchers' further investigation.

As my research explores the impact of extrinsic rewards on teachers' uptake of pedagogical innovations, the review of extant literature in this section reveals that the impact of extrinsic influences (extrinsic rewards in particular) on teachers' intrinsic motivation during their uptake of pedagogical innovations remains to be further explored. Therefore, I turn to the body of literature on the effect of extrinsic rewards on reward recipients' intrinsic motivation in the next section. Although the effect of extrinsic rewards on intrinsic motivation was extensively studied in the field of student learning since the 1970s, findings from this body of literature might inform the understanding of the research phenomenon in my research.

3.6 Effects of extrinsic rewards on intrinsic motivation

Section 3.3 has revealed that Skinner's operant conditioning theory does not

fully explain reward recipients' intrinsic feelings after they receive an extrinsic reward (Labrador, 2004). In response, research on the effect of extrinsic rewards on reward recipients' intrinsic motivation took off in the 1970s. This body of literature discussed (1) the incremental or detrimental effect of rewards on intrinsic motivation and (2) the theoretical underpinnings of those effects. Firstly, I outline the findings of extant studies.

3.6.1 The undermining effect of extrinsic rewards on intrinsic motivation

Based on two laboratory experiments and one field experiment, Deci (1971) concluded that extrinsic rewards tended to undermine reward recipients' intrinsic motivation. The research finding ran counter to ordinary teachers and employers' assumption that extrinsic rewards would motivate their students or employees. For example, teachers usually use rewards such as certificates of merit or verbal praises to encourage student learning. Employers may want to use monetary rewards to reinforce institutional norms or practices among employees. Deci et al. (1972) recommended employers and teachers concentrate on enhancing their employees and students' intrinsic motivation rather than using extrinsic rewards to reinforce institutional norms or practices.

Deci and Ryan (1985) argued that all rewards have controlling aspect and thus, extrinsic rewards would inevitably exert an undermining effect on reward

recipients' intrinsic motivation. The undermining effect is attributable to the assumption that people's attention is drawn to the attainment of extrinsic rewards and thus, they become extrinsically motivated rather than intrinsically motivated (Eisenberger and Selbst, 1994). In this regard, extrinsic rewards could control peoples' behaviour.

Based on a meta-analysis of 128 experimental studies, Deci et al. (1999) refined their conclusions in relation to the undermining effect of rewards on intrinsic motivation. They synthesised that reward arrangement, or the way that rewards are promised could influence reward recipients' intrinsic motivation. For example, all expected tangible rewards or rewards that do not convey information of high-quality performance would have an undermining effect on intrinsic motivation. In this regard, if the reward signifies low-quality performance, the competence information pertaining to the reward and its controlling force would undermine intrinsic motivation. On the other hand, if a reward could impart information of high-quality competence, the information value about the reward could mitigate the controlling force pertaining to the reward and thus, enhance reward recipients' intrinsic motivation.

Based on their findings and conclusions, Deci and Ryan (1987) offered suggestions for mitigating the undermining effect of rewards on intrinsic motivation. They argued that providing people with autonomy, or more free

choices would reduce people's experience of being controlled and enhance people's perception of self-determination and thus, boost their perception of the level of competence conveyed by the rewards. In addition, Deci et al. (2001) suggested that rewards that convey positive competence feedback could offset the undermining effect of extrinsic rewards.

Deci's (1971) research finding triggered a plethora of studies investigating the effect of extrinsic rewards on intrinsic motivation. However, there are diametrically opposed conclusions about the impact of rewards on intrinsic motivation in existing studies.

3.6.2 Counter-arguments about the undermining effect of rewards on intrinsic motivation

There are researchers who disagreed with Deci and his colleagues' conclusions about the undermining effect of extrinsic rewards on intrinsic motivation. Cameron and Pierce (1994) conducted a meta-analysis of 96 experimental studies and they concluded that in most cases, extrinsic rewards do not have a detrimental effect on intrinsic motivation. Cameron (2001) further explained that the undermining effect of rewards on intrinsic motivation is restricted to certain conditions. In particular, Cameron (2001) and Deci et al. (1999) disagreed on the effect of expected tangible rewards. Cameron (2001) suggested that

expected tangible rewards would not undermine intrinsic motivation if (1) the tasks are intrinsically interesting from subjects' perspectives and (2) the rewards are promised upon high-quality performance. Harackiewicz et al. (1984) also suggested that performance-contingent rewards could enhance intrinsic motivation because the authors argued that rewards for high-quality performance enhance reward recipients' perception of accomplishment.

To sum up, both Cameron (2001) and Deci et al. (1999) agreed that rewards for high-quality performance could enhance reward recipients' intrinsic motivation. However, they all tried to make generalised conclusions based on meta-analysis of existing studies. Their disagreement about the undermining effect of extrinsic rewards on intrinsic motivation partly arose out of (1) the methodologies and (2) the underlying theoretical underpinnings of existing studies. In the next section, I first present the theoretical underpinnings of existing studies on the impact of extrinsic rewards on intrinsic motivation.

3.6.3 Theoretical underpinnings of existing studies

To understand the mechanism behind the moderating effect of extrinsic rewards on intrinsic motivation, researchers proposed various theories aiming for explaining their research findings. The popular theories are:

- Cognitive evaluation theory (Deci and Ryan, 1985),

- Overjustification theory (Lepper et al., 1973), and
- General interest theory (Eisenberger et al., 1999).

Deci and Ryan's (1985) cognitive evaluation theory posits that all rewards contain a controlling aspect and an informational aspect. On the one hand, the controlling aspect works to control people's behaviour for the attainment of a reward. Reward recipients' experience of being controlled undermines their intrinsic motivation because the reward draws their attention. In this regard, the undermining effect of rewards on intrinsic motivation is an innate property (Cameron, 2001). On the other hand, the informational aspect implied by the promised reward provides reward recipients with perceptions of competence. In addition, reward recipients' perception of self-determination (e.g., more autonomy in performed tasks) also enhances their self-fulfilment and satisfaction. Therefore, reward recipients' perceptions of competence and self-determination have an incremental effect on their intrinsic motivation.

In this regard, cognitive evaluation theory proposes two types of forces pertaining to extrinsic rewards, i.e., the controlling force that undermines intrinsic motivation and the informational force or value that enhances intrinsic motivation. Ryan et al. (1983) argued that the two types of forces (i.e., the controlling and informational force) of a reward could mitigate each other. If the reward conveys high levels of competence, then the informational value of the

reward might override the controlling force pertaining to the reward. In such circumstances, intrinsic motivation will be maintained or enhanced. In this regard, cognitive evaluation theory posits that a person's perception of competence is the core psychological need underlying their intrinsic motivation for performing a task. However, the psychological needs described by cognitive evaluation theory are confined to the perception derived from performing specific tasks or activities. The theory does not place the interpretation of the perception of competence into a wider context such as intrinsic feelings drawn from career progression. Therefore, extrinsic rewards such as promotion are not considered to influence intrinsic motivation.

On the contrary, the other two theories do not posit that extrinsic rewards contain a controlling force that would inevitably undermine intrinsic motivation. For example, overjustification theory posits that people would attribute their cause of performing tasks to the attainment of extrinsic rewards (Lepper et al., 1973). Therefore, the attainment of these rewards provides people with the justification for their behaviour. The withdrawal of extrinsic rewards would lead to a dramatic decrease of reward recipients' engagement with performed tasks.

General interest theory posits that if a reward brings reward recipients satisfaction, desire or self-fulfilment, the reward would increase their intrinsic motivation (Eisenberger et al., 1999). On the other hand, a reward would

undermine reward recipients' intrinsic motivation if the reward does not accord them expected gains. However, general interest theory does not specify the type of satisfaction, desire or self-fulfilment that would increase intrinsic motivation. If gaining social status by pay rise is considered as a person's intrinsic feeling or desire, extrinsic rewards would also enhance reward recipients' intrinsic motivation.

In summary, cognitive evaluation theory emphasises the presence of two opposing forces while general interest theory speaks to the impact of personal significance accorded by extrinsic rewards on reward recipients' intrinsic motivation. In addition, overjustification theory focuses on explaining the cause of people's behaviour and ramifications arising from the withdrawal of rewards.

However, there are some inconsistencies between the above-mentioned theories (Eisenberger and Shanock, 2003). For example, general interest theory assumes that personal satisfaction brought by extrinsic rewards would enhance reward recipients' intrinsic motivation while cognitive evaluation theory posits that extrinsic rewards would draw reward recipients' attention and undermine their intrinsic motivation. The inconsistency arises from the level of context in which psychological needs or intrinsic feelings are identified. General interest theory speaks to a broader context while cognitive evaluation theory focuses on the perception of competence drawn from performing a specific

activity (e.g., an assignment).

Partly because the underlying theories in existing studies may be inconsistent, the research conclusions concerning the effect of rewards on reward recipients' intrinsic motivation in these studies are sometimes conflicting.

In addition to the inconsistencies in existing theories, another contributing factor to the disagreement about the detrimental or incremental effect of rewards on intrinsic motivation is the methodologies in existing studies.

3.6.4 Limitations of existing studies

The limitations of existing studies regarding their methodologies are:

- (1) Heavily reliant on statistics derived from experiments and
- (2) Insufficient in experimental designs.

Firstly, existing studies on the impact of extrinsic rewards on intrinsic motivation were predominantly based on statistics derived from experimental investigations or meta-analysis of extant literature (Cameron and Pierce, 1994; Lepper et al., 1999). There is a lack of qualitative data supporting the explanation of the inferential statistics obtained from experiments. Accordingly, the mechanisms behind the incremental or detrimental effect of rewards on

intrinsic motivation were explained by theories such as cognitive evaluation theory (Deci and Ryan, 1985). In addition, investigation into the impact of rewards on intrinsic motivation in real-life situations is limited (Eisenberger et al., 1999). Therefore, little is known about how intrinsic motivation is enhanced or undermined by extrinsic rewards.

Secondly, the design of the experiments in existing studies may be insufficient. The experiments are predominantly games such as puzzle-solving (Deci, 1971) and pinball (Harackiewicz et al., 1984). Cameron (2001) explained that the designed activities might not be intrinsically interesting from research participants' perspectives. In addition, the measurement of intrinsic motivation in existing studies may not be valid. For example, Deci (1971) used free time spent on tasks while Eisenberger and Armeli (1997) used quality of performance to measure the level of subjects' intrinsic motivation. However, I would argue that it may be insufficient to use one dimension of dependant variables to measure reward recipients' intrinsic motivation. Moreover, the undermining effect of rewards on intrinsic motivation is subject to the influence of reward recipients' personality traits. For example, Harackiewicz et al. (1987) explained that achievement-oriented people's intrinsic motivation would be greatly enhanced by the competence information conveyed by the reward if the reward is accredited or evaluated by authorities. However, Ryan et al. (1983) argued that evaluation apprehension would lead to loss of intrinsic motivation

on the part of reward recipients. Therefore, the results of existing experimental investigations could be easily influenced by individual differences between experiment and control groups (Eisenberger and Cameron, 1996). In addition, Notz (1975) further explained that the experiments predominantly used children or college students as research subjects and thus, the generalisability of those results to a larger population are questionable. Lastly, the rewards in existing experimental studies are sometimes not salient enough and thus, the results of those studies are not transferable in real-life situations. Accordingly, the limitations of existing studies inevitably affected the results of meta-analysis of those studies.

Section 3.4~3.6 addressed the critical review of existing studies on extrinsic and intrinsic influences on teachers' uptake of pedagogical innovations and the relationship between those extrinsic and intrinsic influences. In the next section, I conclude the implications of the literature review for my research.

3.7 Conclusion

This chapter has presented a review of three major bodies of literature that inform the design and analysis of my research:

- Extrinsic influences on teachers' uptake of innovations
- Intrinsic influences on teachers' uptake of innovations
- Effects of extrinsic rewards on intrinsic motivation

Figure 3.1 presents a map of my literature review in this chapter.

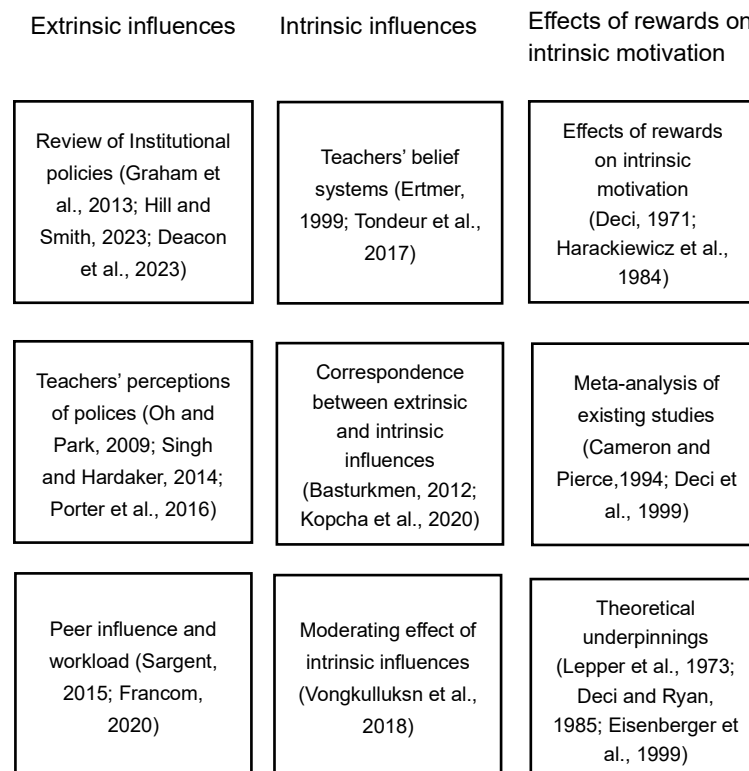


Figure 3.1 The map of literature review

Note: Only representative literature is listed above.

The literature review has demonstrated that the diffusion of innovations in higher education settings is situated within a unique and distinct context compared with innovation diffusion in other settings. Academics' professional responsibilities (i.e., research, teaching, and service), their working environments and professional identities all contribute to the shaping of the contextual factors and those factors, in turn, impact teachers' decisions to adopt innovative teaching practices.

Grounded in the review of three bodies of literature on educational practitioners'

uptake of pedagogical innovations, I outline the limitations of existing studies and the case for my research in three major areas.

Incompleteness

Research findings in existing literature are primarily grounded in academics' grassroots movements (Drysdale et al., 2013) and institutional implementation of guided innovations is under-researched (Schophuizen et al., 2018; Hill and Smith, 2023; Deacon et al., 2023). As existing university reward and recognition systems often prioritise research output over teaching activities (Oh and Park, 2009), the connection between top-down institutional policies (e.g., reward and recognition systems in particular) and bottom-up teacher responses is not fully investigated. Therefore, my research intends to shed light on this under-researched area, i.e., the scaling up of university-guided innovations among academics.

In addition, although teachers' intrinsic motivation could moderate their perceptions of extrinsic barriers (Vongkulluksn et al., 2018), whether the moderating effect between extrinsic and intrinsic influences is bidirectional warrants further exploration.

Inadequacy

Existing research has illustrated the snapshots of teachers' responses to a

variety of extrinsic and intrinsic drivers and barriers to their innovation adoption. However, longitudinal studies investigating teachers' responses to institutional change programmes for teaching and learning are limited (Li, 2017). Therefore, it is necessary to build a picture delineating academics' innovation adoption over a wider time span so that institutional administrators can provide teachers with sustainable support covering all stages of innovation adoption.

The discussion of findings in existing studies is sometimes detached from the professional and social context of these studies. Situating the analysis of research findings in a wider context might add an additional layer of insight into teachers' orientation of their professional activities.

Incommensurability

While existing studies investigating the impact of rewards on reward recipients' intrinsic motivation are predominantly based on experiments on children or college students (Cameron and Pierce, 1994; Lepper et al., 1999; Wiechman and Gurland, 2009), my research was carried out in a real-life setting and investigated teachers' actual responses to extrinsic rewards. In addition, I use a combination of qualitative and quantitative data to explain why and how extrinsic rewards would undermine or enhance academics' intrinsic motivation rather than relying solely on statistics.

To sum up, I intend to contribute to knowledge and practice in the following

areas:

Knowledge contribution

- Investigating the moderating effect of extrinsic influences on academics' intrinsic motivation.
- Exploring academics' perceptions of their uptake of guided innovations over a wider time span.

Practice contribution

- Empirical study exploring teachers' voices in an institutional change programme for teaching and learning.
- Mixed methods design exploring academics' actual responses to extrinsic rewards in real-life situations.

As I intend to use theories to support the design and analysis of my research as outlined in Chapter 1, I review theoretical frameworks including Rogers' (2003) Diffusion of Innovations theory and other theoretical underpinnings for investigating teachers' uptake of innovations in the next chapter.

Chapter 4 Theoretical framework

This chapter discusses commonly cited theoretical frameworks for studying teachers' uptake of innovations in existing literature. The strengths and limitations of these frameworks are described in this chapter and the rationale for using a combination of theoretical frameworks in my research is outlined. Firstly, I present Rogers' (2003) Diffusion of Innovations theory because there is a close connection between the theory and my research as explained in Chapter 1.

4.1 The Diffusion of Innovations theory

Rogers' (2003) DoI theory is arguably the most influential and commonly cited theoretical framework investigating how an innovation proliferates among adopters in a social system (Shea et al., 2005; Straub, 2009).

1 The origin of the theory

The research on the diffusion of innovations took off in the field of rural sociology in the United States (Rogers, 2003). Ryan and Gross (1943) used communication channels and time as interpretive lenses to analyse the patterns of the diffusion of hybrid seed corn among farmers in the U.S. mid-west. Ryan and Gross' (1943) research shaped the paradigms of much of later diffusion research which explored (1) the spread of innovation knowledge through

interpersonal communication channels among adopters (Cohen-Vogel and Ingle, 2007; Trust et al., 2017) and (2) the development of a diffusion process over time (Chan and Ngai, 2012; Porter and Graham, 2016). The diffusion research later expanded to other fields such as medical sociology (Menzel and Katz, 1955). In 1962, based on a synthesis of prior research, Everett Rogers published his influential book *Diffusion of Innovations* and presented his theory (Rogers, 1962; Rogers, 2003). The theory outlined a conceptual framework which identified key elements affecting people's decision-making process for innovation adoption. Details of the conceptual framework are presented in the next section.

2 The conceptual framework of Rogers' Diffusion of Innovation theory

Rogers (2003) identified four elements in a diffusion process and the elements shaped the conceptual framework of his DoI theory. Figure 4.1 shows the conceptual framework of the theory.

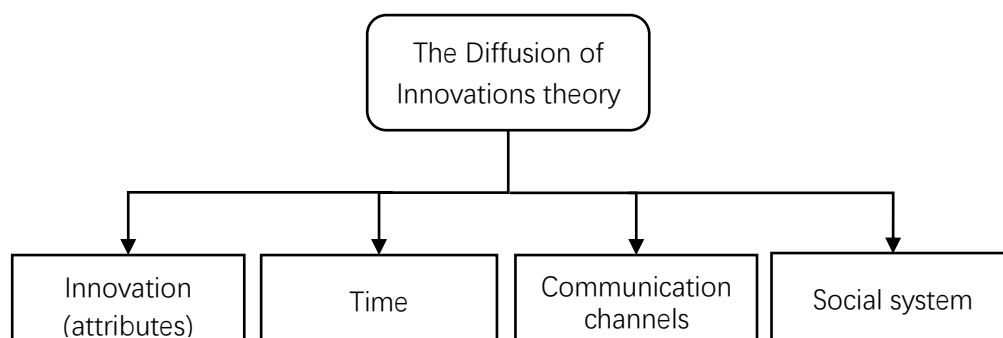


Figure 4.1 The conceptual framework of the DoI theory

(1) Innovation

Rogers (2003: 12) defined an “innovation” as:

“An idea, practice, or object that is perceived as new by an individual or other unit of adoption.”

Innovation is the core element in the DoI theory. Rogers (2003) identified five innovation attributes, which are relative advantage, complexity, observability, compatibility, and trialability.

Relative advantage refers to the advantage that adopters can gain from innovation adoption compared with original practices. For example, Richardson et al. (2020) reported that teachers perceived increased student engagement in online learning environment. Therefore, in Richardson et al.’s (2020) research, the introduction of the pedagogical innovation, namely online learning improved the relative advantage of innovation adoption by fostering student engagement.

Complexity speaks to the extra effort required to adopt the innovation. In the integration of technology into teaching practices, academics usually reported it took them extra time and effort to master digital skills (Francom, 2020). Thus, the necessity for academics to master digital skills added complexity to innovation adoption.

Observability relates to the visibility of innovation adoption by potential adopters. For example, in China, the practice of demonstration lessons in which teachers showcase exemplary teaching and learning approaches to their colleagues could improve the observability of pedagogical innovations. Sargent's (2015) research revealed that demonstration lessons facilitated the flow of innovation information from innovators to late adopters and the flow of information led to the proliferation of innovative teaching practices among different departments and regions in China.

Compatibility discusses whether an innovation fits well into existing cultures, values or practices. For instance, some institution-guided innovations were intended for economic reasons and therefore, the implementation of those innovations conflicted with the values of academics and incurred their disaffection (Heinonen et al., 2019).

Trialability refers to whether the innovation could be piloted prior to formal adoption. In marketing, free samples are usually dispatched to potential consumers so that they can pilot the innovation.

Of the five innovation attributes, Rogers (2003) argued that relative advantage is the prime innovation attribute which plays a more critical role in adopters' decision-making process. In addition, Rogers (2003) classified greater relative

advantage, observability, compatibility and trialability as drivers to innovation adoption while higher complexity as barriers to innovation adoption. The classification of innovation attributes as drivers and barriers indicates that the decision to adopt innovations is a result of adopters' comprehensive evaluation of these drivers and barriers. Once adopters perceive that the drivers outweigh the barriers, they are likely to make the decision to adopt the innovation. Consequently, using appropriate interventions in boosting innovation attributes might turn the tide of innovation adoption among members in a particular social system.

(2) Time

Time is the second diffusion element that shapes the paradigms of diffusion research. Rogers (2003) argued that the cumulative number of adopters in a diffusion process follows an S-shaped curve over time as shown in Figure 4.2.

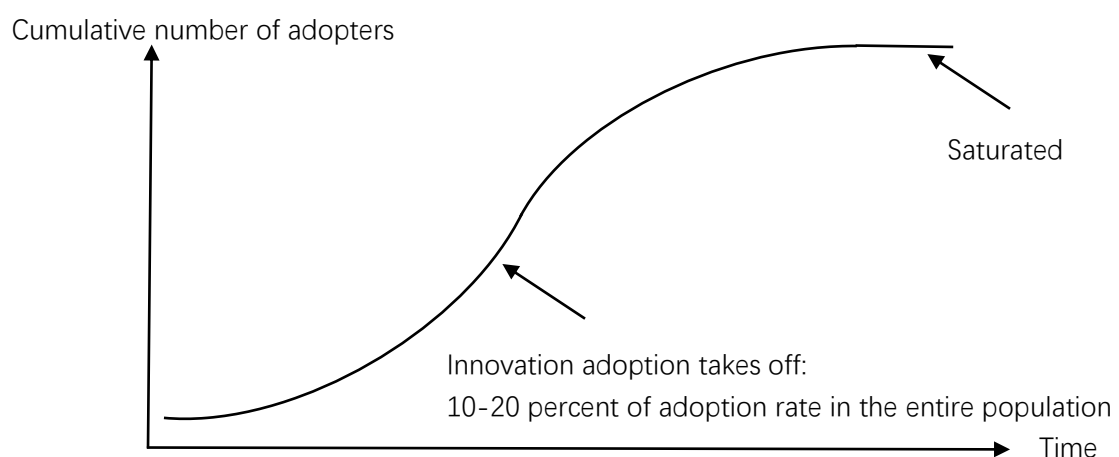


Figure 4.2 The cumulation of adopters in a diffusion process

Note: Figure redrawn and adapted from Rogers' (2003: 344) *Diffusion of Innovations*.

Figure 4.2 shows that the adoption rate in the initial stage is relatively low partly because interpersonal communication channels at this stage are not fully activated. The speed of innovation adoption takes off when a critical mass of members (10-20%) in the social system adopts the innovation. Rogers (2003) explained that it is due to the activation of interpersonal communication channels. For example, when there are enough adopters, the observability of innovation adoption might be greatly enhanced. In addition, Rogers (2003) argued that once innovation adoption takes off, the diffusion process becomes self-sustainable even if initial incentives are withdrawn. Moreover, the contribution of activated interpersonal communication channels to the diffusion of innovation adoption underlines the fact that the diffusion elements of communication channels and innovation attributes are inextricably linked because interpersonal communication channels might enhance the observability of innovation attributes.

Figure 4.2 also illustrates that the rate of innovation adoption becomes slow again and approaches the point of saturation because there are fewer potential adopters in the social system. However, it could be argued that the saturation point in educational settings might not be easily attainable if the rate of staff turnover in an institution is high and there are new potential adopters continuously feeding into the institution. In this sense, the S-shaped curve in Figure 4.2 may not be applicable in environments where the total number of

adopters is increasing.

Based on adoption time, Rogers (2003) classified all adopters into five categories, which are innovators, early adopters, early majority, late majority and laggards. Figure 4.3 illustrates the distribution of five categories of adopters.

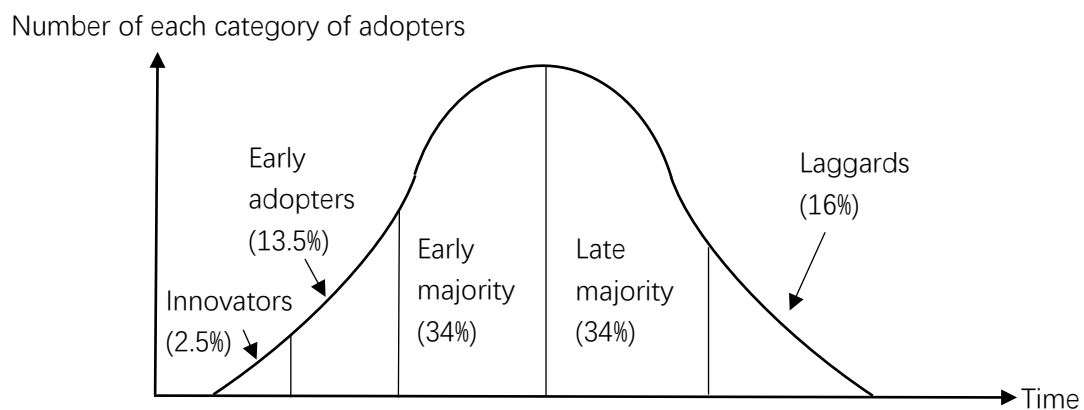


Figure 4.3 Five categories of adopters

Note: Figure redrawn from Rogers' (2003: 281) *Diffusion of Innovations*.

Figure 4.3 reveals that the S-shaped curve in Figure 4.2 is converted into a bell-shaped curve because the vertical axis is changed from the "cumulative number of adopters" to the "number of each category of adopters". Rogers (2003) defined the initial 2.5% of adopters as innovators because he argued that the characteristics of innovators differ greatly from later adopters. For example, innovators are technical experts and more cosmopolitan than other categories of adopters. In Rogers' (2003) theory, personality traits such as innovativeness are often used as a lens to explore the rationale behind a person's adoption

decision. In addition, considering the percentage of innovators (2.5%) plus early adopters (13.5%) on the left half of the bell-shaped curve equals the percentage of laggards (16%) on the right half of the curve, the boundaries between different categories of adopters are symmetrical in nature. Thus, the classification of different categories of adopters is idealistic.

(3) Communication channels

Communication channels refer to the means or networks by which information about innovation is spread from earlier adopters to potential adopters. Rogers (2003) classified communication channels into:

(1) *Homophilous networks* and

(2) *Heterophilous networks*.

Homophilous networks relate to a group of people who share similar values, social status, or background. For example, staff from the same school or department within a university form a homophilous network. In a homophilous network, interpersonal communication takes place frequently.

Heterophilous networks are the opposite of homophilous networks. For instance, researchers with heterogeneous backgrounds and research interest in an international conference constitute a heterophilous network.

Rogers (2003) argued that interpersonal communication plays an effective role in influencing peoples' adoption decisions. In educational settings, the argument is supported by the findings that academics preferred information obtained from their colleagues instead of institutional administrators (Porter et al., 2016). In addition to academics' preference for advocacy from their near peers, interpersonal communication also creates the influence of peer pressure (Boland, 2020) In such circumstances, teachers might be pressured to adopt innovations if they observe the relative advantage that their colleagues have gained from prior adoption.

On the other hand, heterophilous networks are also indispensable in innovation diffusion because innovative information always originates from external networks rather than homophilous networks in which people share similar views or backgrounds (Rogers, 2003). The role of heterophilous networks was evidenced in Sargent's (2015) research which demonstrated that teachers from different cities in China learned the practice of innovative pedagogies in seminars or workshops organised by the local administrative department for education. The pedagogical innovation was then spread from those cosmopolitan teachers to a larger population through local homophilous networks. Sargent's (2015) research illustrated that the two types of communication channels, namely heterophilous and homophilous networks jointly contributed to the spread of innovation in a social system.

(4) Social system

The fourth diffusion element described in Rogers' (2003) Diffusion of Innovations theory is social system. Rogers (2003) defined social system as a set of interacted units or influences (e.g., social structure, social norms, opinion leaders and change agents) that aim to achieve a shared objective. For example, universities set up teaching and learning centre (Garrison and Vaughan, 2013), designed institutional guidelines (Taylor and Newton, 2013; Medina, 2018) and provided professional development programmes (Hamid et al., 2025) to create a hierarchical system spreading the information of guided innovations. The hierarchical system formed the social structure facilitating the diffusion of innovations. In addition to social structure, institutional culture (Singh and Strzelecki, 2025) and institutional readiness for change (Mais and Yaum, 2025) shape normal practices pertaining to a social system.

Moreover, the interacted units or influences in a social system might be inextricably linked with the presence of other diffusion elements such as innovation attributes and communication channels. For example, the dominant culture of lecture-based teaching in a social system adds greater incompatibility to the attributes of student-centred pedagogical innovations. In this regard, all the four diffusion elements identified in Rogers' (2003) Diffusion of Innovations theory might synergistically impact the diffusion of innovations.

In summary, Rogers' (2003) theory provides a conceptual framework for studying the spread of innovation adoption in a social system. The framework outlines four elements (i.e., innovation attributes, communication channels, time, and social system) impacting adopters' decision-making process. The DoI theory provides the following analytical approaches or lenses for studying the diffusion of an innovation:

- **Innovation attributes:** Researchers can use the innovation attributes or constructs identified by the DoI theory to explore how these attributes facilitate or impede an individual's adoption decision.
- **Adoption stages:** Researchers can identify the characteristics of adopters or organisations at different adoption stages so that tailored support can be provided.
- **Communication channels:** Researchers can investigate the role of different communication channels to explore how information about innovation adoption trickles from early adopters to late adopters.

To gain a fuller understanding of the application of Rogers' (2003) DoI theory to research on academics' adoption of pedagogical innovations, I present a scoping review of literature drawing on the DoI theory in the next section.

4.2 Scoping review of studies drawing on the DoI theory

The purpose of this scoping review aims to (1) identify the strengths and limitations of the DoI theory in its use in investigating higher education teachers' uptake of pedagogical innovations and to (2) inform my research design and data analysis.

The scoping review begins with literature search. I conducted a search of literature across four major academic databases: the online library of the University of Hertfordshire (UH), EBSCO, CNKI, and Wanfang. The first two databases were primarily used for searching English-language articles while the latter two were used for retrieving Chinese-language articles. In each database, I searched articles where the terms appeared in the articles' title, abstract, or keywords. The Boolean search query, ("Diffusion of innovation") AND ("higher education") AND ("teachers") was used as search terms. Filters were applied to each database as shown in Table 4.1.

Table 4.1 Filters applied in the search process

Filter	Rationale
Studies between 2016-2026	To reflect the latest trend in the use of the DoI theory in higher education
Peer reviewed journal articles	To ensure the quality of articles
English or Chinese language	Due to (1) my knowledge of the languages, (2) the context of my research (China), and (3) the dominance of English articles in academic research
Full text	To manually screen articles at the next stage of the scoping review

The search was conducted in March 2026. A total of 132 articles (n=132) were identified after the search. Of all the articles, 66 of them were identified from the online library of the University of Hertfordshire (n=66), 21 from EBSCO (n=21), 18 from CNKI (n=18), and 27 from Wanfang (n=27).

The next stage of the scoping review was to manually screen all the articles' abstracts and full texts so that only articles related to my research focus were included in the review. After removing duplicates (n=16), the inclusion and exclusion criteria were applied at this stage. Only studies that addressed academics' adoption of pedagogical innovations and drew on Rogers' (2003) DoI theory were included. Articles on students' perspectives or those unrelated to higher education (e.g., marketing) were excluded from the review because these articles did not relate to the focus of my research questions. After applying

the inclusion and exclusion criteria, 87 articles (n=87) were removed due to research focus and 29 articles (n=29) were included in the scoping review, see Figure 4.4.

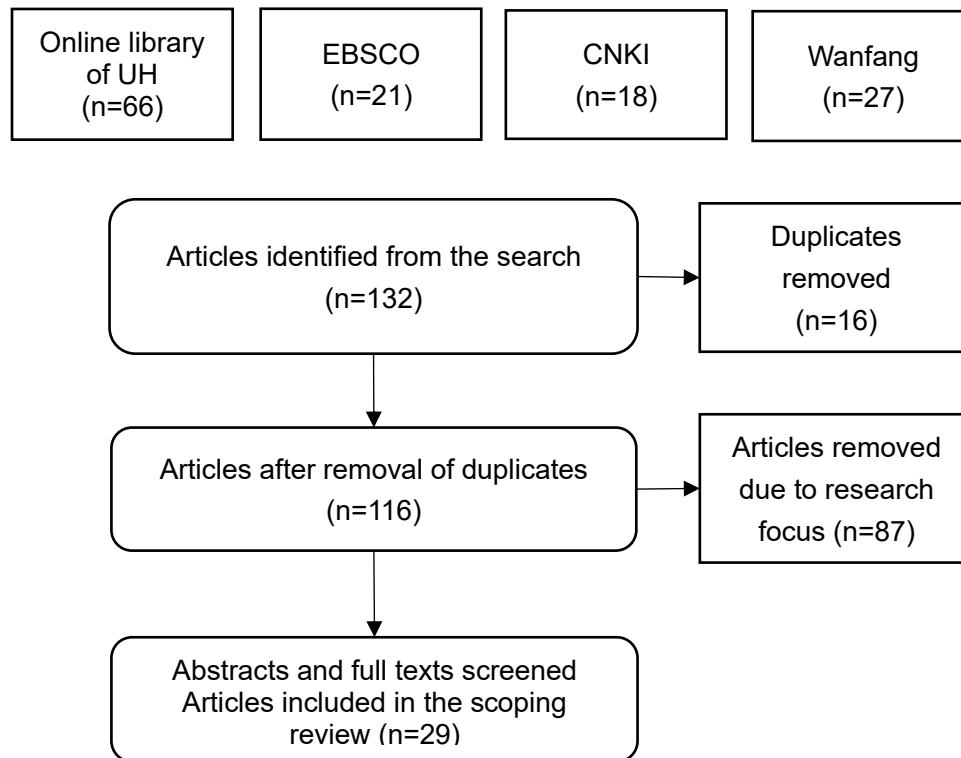


Figure 4.4 The process of identifying and screening articles from databases

Information about the use of the DoI theory, along with the research methods and contexts of the studies in the review is listed in Appendix A. Next, I present the descriptive characteristics of these articles.

Technology-enhanced instructional practices (e.g., blended learning, mobile learning, and online learning) are the dominant pedagogical innovations (n=20) examined in these articles. The remaining pedagogical innovations are

primarily student-centred teaching and learning approaches (e.g., problem-based learning and active learning). Of the 29 articles, 10 of them (n=10) were published from 2016 to 2020 and 19 articles (n=19) were published from 2021 to 2026. This uneven distribution is attributed to growing research interest in the impact of the Covid-19 pandemic and emerging technologies on teaching and learning in higher education. For example, five of these articles from 2021 to 2026 specifically focused on academics' uptake of innovations during the Covid-19 pandemic and five articles studied the use of generative AI for teaching and learning.

The contexts of these articles covered 40 countries and regions. The USA stands out as the dominant research context (n=9) followed by China (n=4), South Africa (n=3), and Colombia (n=3). Of the four articles which reported on research carried out in a Chinese context, two of them were published in English journals. In terms of data collection, 51.7% of the articles (n=15) are quantitative, 27.6% of them (n=8) used mixed methods, and 20.7% of them (n=6) are qualitative.

The descriptive characteristics of these articles indicate that Rogers' (2003) DoI theory continues to be used as a theoretical lens for investigating academics' adoption of pedagogical innovations globally although the theory was first proposed in the 1960s. The next section presents how the DoI theory was used in these articles.

4.2.1 Patterns of the use of the DoI theory in the reviewed articles

In this section, I outline how Rogers' (2003) DoI theory was used in research on academics' uptake of pedagogical innovations. Within the articles in the review, the theory was primarily used at the stage of research design and data analysis. At the stage of research design, the theory was often employed to develop hypotheses (n=8, 27.6%) or frame research questions (n=7, 24.1%). Table 4.2 shows illustrative examples of how the DoI theory assisted researchers in developing hypotheses or framing questions.

Table 4.2 Illustrative examples of using the DoI theory in research design

How the DoI theory was used	Illustrative examples
Hypothesis development	Singh and Strzelecki (2025) hypothesised that relative advantage, also as one of the five innovation attributes identified by the DoI theory, influenced academics' intention to use ChatGPT.
Frame questions	In Chizwina and Mhakure's (2018) study, one research question was framed as how communication channels, i.e., one of the four diffusion elements described by the DoI theory, influenced teachers' decisions to adopt technology in mathematical teaching.
	Pereira and Wahi (2017) used the five innovation attributes (e.g., observability) described by the DoI

	theory as sources of framing survey questions. For example, survey participants were invited to rate on the observability of their colleagues' use of a VLE platform on a five-point Likert-type scale.
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At the stage of data analysis, the DoI theory was used to organise or explain data (n=19, 65.5%). Table 4.3 presents illustrative examples of how the theory was used in data analysis.

Table 4.3 Illustrative examples of using the DoI theory in data analysis

How the DoI theory was used	Illustrative examples
Organise data	Ali and Georgiou (2025) used the categorisation of adopters described by the DoI theory as a priori themes (e.g., early adopters, late majority) for the analysis of qualitative data. Qualitative data gathered from interviews was then categorised into these a priori themes.
Explain data	Davin et al. (2026) reported disparities in participants' familiarity with and accessibility to generative AI for teaching and learning. The authors explained that these disparities reflected the differences in the level of innovation trialability and observability, i.e., two innovation attributes identified by Rogers' DoI theory.

In general, across research design and data analysis, the most frequently used analytical approach drawn from the Dol theory is innovation attribute (58.6%, n=17) while 41.4% of the articles (n=12) used the adoption stages classified by the Dol theory to assist research design or data analysis. In contrast, only 17.2% of the articles (n=5) used the analytical approach of communication channels and one article (3.4%, n=1) specifically addressed the element of social system.

In addition, in the discussion section of these articles, researchers often compared their research findings with the theoretical predications drawn from the Dol theory. In general, researchers reported that their findings were consistent with the predictions made by the theory, e.g., Singh and Strzelecki (2025) and Davin et al.'s (2026) studies. However, inconsistencies also emerged. For example, Çakıroğlu et al. (2022) reported a higher concentration of innovators and early adopters in their research context compared to the theoretical predictions made by the Dol theory. The authors explained that the Covid-19 pandemic affected teachers' perceptions of the values of emergency remote teaching and consequently, more survey participants could have self-rated them as innovators or early adopters. I would argue that the Covid-19 pandemic might be a contributing factor leading to the variance. But this variance can also be caused by the difference between Çakıroğlu et al.'s (2022) research and the Dol theory in their criteria for classifying different categories of adopters, i.e., assumptions about adopter categories. Therefore, the

inconsistencies reported in these articles sometimes arise from the mismatch between existing studies and the DoI theory in relation to their prior assumptions about a diffusion process. These prior assumptions underpin the challenges of using the DoI theory in research design and data analysis, which are presented in the next section.

4.2.2 Challenges of using the DoI theory in higher education settings

At the stage of research design, I have identified that the studies included in the review are often individually focused and the influences at institutional level or beyond are sometimes neglected.

Research biased towards an individual focus

The reviewed articles feature an individual focus. Academics' perceptions of innovation attributes and the characteristics of different categories of adopters dominate the research focus of these reviewed articles as shown in Appendix A. This research focus is perhaps influenced by the prior assumption made by Rogers' (2003) DoI theory about the diffusion of innovations. The theory is primarily built on the assumption that the diffusion of innovations is a bottom-up process or grassroots movement in which the individual rather than the organisation makes the decision to adopt an innovation. Due to this assumption,

the analytical approaches proposed by the DoI theory are often focused on individual units (Greenhalgh et al., 2004). For example, the theory does not propose a system-level framework for investigating drivers and barriers to peoples' adoption decisions. In this regard, the elements of a social system at institutional level or beyond are not fully examined in the theory. Accordingly, when researchers used the analytical approaches drawn from the theory as the major source of framing questions, their research is often biased toward an individual focus. The bias toward an individual focus is evidenced in the scoping review that individual perceptions of the benefits gained from adoption or challenges of innovation adoption are the dominant survey topics (Stefaniak and Carey, 2019; Richardson et al., 2020; Singh and Strzelecki, 2025; Mekheimer, 2026). In contrast, institutional influences received less attention in these articles.

Institutional influences are important for institution-led teaching and learning change programmes because these programmes often feature a top-down approach and institutional policies and support play a critical role in jump-starting academics' uptake of institution-guided innovations. Some articles included in this scoping review related to academics' innovation adoption in institutional change programmes while research on drivers and barriers at institutional level was often devoid of theoretical underpinnings nor systematically reviewed (Richardson et al., 2020; Ali and Georgiou, 2025; Dos

Santos et al., 2025).

To address the limitations indicated above, research on institution-led change programmes in higher education warrants close investigation of the impact of a social system, i.e., institutional influences or influences beyond institutions. Social system, along with the other three diffusion elements (i.e., innovation attributes, time, communication channels), contributes to the diffusion of innovations. However, this scoping review suggests that there is a lack of research into the interplay of these elements. For example, most articles (82.8%, n=24) focused on one single element such as innovation attributes or adoption stages. To gain a holistic view of academics' adoption of pedagogical innovations, I would argue that it is necessary to investigate all these four diffusion elements.

Although the DoI theory has limitations at the system-level analysis, the theory provides analytical approaches for exploring the unit of individual adopters. Researchers have a preference for using the constructs drawn from the DoI theory as leads in the design of their surveys (70.0%, n=20). However, the validity regarding the measurement of certain constructs in these articles warrants improvement.

Validity of construct measurement in survey studies

By analysing the articles in the scoping review, I have identified that the measurement validity of certain constructs warrants critical examination, primarily involving the two following aspects.

Firstly, the studies in the review heavily relied on participants' self-reporting or self-rating of their individual characteristics or adoption intentions. Examples include Richardson et al. (2020), Çakıroğlu et al. (2022), Blumenschein and Hannisdal (2024), and Singh and Strzelecki's (2025) research. As the DoI theory posits that individual characteristics such as innovativeness affect adoption decisions, survey participants were invited to self-rate their innovativeness in these studies. Section 3.4.1 in the previous chapter has suggested that survey participants' self-rating of their personality traits may not be accurate and thus, the validity of research findings drawn from self-rating survey studies requires critical examination. Such concerns were shared by two articles (Porter and Graham, 2016; Leatemia et al., 2023). Porter and Graham (2016) reported that survey participants' self-ratings did not align well with their practical actions and the participants could have overrated or underrated their innovativeness. Leatemia et al. (2023) mentioned that participants in their research could have provided socially desirable answers in self-rating surveys. However, these issues were not addressed or mitigated in the above-mentioned studies. Although a survey question provides an efficient method for data

collection, I would argue that survey studies require academics' actual responses in real-life environments as supplementary data so that the validity of research findings can be improved. For example, institutional data on academics' practical actions can be used to triangulate the data collected from online questionnaires. One article in the review used institutional documents as supplementary data to confirmed the findings drawn from interviews (Ali and Georgiou, 2025).

Secondly, when using the constructs drawn from the DoI theory to frame survey questions, it is necessary to translate these context-independent constructs (e.g., compatibility) into context-specific practices comprehensible to survey respondents. For example, Richardson et al.'s (2020) research aimed to measure how the compatibility of an innovation affected academics' adoption decisions. The authors framed a survey question and the participants were invited to rate on whether their pedagogical skills were compatible with their existing professional practices. However, this survey question did not unpack the definition of compatibility in their professional context. "Being compatible" can be interpreted as "being consistent with their intrinsic beliefs" or "being supported by their institutional infrastructure". As the wording of this survey question is ambiguous, the validity of its measurement can be compromised. Therefore, researchers need to unpack the abstract constructs described by the theory and include the contextual richness into the design of their survey

questions.

In addition, some researchers appeared to misinterpret the definition of certain constructs described by the DoI theory. For example, the complexity of an innovation refers to the extra effort required by individuals to adopt (see Section 4.1 in this chapter). However, Singh and Strzelecki (2025) translated the construct of complexity into the effectiveness gained from innovation adoption. To measure this construct, one of the survey questions in their research was framed as whether the innovation improved the efficiency of problem solving. This interpretation is entirely different from the definition of complexity delivered by the DoI theory. However, they did not note the difference in their research. The misinterpretation of the constructs drawn from the DoI theory at the stage of research design will subsequently affect the analysis of the data collected. In addition, it could bring issues for comparability across different studies.

Next, I present the challenges of using the DoI theory at the stage of data analysis.

Lack of in-depth exploration of academics' intrinsic feelings

The discussion of academics' intrinsic feelings in these articles often lacks theoretical approaches or in-depth exploration. This resonates with Straub's (2009) argument that the DoI theory is insufficient on its own in accounting for

academics' emotional and cognitive feelings. As the theory is grounded in the context of rural agriculture and marketing, academics' intrinsic feelings are not fully explained in the theory. In particular, academics' psychological needs underpinning their decisions to adopt pedagogical innovations are often not considered in these articles. Only two articles explored academics' psychological attributes that might affect their uptake of pedagogical innovations (Ntsiful et al., 2023; Yang, 2025). In addition, although some research topics relate to extrinsic motivations such as university reward and recognition systems (Porter and Graham, 2016; Liu, 2018), these motivations might also involve academics' intrinsic feelings as evidenced in Section 3.3 "motivation and psychological needs". Therefore, without theoretical and in-depth discussion of academics' intrinsic feelings, research on the rationale behind their decisions to adopt innovations is insufficient.

In addition, of the four articles on the Chinese context, academics' emotional feelings pertaining to the Chinese context are not specifically addressed. Considering China underwent tremendous transformation in social values since the reform and opening-up policy introduced in the late 1970s, these social values such as the balance between contributing to the collective benefits and the pursuit of individual interests should not be ignored in the interpretation of academics' intrinsic feelings.

Prior assumptions about the theoretical predictions made by the DoI theory

As researchers often compared their research findings with the theoretical predictions drawn from the DoI theory, inconsistencies sometimes arose from the comparison. However, during the exploration of the reasons behind these inconsistencies, prior assumptions about the theoretical predictions made by the DoI theory were often overlooked in the reviewed articles. For example, Porter and Graham (2016) reported that innovators in their research were still eager to improve their professional competency in practising blended learning while the DoI theory posits that innovators are technical experts. However, Porter and Graham's (2016) research and the DoI theory are inconsistent in their definitions of innovativeness, i.e., the criteria for determining different categories of adopters (e.g., innovators). Porter and Graham (2016) defined innovativeness as a numeric score decided by (1) academics' years of teaching and using online resources and (2) the reduction of class time in blended learning. In contrast, the DoI theory defines different categories of adopters based on their time of adoption. For example, the theory categorises the initial 2.5% of users who adopt innovations as innovators. In this regard, Porter and Graham's (2016) research and the DoI theory adopted different criteria for defining innovators in a social system. Thus, the comparison between these two groups of innovators carries less validity.

In addition to the criteria for defining different categories of adopters, another prior assumption that researchers often neglected is the distribution of adopter characteristics. The DoI theory assumes that adopter characteristics within a social system are normally distributed. However, normal distribution requires a sufficiently large sample size while in some studies investigating the distribution of different categories of adopters, the sample size is less than 100 (Peramunugamage et al., 2022; Blumenschein and Hannisdal, 2024; Dos Santos et al., 2025). When inconsistencies with the DoI theory emerged, some researchers attributed these inconsistencies to the influence of local contexts such as the Covid-19 pandemic rather than exploring the prior assumptions of the DoI theory for explanation (Çakıroğlu et al., 2022; Ntsiful et al., 2023). Although contexts may play a role in leading to these inconsistencies, the authors neglected another possibility that distribution of individual characteristics in their research contexts might not necessarily show a normal distribution. These inconsistencies might also be a result of random variations in samples.

Moreover, the theoretical predictions made by the DoI theory sometimes carry a pro-innovation bias. For example, an innovation always outperforms traditional practices so that the innovation will be ultimately diffused across an entire social system as show in Figure 4.2 in this chapter. However, this assumption is idealistic and may not be applicable to all scenarios. For example,

Garrison and Vaughan (2013) and Dintoe (2019) reported that academics in the contexts of their research lost the momentum of adopting pedagogical innovations due to lack of institutional support or withdrawal of initial incentives.

Therefore, to compare research findings with the theoretical predictions drawn from the DoI theory, prior assumptions about these theoretical predictions should be considered otherwise the validity of the comparison can be compromised.

This section has synthesised the challenges arising from the use of the DoI theory in research on academics' adoption of pedagogical innovations. Next, I present how this scoping review informs my research.

4.2.3 Implications of the review for my research

This scoping review has identified the strengths of using the DoI theory in guiding research on academics' uptake of pedagogical innovations primarily in the following areas.

Firstly, the theory provides a set of analytical approaches which can be used to organise and explain data. Within the studies in the review, this is the dominant pattern (n=19, 65.5%) of using the DoI theory in research. The DoI theory

proposes the classification of innovation attributes, adopter categories, and communication channels. This classification was then used by researchers of the reviewed studies as a priori themes for data analysis as shown in Table 4.3. I used the DoI theory's categorisation of innovation attributes and communication channels to explain the data collected in my research.

Secondly, the theory proposes a conceptual framework (see Figure 4.1 in this chapter) which can be used as leads in developing hypotheses or framing survey questions. The strength of the DoI theory arises from the fact that most of the constructs (e.g., relative advantage and complexity) from the theory are context-independent as Rogers' (2003) DoI theory synthesised decades of studies in diverse settings including education. 51.7% of the studies in the review (n=15) used the constructs drawn from the DoI theory to develop hypotheses or frame questions. I used the constructs drawn from the framework as a major source of framing interview questions in the initial qualitative strand of my research.

Lastly, the DoI theory provides researchers with a platform on which they can compare their findings with the theoretical predictions about a diffusion process proposed by the theory. The previous section has revealed that when inconsistencies with the predictions made by the DoI theory occurred, researchers tended to explore their research contexts for explanation because

the DoI theory is insufficient on its own in capturing the contextual richness of higher education. Next, I summarise the limitations of the theory in its application to educational research.

This scoping review has highlighted the limitations of applying the DoI theory to research on academics' uptake of innovations in the following aspects.

- The analytical approaches provided by the theory are individual-focused.
- The constructs described by the theory are context-independent and lack a description of contextual richness.
- There are prior assumptions about the theoretical predictions made by the theory.
- Academics' intrinsic feelings are not specifically addressed.

These limitations cover both research design and data analysis. At the stage of research design, institutional influences must be considered into the framing of interview and survey questions. In addition, to obtain a holistic view of the diffusion of pedagogical innovations, it is necessary to examine the interplay of all the four diffusion elements identified by the DoI theory.

During the framing of research questions, I need to translate these abstract constructs from the DoI theory into context-specific practices. To achieve this purpose, I adopted a mixed methods design with an initial qualitative strand.

The qualitative strand aimed to capture the contextual richness of my institutional context and assist the design of a followed-up survey questionnaire. Details of my research design are presented in the next chapter.

At the stage of data analysis, I need to consider the prior assumptions about the theoretical predictions made by the DoI theory when comparing my research findings with these predictions. In addition, the DoI theory might be insufficient on its own to gain an in-depth understanding of academics' intrinsic feelings and their psychological needs for adopting pedagogical innovations. Therefore, the use of the DoI theory in higher education warrants the complement of other theoretical perspectives in relation to academics' emotional and cognitive process during their innovation adoption, which are presented in the next section.

4.3 Barrier to Technology Integration model

While Rogers' (2003) Diffusion of Innovations theory does not specifically focus on innovations in educational settings, Ertmer (1999) proposed a model, namely the Barrier to Technology Integration model to study teachers' integration of technology in teaching practices. The model is reviewed in this chapter because many of the pedagogical innovations since the 2000s are enhanced by technology. In addition, most of the innovative teaching and learning approaches in the *huoli* programme of my research are also facilitated

by technology. The model posits two types of barriers to teachers' decisions to integrate technology-enhanced pedagogies in teaching:

- **First-order barriers** refer to the barriers which are extrinsic to teachers.

Examples of first-order barriers are infrastructure, institutional support, time commitment and adopters' surrounding environments.

- **Second-order barriers** speak to the barriers which are intrinsic to teachers.

Examples of second-order barriers are teachers' belief systems such as their pedagogical belief (i.e., belief in the effectiveness of particular pedagogies).

The above definitions highlighted that the first and second-order barriers proposed in Ertmer's (1999) model are extrinsic and intrinsic influences on teachers' uptake of technology-enhanced pedagogies.

Ertmer's (1999) Barrier to Technology Integration model complements Rogers' (2003) Diffusion of Innovations theory by shedding more light on educational practitioners' decision-making process for adopting technology-enhanced pedagogical innovations. The model was predominantly used by researchers to explore the impact of intrinsic influences such as the relationship between teachers' belief systems and their classroom practices (Ertmer et al., 2012; Tondeur et al., 2017), the classification of teachers' belief systems (Cheng et al., 2021), and the moderating effect of intrinsic motivation on extrinsic

influences (Vongkulluksn et al., 2018).

However, the model fails to capture the change of teachers' perceptions over a wider time span. In this regard, Ertmer's (1999) Barrier to Technology Integration model was primarily utilised in my research to interpret the snapshot of how teachers enacted their classroom practices based on an overall evaluation of extrinsic and intrinsic influences.

To gain a fuller understanding of the theories and models for studying adopters' uptake of technology-enhanced innovations, Davis et al.'s (1989) Technology Acceptance model (TAM) is reviewed in the next section.

4.4 Technology Acceptance model

Davis et al. (1989) proposed the Technology Acceptance model (TAM) which also received popularity among researchers investigating teachers' uptake of technology-enhanced innovations (e.g., Salas, 2016; Granić and Marangunić, 2019; Scherer and Teo, 2019). The model outlines two constructs:

Perceived usefulness refers to the advantage adopters could obtain from innovation adoption compared with original innovations or practices.

Perceived ease of use describes the additional time and effort (e.g., learning how to adopt new innovations or practices) that adopters are required to invest prior to adoption.

The review of Rogers' (2003) Diffusion of Innovations theory, Ertmer's (1999) Barrier to Technology Integration Model, and Davis et al.'s (1989) Technology Acceptance Model suggests that there is equivalence between the constructs described in the above-mentioned theories and models. For example, the construct of perceived usefulness in Davis et al.'s (1989) Technology Acceptance model is the equivalent of relative advantage of innovation attribute described in Rogers' (2003) Diffusion of Innovations theory. In this sense, the constructs proposed in different theories and models overlap between each other. Table 4.4 shows a comparison of the constructs outlined in the Diffusion of Innovations theory, the Barrier to Technology Integration model, and the Technology Acceptance model.

Table 4.4 The comparison of the constructs from theories and models

Model/theory	Construct 1	Construct 2	Construct 3	Construct 4
Diffusion of Innovations (Rogers, 2003)	Innovation attributes	Communication channels	Time	Social system
Barrier to Technology Integration model (Ertmer, 1999)	Intrinsic barriers (e.g., beliefs in the effectiveness of particular pedagogies)	Extrinsic barriers (e.g., peer influence)		Extrinsic barriers (e.g., institutional climate)

Technology	Perceived			
Acceptance model	usefulness/			
(Davis et al., 1989)	Perceived ease of			
	use			

Table 4.4 shows that compared with the Diffusion of Innovations theory, the Technology Acceptance model focused on the attributes of innovations while all other influential factors are neglected. In this regard, individuals' innovation adoption is detached from their surrounding environments. Consequently, the model is too simplistic if researchers intend to explore all the pertinent influences impacting teachers' adoption decisions (Straub, 2009). In contrast, compared with the other two models, the Diffusion of Innovations theory captures more extrinsic factors affecting innovation adopters' decision-making process. In addition, the theory provides an analytical framework for exploring the temporal dimension in a diffusion process by investigating the characteristics and perceptions of early and late adopters. An exploration of the perceptions of early and late adopters serves to shed light on the differences in the perceptions of different categories of adopters so that policy makers could design tailored support for adopters at different adoption stages.

Therefore, Rogers' (2003) theory highlighted the critical element of time in understanding the diffusion of innovations. However, how an innovation adopter's perception changes in an over-time sequence is not fully explored in

the review of the above theories and models. In the next section, I present a review of models exploring the change of teachers' perceptions during their uptake of innovations.

4.5 Teacher change models

To explore the change of teachers' perceptions of innovation adoption following practical experiences, researchers proposed various teacher change models. For example, embedded in the Diffusion of Innovations theory, Rogers (2003) proposed a model delineating individual adopters' decision-making process in an over-time sequence as shown in Figure 4.5.

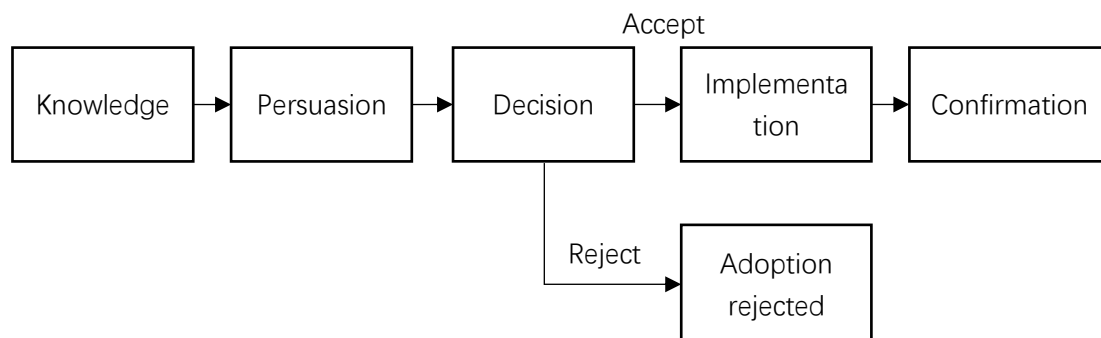


Figure 4.5 Five stages of individuals' decision-making process (Rogers, 2003: 170)

The model shown in Figure 4.5 posits that an individual might undergo five stages of decision-making in innovation adoption. Initially, the individual might be a passive receiver (knowledge stage) of innovation knowledge and then the individual actively acquires innovation knowledge due to stimulated interest (persuasion stage). After weighing the gains and costs of innovation adoption (decision stage), the individual decides to adopt the innovation (implementation

stage) or reject it (adoption rejected). After gaining practical experience of innovation adoption, the individual might continue or discontinue the adoption (confirmation stage).

While Rogers' (2003) model is context-independent, Hall (1979) proposed the Concern-Based model (CBM) exploring the change of teachers' perceptions during their uptake of innovative teaching practices. The model is shown in Figure 4.6.

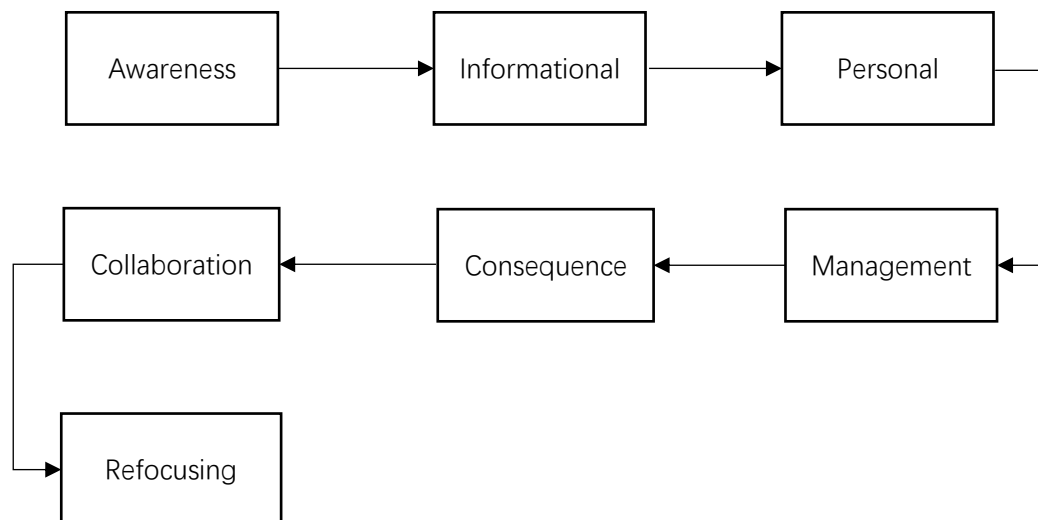


Figure 4.6 Concern-Based model for teachers' innovation adoption (Hall, 1979)

The Concern-Based model posits that a teacher's concern about innovation adoption undergoes seven developmental stages over time. Initially, the teacher shows limited interest for a pedagogical innovation (awareness stage). Due to increased exposure to the innovation, the teacher expresses interest in the innovation and actively obtains pertinent information (informational stage). Next, the teacher develops concerns about their personal role with innovation

adoption (personal stage) and the delivery of the pedagogical innovation (management stage). After piloting the innovation, the teacher focuses on cooperations with colleagues (collaboration stage) and refines the pedagogical innovation specific to the needs of the local context (refocus stage).

Both Rogers' (2003) individual adopters' decision-making process model and Hall's (1979) Concern-Based model describe the pattern that innovation adoption is initiated with individual adopters' exposure to innovation information. After an evaluation of the benefits and commitments relating to innovation adoption, the decision is made individually.

In addition, Hall's (1979) model includes two more distinct stages, namely collaboration and refocusing. Although progression to the two stages is possible but not necessary, the stage of refocusing in the Concern-Based model underlines the importance of refining pedagogical innovations to better suit the needs of local contexts. The stage of innovation refinement is also present in Taylor's (1998) staged model for teachers' adoption of computer technology. Taylor (1998) conceptualised the stage of refinement as "innovation" as teachers might develop innovative practices based on experience gained from prior engagement with original innovations. In this regard, innovation is reinvented in local contexts. Both Hall (1979) and Taylor's (1998) model underline the assumption that innovation adoption over time is more

sustainable after an adaptation or refinement of piloted innovations among adopters (Rogers, 2003).

In addition, based on the review of the above-mentioned teacher change models (Hall, 1979; Taylor, 1998; Rogers, 2003) for innovation adoption, I propose that adopters' perception of the innovativeness regarding innovations may shift in an innovation-routine continuum as shown in Figure 4.7.

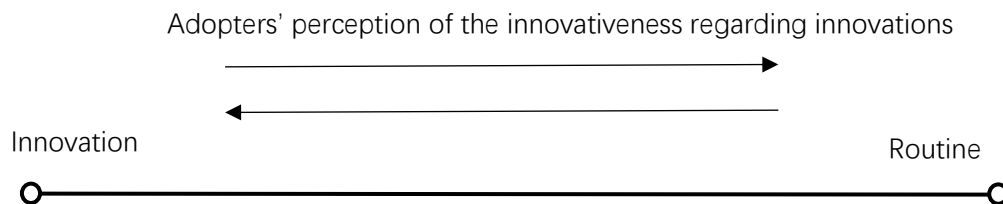


Figure 4.7 The innovation-routine continuum

The continuum contains two ends, the innovation end on one side and the routine end on the other side. The rationale for adopters' shift of perceptions is that innovation adoption is an uncertainty reduction process (Rogers, 2003). Therefore, as adopters gain competence in their uptake of innovations, innovation adoption is turned into the fulfilment of routine practices. On the other hand, the "refocusing" stage in Hall's (1979) model and "reinvention" in Rogers' (2003) theory suggest that adopters may shift back to the innovation end of the innovation-routine continuum for the improvement of the original innovation. Moreover, adopters' position in the innovation-routine continuum

might influence their perceived competence that innovation adoption conveys. For example, if innovation adoption is turned into a routine practice over time and the routine practice entails the completion of trivial tasks from adopters' perspectives, then the level of competence that innovation adoption signifies will be reduced.

The teacher change models discussed in this chapter contribute to the research on the diffusion of pedagogical innovations in the following aspects:

- Teachers at different stages of innovation adoption might exhibit distinct concerns such as personal commitment, the implementation of pedagogical innovations, or student learning outcomes (Christou et al., 2004). The change of teachers' perceptions might dynamically affect their perceived competence conveyed by innovation adoption.
- Due to change of perceptions, initial piloting might not always lead to continuous adoption. Therefore, Cheung and Yip (2004) suggested exploring and bridging the "chasm" between different stages of adoption to keep the attrition rate of innovation adoption at a low level. Tailored institutional support for teachers at different stages of adoption might contribute to bridging the chasm (Crawford et al., 1998; van den Berg and Ros, 1999).

However, the teacher change models in existing literature might be idealistic.

Due to change of context, teachers' perceptions might not progress orderly as proposed in these models. Therefore, these models provide researchers with lenses to explore the change of teachers' perceptions over time in innovation adoption while empirical data is required to verify the change.

4.6 Overview of the theoretical framework

The discussion of existing models and theories in this chapter aimed to inform the design and analysis of my research. Based on my review of the theoretical frameworks for investigating teachers' uptake of pedagogical innovations, I have chosen to use Rogers' (2003) Diffusion of Innovations theory in the design and interpretation of my research because the theory provides a conceptual framework which identifies major elements in the diffusion of innovations. Therefore, the Diffusion of Innovations theory provides me with the lens to identify possible elements that might affect academics' decisions to adopt innovations. However, all the theoretical frameworks reviewed in this chapter originated from different contexts and the contextual factors might constrain the applicability of the theoretical frameworks to different settings. Therefore, Rogers' (2003) theory may not be sufficient in the interpretation of innovation diffusion in educational settings because the theory is situated in non-educational settings. On the contrary, Ertmer's (1999) Barrier to Technology Integration Model and Hall's (1979) Concern-Based Model arose out of educational settings and captured the nuances of teachers' decision-making

process such as their extrinsic and intrinsic motivation for innovation adoption. In this regard, I use the Barrier to Technology Integration Model and Concern-Based Model to complement the Diffusion of Innovations theory in the stage of data analysis.

In addition, based on the review of existing literature on teachers' uptake of pedagogical innovations as shown in the previous chapter and this chapter, much of the literature focused on one single diffusion element such as the innovation attributes, communication channels, or time. However, the diffusion of innovations in higher education is situated in an ecosystem in which all these elements might be interrelated. Research exploring the interplay of the four diffusion elements identified in Rogers' (2003) Diffusion of Innovations theory is limited. Therefore, an investigation of the interactive relationship between different diffusion elements (i.e., innovation attributes, time, communication channels, and social system) contributes to the body of work on the diffusion of pedagogical innovations.

As I chose to use theories and models as theoretical lenses assisting research design, the following chapter presents the methodological considerations of my research.

Chapter 5 Research design

This chapter presents the rationale for the use of mixed methods design in my research. Details of my philosophical orientation, overarching design, ethical considerations, data collection and analysis, and validity checks are outlined. In addition, the issue of translation in the writing-up of my thesis is discussed in this chapter.

5.1 Overview

I am aware that the major parts constituting my research design interact with each other (Maxwell, 2013). For example, a researcher's worldview impacts the selection of research methods. The interactive relationship between different parts of my research design is shown in Figure 5.1.

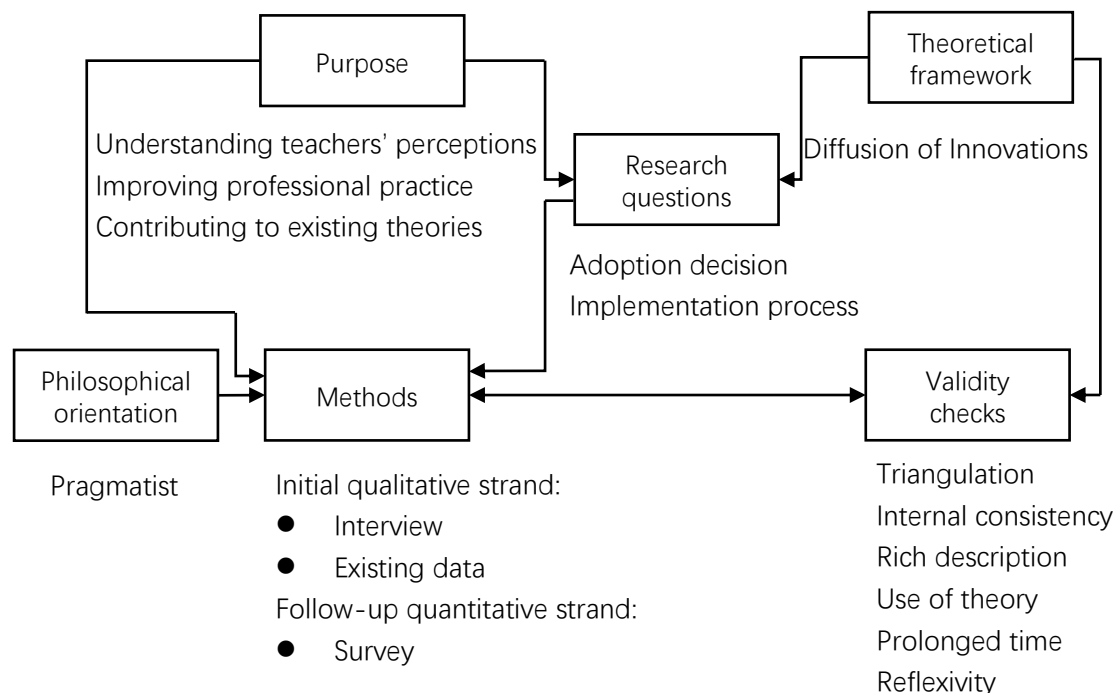


Figure 5.1 The interactive relationship between different parts of research design

5.2 My philosophical orientation

Worldview, or paradigm is “*a general philosophical orientation about the world and the nature of research that a researcher brings to a study*”(Creswell and Creswell, 2018: 5). Creswell and Creswell Baez (2021) outlined five basic beliefs constituting a researcher’s worldview. They are ontology, epistemology, axiology, methodology, and rhetoric. **Ontology** is the researcher’s understanding of the reality of the world and **epistemology** explains how the researcher acquires knowledge about the world. **Axiology** refers to how the researcher’s value influences the research (Creswell and Plano Clark, 2018). **Methodology** relates to the researcher’s rationale for the application of a set of particular research methods (Hammond and Wellington, 2013) while **rhetoric** is the language of the research (Creswell and Plano Clark, 2018). I outline the aforementioned beliefs in my research by first clarifying my ontological and epistemological positions in the next section.

5.2.1 Ontology and epistemology

My past educational training and work experience have shaped my ontological and epistemological positions. I got my bachelor’s and master’s degrees both in engineering and I used to teach engineering courses for more than one decade. I recognise that in natural science there are external realities which are independent of researchers’ values.

On the other hand, I believe that knowledge in social science is value laden. Even in quantitative research, Onwuegbuzie and Leech (2005) argued that the development of survey instruments is subjective because researchers' presumptions and values affect the design of survey questions. Therefore, the initial design of survey instruments is not value free. Thus, in social science, I agree with Johnson and Onwuegbuzie's (2004: 18) argument that knowledge is *"both constructed and based on the reality of the world we experience and live in"*.

In addition, I accept that a dichotomy does not exist between quantitative and qualitative approaches (Onwuegbuzie, 2002). The two approaches represent two ends of a continuum, and I stand in the middle of the continuum.

Thus, by taking a pragmatist orientation to conduct my research, I accept that:

- Reality exists and is independent of researchers' value systems. However, researchers can interpret the knowledge derived from a research project (Onwuegbuzie, 2002).
- Research questions drive the selection of research methods as long as the combination is fit for research purpose (Creswell and Creswell, 2018).

In addition to my ontological and epistemological positions, my value assumptions also influenced how I conducted my research. The influence of my

value assumptions is outlined in the next section.

5.2.2 Axiology

My educational background and professional identity shaped my sets of values in conducting scientific research. These value assumptions, or the researcher's axiology, influences the selection of research topics, the adoption of research methodologies and the writing-up of research findings (Hammond and Wellington, 2013).

As a researcher who received more than 6 years of education in engineering, I have a preference for statistics and numerical numbers because the design of engineering systems is based on mathematics. Moreover, as a senior staff member of the institution, I am in charge of drafting institutional policy documents and reports on undergraduate education. Consequently, the preference for using numbers and statistics to analyse and report in my professional practice is deeply instilled in myself. Therefore, my professional identity further solidified my preference for using statistics and numerical data in how I communicate the research findings with intended audience.

Consequently, my axiology influenced my research in three aspects.

- In the stage of research design, I included survey data to enhance the understanding of the research phenomenon and improve the rigour of my research.
- In the stage of data analysis, I performed statistical tests to compare the differences between different groups of survey data.
- In the stage of writing-up, I employed a combination of statistics, tables, and diagrams to present the research findings so that intended audience could develop a sense of scale relating to particular research findings.

This section has demonstrated the impact of my philosophical positions on different stages of research process. While in the next section, I outline how my insider-outsider status informs the design of my research.

5.3 Insider-outsider continuum

I am aware that I was an insider researcher because the research was carried out in my own institution. However, I agree with Mercer's (2007) argument that the insider and outsider status lies on two ends of a continuum and thus, they are not dichotomous. Table 5.1 presents an analysis of my insider-outsider continuum.

Table 5.1 Analysis of insider-outsider continuum

Dimension	Insider	Outsider
Location	The research was carried out in my own institution. I have been working in this institution for 18 years.	I work in the office of academic affairs while all the research participants are teachers from seven disciplinary schools.
Programme participation	I have charge of the day-to-day running of the university-led programme and thus, I am involved in teachers' promotion decisions and payment allocations.	I am not a participant of this university-led programme and have not participated in any of the practices pertaining to programme participation.

The dimension of location impacted my research in the following two aspects:

- I am familiar with teachers' concerns in their career pathways in this institution.
- On the other hand, the climate of adopting the university-guided innovation in seven schools at department level is unfamiliar to me.

In addition, the dimension of programme participation offered me both advantages and disadvantages in exploring the research phenomenon.

- The insider status offered me the opportunity to gain access to archival and policy documents covering all stages of the programme ranging from

agenda-setting to routinisation.

- I have the administrative power to improve the day-to-day running of the programme. Thus, the insider status might be conducive to the response rate of interviews and surveys because my research provided programme participants with the platform to voice their opinions.
- There is considerable power imbalance between research participants and me. I am involved in the academic promotion (e.g., *huoli* champion) of research participants and the allocation of supplementary payment for the teaching of their *huoli* courses. Thus, the power imbalance could pose a hindrance for programme participants to comment on sensitive topics in my presence.
- I have no experience of participating in the university-led programme and thus, my bias influenced my understanding of the drivers and barriers to innovation adoption. For example, I assumed that extrinsic rewards were critical drivers to teachers' adoption decisions because of my frequent interaction with programme participants on payment allocations and academic promotions.

The analysis of my insider and outsider status aims to improve the design of my research. As a result, I used the following strategies to mitigate the challenges arising from my institutional positioning:

- Prior to my research, I formulated my proposition that extrinsic rewards in terms of promotion and pay rise were critical to teachers' adoption decisions because these rewards addressed part of their personal concerns. However, the proposition also led to my bias and thus, I should pay special attention to other motivations for programme participation.
- I should begin my investigation by exploring the research phenomenon qualitatively because I had limited knowledge of programme participation.
- The sample size of the initial qualitative methods such as semi-structured interviews was relatively small. In addition, the power imbalance between research participants and me might influence their responses in interviews. Thus, a survey conducted anonymously might counterbalance the limitations of the initial qualitative methods.

Therefore, the insider-outsider continuum affects the application of research methods and inquiry strategies appropriate to my research. Accordingly, I included different data sources in my research and adopted a mixed methods design. In the next section, I present the overarching design of my research.

5.4 Exploratory sequential mixed methods design

This section presents the overarching design of my research and the rationale for the design.

5.4.1 The overarching design

As the research questions (Section 1.5 in Chapter 1) aim to explore teachers' experiences of participation in a university-led educational reform, the questions are qualitative-oriented. Therefore, I employed a qualitative approach to answer my research questions.

My research adopts an **exploratory sequential mixed methods design** (Notation: **QUAL→quan**) (Hesse-Biber, 2010) as shown in Figure 5.2.

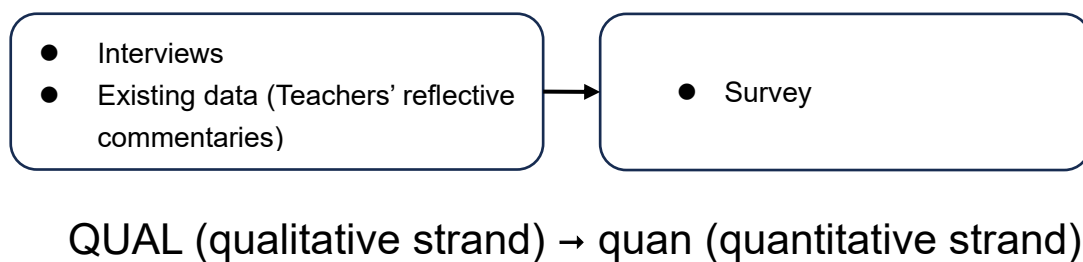


Figure 5.2 Exploratory sequential mixed methods design

The characteristics of the design are:

- The notation for the design of my research is “**QUAL→quan**” because there are two strands of inquiry and they assumed different roles in the research. The initial qualitative strand is indicated in capitals because it is the dominant method situated in a qualitative research project. On the other hand, the quantitative strand is indicated in lower case because the strand is in the service of the qualitative strand (Creswell and Plano Clark, 2018).

- The research was initiated with an **exploratory** qualitative strand. The nature of the initial qualitative strand is exploratory because I had little prior knowledge of teachers' participation experiences and their perceptions of the university-led programme before the research was initiated. The qualitative strand comprises the collection and analysis of two data sets, which are semi-structured interviews and existing data (i.e., teachers' reflective commentaries submitted in their programme participation).
- A quantitative strand followed up the qualitative strand to further explore and complement the propositions derived from the initial exploration. The two strands of inquiry were implemented in a **sequential** manner as indicated in the arrow of the notation system. The task of the follow-up quantitative strand is the (1) development of survey instrument, i.e., a questionnaire grounded in the initial qualitative findings and (2) the distribution of the survey questionnaire to a larger population, i.e., all *huoli* programme participants.

Next, I explain the rationale for my research design.

5.4.2 The rationale for mixed methods design

The rationale for embedding a mixed methods design in my research is triangulation, development, and complementarity.

Triangulation

The survey in the follow-up quantitative strand was used to triangulate, or add further weight to the findings generated from the initial qualitative investigation. There are two primary limitations in the qualitative strand. Firstly, it was small-scale. Secondly, the power imbalance between research participants and me might affect their responses in interviews. For example, the interviewees could have been guarded against commenting on sensitive issues because I was a senior staff member of the institution. Thus, the follow-up survey was administered anonymously to a larger population to mitigate against the limitations of the qualitative strand (Bryman, 2008).

Development

It seems that there are no readily available survey instruments grounded in the perspectives of the study population in my research. Although my research draws on the conceptual framework described in Rogers' (2003) Diffusion of Innovations theory, the framework is context-independent. Thus, it is necessary to translate the abstract constructs from Rogers' conceptual framework into context-specific survey questions (Axinn and Pearce, 2006). Therefore, the social phenomenon was initially explored using qualitative methods so that a context-specific questionnaire as survey instrument could be developed. Then, the developed questionnaire was further administered to a larger population to develop an enhanced understanding of teachers' participation experiences (Creswell and Plano Clark, 2018).

Complementarity

The follow-up questionnaire was designed to offer new insights and complement the initial qualitative strand in the following two aspects. (1) Firstly, the diversity of teachers' perceptions of various drivers and barriers was measured in the follow-up questionnaire so that the weight of these drivers and barriers could be tested. In addition, statistical tests could be performed on Likert-type scale data to compare the differences between different adopter groups. (2) Secondly, free text comment boxes were included in the questionnaire to elicit additional information about their participation experiences so that new themes could be identified to obtain an enhanced description of the research phenomenon.

As my research explores the professional practice of my colleagues, ethical considerations are required in the protection of my colleagues and thus, these considerations are critical to the integrity of my research (Creswell and Creswell, 2018). The ethical considerations of my research are covered in the next section.

5.5 Ethical considerations

5.5.1 Ethical approvals

Before data collection, ethical approvals (EDU/PGR/UH/05189) were obtained from UH ethics committee. I applied for modifications to the original ethical

approval to include more data collection methods. Details of the ethical approval and its modifications are shown in Table 5.2.

Table 5.2 Details of ethical approval and modifications

Approval and modifications	Protocol number	Application rationale
To include interview and survey to collect data	EDU/PGR/UH/05189	To initiate the research
To include focus groups to collect data	aEDU/PGR/UH/05189(1)	To complement the method of interviews
To include document evidence and observation into the research	aEDU/PGR/UH/05189(2)	To provide research context and additional data sources
To include institutional (existing) data into the research	aEDU/PGR/UH/05189(3)	To provide additional data sources
To conduct follow-up interviews with participants and to interview institutional staff not engaged in the programme	aEDU/PGR/UH/05189(4)	To improve the rigour of the research

As my data collection was initiated at the time of the Covid-19 lockdown, all interviews were conducted online for health considerations. Permissions were obtained from interviewees and a consent form was completed by research participants before the commencement of online interviews. The interviewees were informed of the research purpose and that their participation was voluntary and they had the right to withdraw from interviews at any time. In addition, interviews were audio-recorded with participants' consent. Moreover, all the interview data was anonymised and stored in my University of Hertfordshire Microsoft OneDrive system, which is protected by a password.

In the distribution of the follow-up survey questionnaire, a cover letter (see Appendix B) was placed at the top of the questionnaire to indicate the purpose and approving body of the survey. My contact information was attached to the end of the cover letter if respondents had any inquiries regarding the survey. No one contacted me regarding the survey. Survey respondents were told in the cover letter that their participation was voluntary and anonymous. The questionnaire was distributed by Online surveys (<https://www.onlinesurveys.ac.uk/>) in compliance with the UH ethical approval. Survey respondents were told in the cover letter that their continuation and completion of the questionnaire implied their consent to participate in the survey.

Initially, I planned to use peer debriefing, i.e., inviting staff who were not engaged in the university-led programme to review my research findings for improving the rigour of the research. However, I did not to use the method of peer debriefing because outsider staff had no experiences of participation in the programme. Therefore, their knowledge about programme participation and the practice of the university-guided innovation might be limited or biased.

Although the above section discussed the ethical approval of my research, I am aware that the ethical approval could not cover all the ethical issues in my research. Next, I present how I exercised extra care concerning the ethical issues in my research.

5.5.2 Ethical issues and research design

As I am both an insider-researcher and institutional administrator, anonymity was critical to the protection of my research participants. In the research process, I made some adjustments to my original research design to ensure the anonymisation of the research data.

Forgoing focus groups in data collection

Although I was approved to employ focus groups to elicit more information about teachers' participation experiences, I decided not to use the method in data collection. As I still had influence on teachers' promotions and payment allocations, one-on-one interview aimed to protect interviewees because their future promotions and payment allocations would not be perceived by their colleagues as being influenced by their participation in my research. In addition, I intended to encourage my interviewees to comment on sensitive issues about the *huoli* programme. Thus, it would be better to protect my research participants if I could speak to them individually. Consequently, no one else knew who participated in my research except the interviewees themselves.

Avoid collecting rich demographics from survey respondents

I originally intended to collect survey respondents' demographics such as age, academic ranks, and school locations so that the impact of the aforementioned demographics on their perceptions could be identified. However, considering that the potential sample size was relatively small (less than 200), it would be possible to trace the survey respondents by cross-tabulating their rich

demographics. Therefore, to avoid compromising the anonymity of the respondents, I decided not to collect any demographics other than their adoption time in the survey.

Special attention to the ongoing relationship with my colleagues after the completion of my research

As my research participants and I continue to work for the case institution after my research is completed, I pay special attention at all times to the ongoing professional relationship with my colleagues who had participated in my research. There are two aspects that require my special attention. Firstly, the anonymity of participants after the completion of my research must be ensured. As some data collected from participants suggested unintended consequences of innovation adoption on the part of their colleagues, I avoid sharing those personal accounts with my colleagues in my institution so that research participants would not be harmed. Secondly, I always remind myself of my research and professional roles so that the professional practice of my colleagues will not be influenced by their prior participation in my research. For example, I will authorise staff in my department rather than myself to arrange rewards and promotion activities pertaining to the *huoli* programme.

This section has clarified the ethical considerations of my research and how these considerations affected the selection of data collection methods. Next, I outline the details of the data collection methods employed in my research.

5.6 Data collection methods

This section discusses and justifies the data collection methods in each stage of my research. Three data sets were employed in the research and the overall procedures of data collection are shown in Figure 5.3.

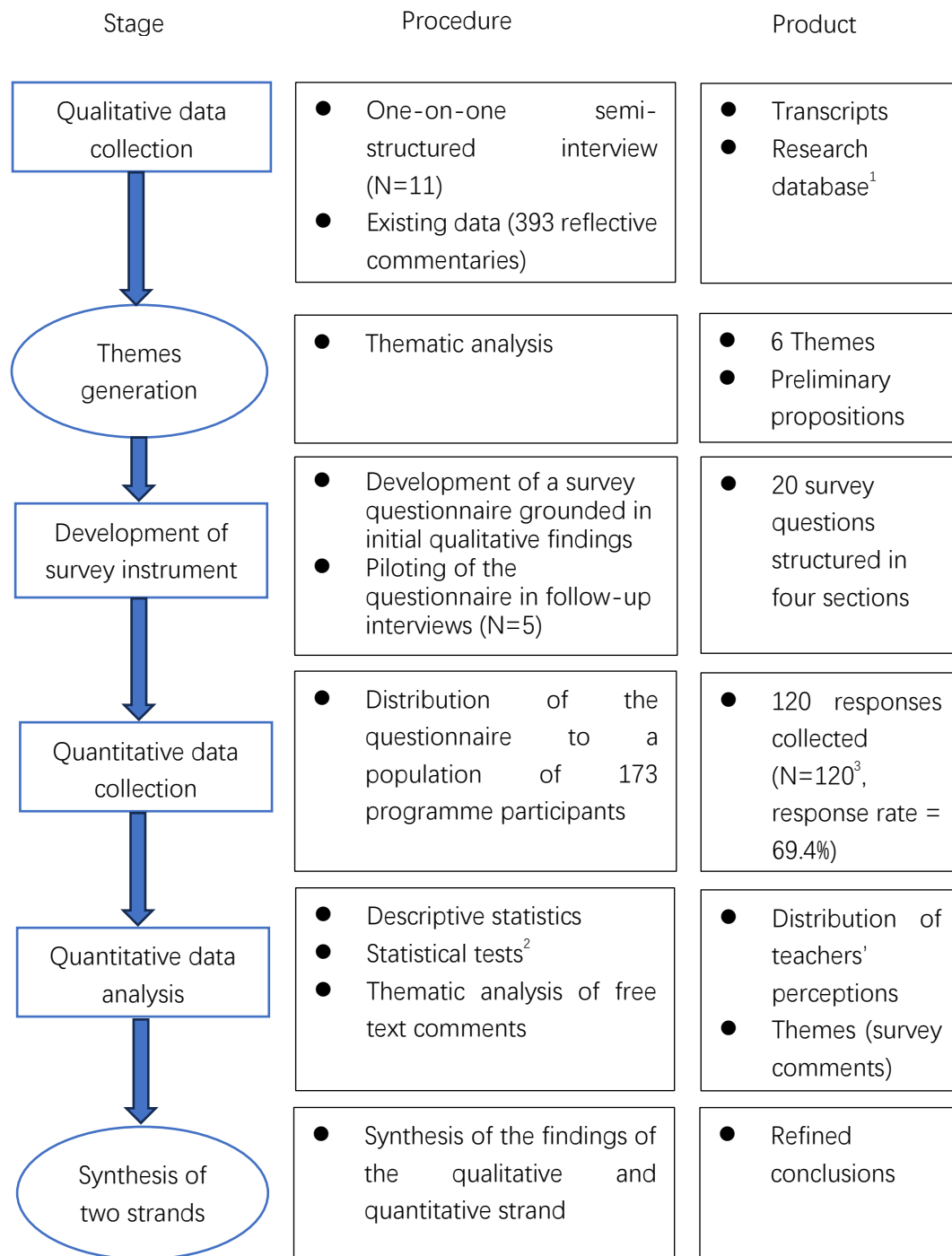


Figure 5.3 Procedures of data collection

Notes:

1. The research database in the stage of qualitative data collection refers to grouping all qualitative data into a Microsoft word document for the purpose of generating codes and themes. Details of the database are presented in Section 5.7.1.
2. Statistical tests include non-parametric Wilcoxon test and Kruskal-Wallis test for Likert-type scale data collected in the survey. Details of these tests are outlined in Section 5.7.2.
3. Capital “N” in this thesis refers to the size of a full sample while “n” in the lower case represents the size of a sub-sample drawn from the full sample. For example, 120 programme participants responded to the questionnaire (N=120) and 22 of them (n=22) come from cohort 1.

An overview of the data sets is shown in Table 5.3.

Table 5.3 Overview of data sets

Data set	Source	Description	Strand/stage
Semi-structured interviews	Conducted by the researcher	To explore teachers' adoption decisions and implementation process.	Initial qualitative strand
Teachers' reflective commentaries	Existing (institutional) data	To complement and triangulate the findings evidenced in interviews.	
Survey (questionnaire as the instrument)	Designed and distributed by the researcher	To triangulate and complement the initial qualitative findings.	Follow-up quantitative strand

Note: Institutional data such as the number of programme applicants and the attrition rate of programme participation was used to assist the discussion of research findings.

In the initial qualitative strand, the two data sets of semi-structured interviews and existing data were used to generate themes and preliminary findings. The follow-up quantitative strand employed a questionnaire to survey the

distribution of teachers' perceptions. In addition, the questionnaire used free text comment boxes to elicit additional information about teachers' participation experiences.

I present the discussion of data collection methods by first outlining the rationale for using semi-structured interviews in my research.

5.6.1 Semi-structured interviews

This section explains (1) why I conducted semi-structured interviews, (2) how I recruited interview participants, and (3) how I framed interview questions. I used interviews as one of the data collection methods in the initial qualitative strand for the following reasons:

(1) The nature of research questions and research design. My research questions explored teachers' experiences of participation in the university-led educational reform. Interviews were employed to obtain their in-depth perceptions and experiences of programme participation (Kvale, 2007; Mann, 2016). In addition, the research employed a mixed methods design. The development of the follow-up survey instrument was grounded in the perceptions of local population and thus, semi-structured interviews served the purpose of eliciting teachers' perceptions.

(2) The characteristics of research phenomenon. It is difficult and time-

consuming to observe social phenomenon such as the influence of teachers' colleagues on their uptake of the guided innovation in natural settings. While interviews can save much time in exploring social phenomenon which is often not accessible by other data collection methods (Rapley, 2001).

The strategy of maximal variation sampling was used to recruit interview participants (Creswell and Plano Clark, 2018). The strategy aimed to obtain a wider representation of the study population (Maxwell, 2013) and maximise the diversification of the perceptions of research participants. The interviewees were selected based on their school locations, adoption experience, academic ranks (i.e., *huoli* champions, a type of promotion rank exclusive to research participants), and social distance between the researcher and research participants. Of the 11 interviewees, 2 of them were my acquaintances. As Garton and Copland (2010) argued that acquaintance interviewees might orient themselves to new roles in interviews, I expected that my prior relationship with the two acquaintances would encourage them to reveal more details on sensitive topics such as monetary reward and teachers' competition for promotion. During interviews, one acquaintance interviewee provided more rich data about sensitive issues while the other acquaintance interviewee was still guarded against commenting on sensitive issues. Table 5.4 illustrates the demographics of the interviewees. Interviewees are anonymised and identified as P1, P2 to P11.

Table 5.4 The demographics of interviewees

Interviewee	School	Adoption experience(years)
P1	Health	4
P2	Education	4
P3	Art and Design	0.5
P4	Business	2.5
P5	Linguistics	2.5
P6	Engineering	5.5
P7	Engineering	5.5
P8	Education	5
P9	Education	5.5
P10	Education	0.5
P11	General education	5.5

Note: Among the 11 interviewees, five of them are *huoli* champions and two are my acquaintances. They are not revealed in this table to protect their anonymity.

In addition, four interviewees (P2, P8, P9, P10) were from School of Education because the number of programme participants from School of Education outnumbered participants from other schools in the case institution. For example, in 2022, among the 40 programme participants from seven disciplinary schools, 14 of them were from School of Education. The phenomenon warrants my further exploration and reflection in later chapters of my thesis.

During the Covid-19 lockdown, all interviews were conducted online for health considerations. However, after the Covid-19 lockdown, I chose to continue with online interview because I intended to use online environment to neutralise the power imbalance between interview participants and me (Hanna, 2012). As I was both a researcher and a senior staff member of the institution, I expected

that conducting interviews online rather than on the premises of my institution might downplay interviewees' perception of my institutional positioning.

An interview guide containing ten interview questions (See Appendix C) was formulated to provide me with a list of topics intended to be covered in interviews. Before the commencement of interviews, the participants were informed that the purpose of my research was to improve the practice of the university-led programme. The interviews were initiated with questions about their present implementation of the university-guided innovation so that it was easier for them to answer (Patton, 2015). Indirect questions such as advice for colleagues were designed to reduce the social desirability of interview responses. Sensitive topics such as promotion and institutional policies were arranged in the later part of interviews. The interviews were ended with programme participants' suggestions for the programme and their future plans. In addition, I drew on the four diffusion elements (see Section 4.1 in Chapter 4) identified in Rogers' (2003) Diffusion of Innovations theory to explore how the uptake of the guided innovation was spread from early adopters to late adopters over time within the institution. For example, the diffusion element of communication channels was used to understand the influence of near peers. Accordingly, these four elements were used to frame interview questions in my research. The interview questions were structured in four sections and the correspondence between diffusion elements and interview questions is shown

in Table 5.5.

Table 5.5 Interview questions

Interview question	Topics	Diffusion elements
Q1~Q3	Delivery of teaching and learning approaches	Innovation attributes(Q1) Time(Q2)
Q4~Q5	Colleagues' influence and advice for new adopters	Communication channels(Q4)
Q6~Q8	Promotion system and institutional support	Innovation attributes(Q6)
Q9~Q10	Impact of the programme and future plans	Social system (Q9)

In interviews, follow-up questions were asked to invite interviewees to comment on the details of their previous responses so that rich description of particular phenomenon could be obtained. In addition, the questions covered in the interview guide followed an iterative process of refinement. Findings from prior interviews and other data sources informed the list of topics to be covered in future interviews. For example, a new question was included into the interview guide (Q2, see Appendix C) to explore teachers' understanding of *huoli*, i.e., high-quality teaching and learning performance in the institutional context.

All interviews were conducted in Chinese because both the research

participants and I are native Chinese speakers. Thus, it was conducive to the discussion of their professional practice pertaining to the *huoli* programme and institutional context. In the process of data analysis, indicative interview quotes supporting specific codes and themes were translated into English.

As interviews with P9~P11 produced little new information and just repeated themselves on particular research topics, I started to realise that the interview data had reached saturation because additional data collection did not add changes to the codes and themes of the qualitative data (Silverman, 2020). Accordingly, I stopped recruiting new interview participants.

In addition to semi-structured interviews, the other data set employed in the initial qualitative strand was existing (institutional) data, or teachers' reflective commentaries which are covered in the next section.

5.6.2 Teachers' reflective commentaries

Teachers' reflective commentaries are project reports submitted to the institution as part of their programme participation. Programme participants were requested to submit two documents of reflective commentaries after the first and second piloting of their *huoli* courses. After the submission, the two documents were subject to expert review organised by the institution. If programme participants passed the expert review, supplementary payment

would be accorded to them for the teaching of their *huoli* courses in the future. In addition, after passing the expert review, teachers were qualified to compete for the promotion of *huoli* champions, i.e., a new promotion rank exclusive to programme participants. I received the permission from my institution and the ethical approval (see Table 5.2) to use these data in my research. The data was anonymised in the process of its analysis and reporting.

There are similarities and differences between the two submitted reflective commentaries. They all revolved around programme participants' implementation of innovative teaching and learning approaches. However, the first submitted reflective commentary was provided with reflection prompts (e.g., course design, pedagogy reflection, brief summary of the piloting, and future plans) while the second one was open-ended and teachers were encouraged to publish the second reflective commentary in academic journals. In 2023, two programme participants published their second reflective commentaries prior to their submission of the commentaries to the institution.

The reflective commentaries were submitted predominantly in Chinese. However, programme participants did not have to translate their reflective commentaries for submission if their commentaries were already published in English. I translated indicative quotes from the reflective commentaries into English in the process of data analysis.

A total of 393 reflective commentaries were collected. Among the collected documents, 222 were submitted by teachers after their first round of piloting and 171 from the second round of piloting. There are two reasons contributing to the disparity of numbers between the two rounds of reflective commentaries. Firstly, not all teachers progressed to the second piloting at the time of writing. Secondly, there were teachers who left the institution or the university-led programme since the initiation of the programme.

Programme participants' reflective commentaries provided data on their piloting experience in the following topics:

1. Innovative teaching and learning approaches delivered in their *huoli* courses.
2. Drivers and barriers to their implementation of teaching and learning approaches.
3. Teachers' understanding of *huoli*, i.e., high-quality teaching and learning performance in the institutional context.
4. Teachers' suggestions for the programme and their future plans.

Accordingly, I included teachers' reflective commentaries in the initial qualitative strand to achieve the following purposes:

- Providing a rich description of teachers' piloting experience. The reflective commentaries delineated teachers' implementation process and captured their perceptions of the university-led programme just after the initial

piloting. While in interviews, early adopters had to rely on retrospection to report their adoption experience.

- Complementing the data set of semi-structured interviews in the exploration of sensitive topics such as barriers to programme participation. Teachers documented both achievements and challenges relating to the delivery of innovative teaching practices. While in interviews, teachers could have preferred to share the positive aspect of their adoption experience. Teachers' critical review of the institutionally advocated pedagogies in their reflective commentaries provided the initial qualitative strand with complementary findings.
- Triangulating the findings evidenced in semi-structured interviews to improve the rigour of the initial qualitative stand. Thus, the design of the follow-up survey questionnaire was sufficiently grounded in the perspectives of programme participants. Details of the follow-up survey are presented in the next section.

5.6.3 Survey

To facilitate programme participants' understanding of the survey questions, the survey questionnaire was distributed in Chinese. However, indicative free text comments were translated into English in the reporting of the findings. In addition, the following strategies were used to improve the design of the

questionnaire.

Aligning survey questions with initial qualitative findings

To ensure that the survey questions were grounded in the initial qualitative findings, I used a table to cross-check the alignment between survey questions and lines of qualitative inquiry. The initial qualitative findings were aggregated into 20 lines of inquiry covering major themes of teachers' adoption decisions and their implementation process. The themes were identified in the initial qualitative strand. Each line of inquiry was translated into a corresponding survey question to ensure the alignment between the initial qualitative strand and its follow-up quantitative strand. In addition, the total number of survey questions in the questionnaire was limited to no more than 20 so that survey respondents could complete the questionnaire in 10 minutes. Further details of the survey questions are presented in Table 7.1 of Chapter 7.

Varying question types

A combination of multiple choice (multiple answer and single answer), binary choice and Likert-type scale questions were included to contain the number of survey questions. In addition, in the design of multiple choice (multiple answer) survey questions, there was a limit to the number of survey items that respondents could select. The design was employed to (1) prevent survey respondents from ticking all the survey items randomly and (2) invite them to indicate the most critical drivers or barriers in relation to their adoption experience. For example, in the survey question of identifying the most critical

extrinsic drivers impacting teachers' adoption decisions, survey respondents could select no more than three of the most critical drivers from the listed items.

Inviting open-ended responses

Due to the small scale of the qualitative strand, it was likely that there would be new themes which might not have been identified in the initial exploration. Therefore, free text comment boxes were included as optional sub-questions to invite survey respondents to provide additional information. For example, respondents were invited to explain why the extrinsic drivers they indicated in the questionnaire were critical to their adoption decisions.

Piloting before distribution

Five interviewees were invited to participate in follow-up interviews to pilot the survey questionnaire. The purpose of the piloting was to (1) ensure that the wording of survey questions was comprehensible to respondents and (2) invite the five teachers in follow-up interviews to share their experience of completing the questionnaire. The survey questions were further refined drawing on their comments on the draft of the questionnaire. For example, the number of survey questions was reduced from 52 to 20.

While this section has presented the details of data collection methods, the next section discusses the procedure of data analysis in my research.

5.7 Data analysis

Data analysis was divided into two sequential stages, i.e., the initial qualitative stage and follow-up quantitative stage. The qualitative stage consisted of the management and analysis of the data sets of interview transcripts and teachers' reflective commentaries. The follow-up quantitative strand involved the analysis of numeric data and free text comments derived from the questionnaire. A timeline of data analysis is shown in Figure 5.4.

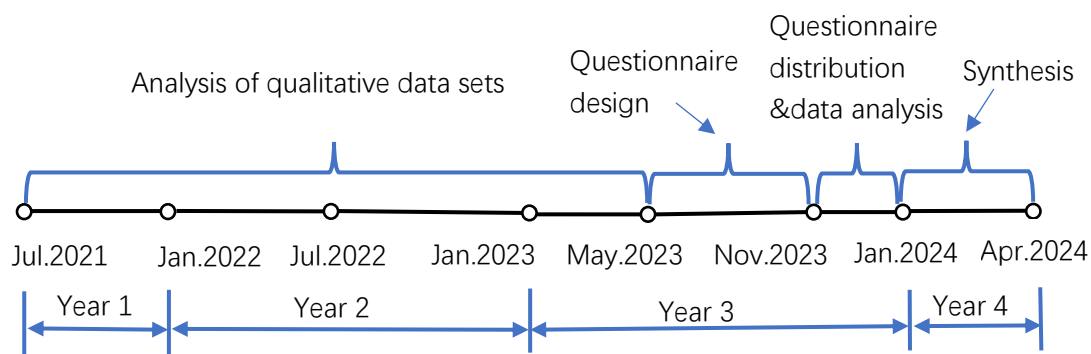


Figure 5.4 Timeline of data analysis

5.7.1 Analysis of qualitative data

I used thematic analysis to analyse the qualitative data sets of interviews and teachers' reflective commentaries. The purpose of thematic analysis is to generate theme patterns (Creswell and Creswell Baez, 2021) in relation to teachers' participation experiences in this university-led programme.

When I initially engaged in the analysis of qualitative data, I used a deductive approach to aggregate the data into themes. In the initial analysis, I used the diffusion elements from Rogers' (2003) Diffusion of Innovations theory to

formulate an analytical framework. A codebook was pre-selected before the analysis of the qualitative data. Data was classified into the existing framework to develop sub-themes fit for the institutional context. The themes derived from my initial qualitative data analysis (the deductive approach) is shown in Figure 5.5.

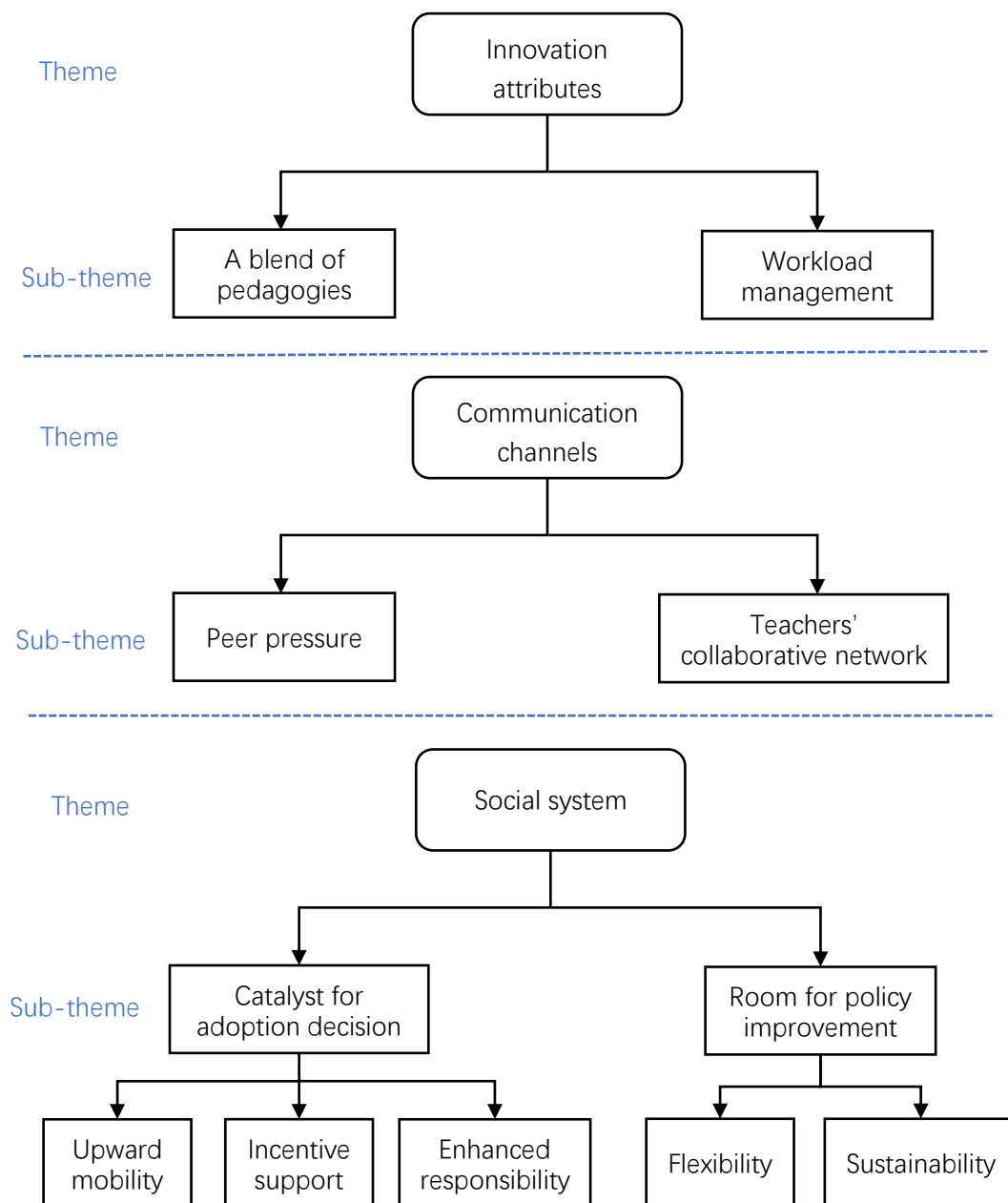


Figure 5.5 Themes derived from the initial data analysis (deductive approach)

Note: Innovation attributes, communication channels, and social system are the diffusion elements from Rogers' (2003) Diffusion of Innovations theory and they formed the analytical framework and codebook in the deductive approach of qualitative data analysis.

However, I realised the limitations of using the deductive approach for the analysis of the qualitative data. My research aimed to delineate a picture of teachers' participation experiences in an over-time sequence (e.g., from adoption decisions to implementation process) so that institutional administrators could provide staged support for academics' programme participation. As the original codebook did not unfold the research phenomenon in a temporal order, it did not fully fit my research.

Therefore, I chose to use time as the thread to re-analyse the qualitative data. In the second round of data analysis, an inductive approach was used to generate themes of the qualitative data (Creswell and Creswell Baez, 2021). The procedure of the second round of qualitative data analysis is shown in Figure 5.6.

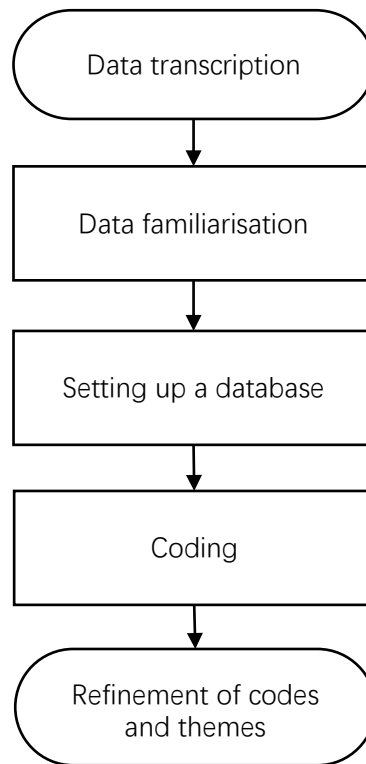


Figure 5.6 Procedures of qualitative data analysis using an inductive approach

The two data sets of interview transcripts and reflective commentaries were analysed in parallel. However, emergent findings from each data set informed the analysis of the other data set. In addition, emergent findings from the qualitative data informed the refinement of questions in future interviews and thus, the analysis of the qualitative data followed an iterative approach (Morse et al., 2002).

Data transcription

Data were transcribed within three days of interviews. I listened to all the recorded audio of semi-structured interviews to collate interview transcripts. To ensure the readability of interview transcripts, acknowledgement and

interactional tokens such as “mm”, “er” or repetitions of “yeah” were removed. As interviewees were continuously refining their responses to interview questions, those unorganised responses were tidied up for better readability. In addition, there were untranslatable words in the qualitative data sets. I discuss how I addressed those untranslatable words in Section 5.8 of this chapter.

Getting familiarised with data

I familiarised myself with the raw data by reading all the interview transcripts and teachers’ reflective commentaries before the analysis. As I used an inductive approach to re-analyse the qualitative data, I re-listened to all the recorded interview audio and re-read all the interview transcripts and teachers’ reflective commentaries. The re-engagement with the qualitative data offered me a closer sense of teachers’ participation experiences.

Setting up a research database

Microsoft word was used to set up a research database for collation and retrieval of quotes, codes, and themes. The database featured a hierarchical system, which comprised quotes (raw data), codes, sub-themes (if possible) and themes as shown in Figure 5.7.

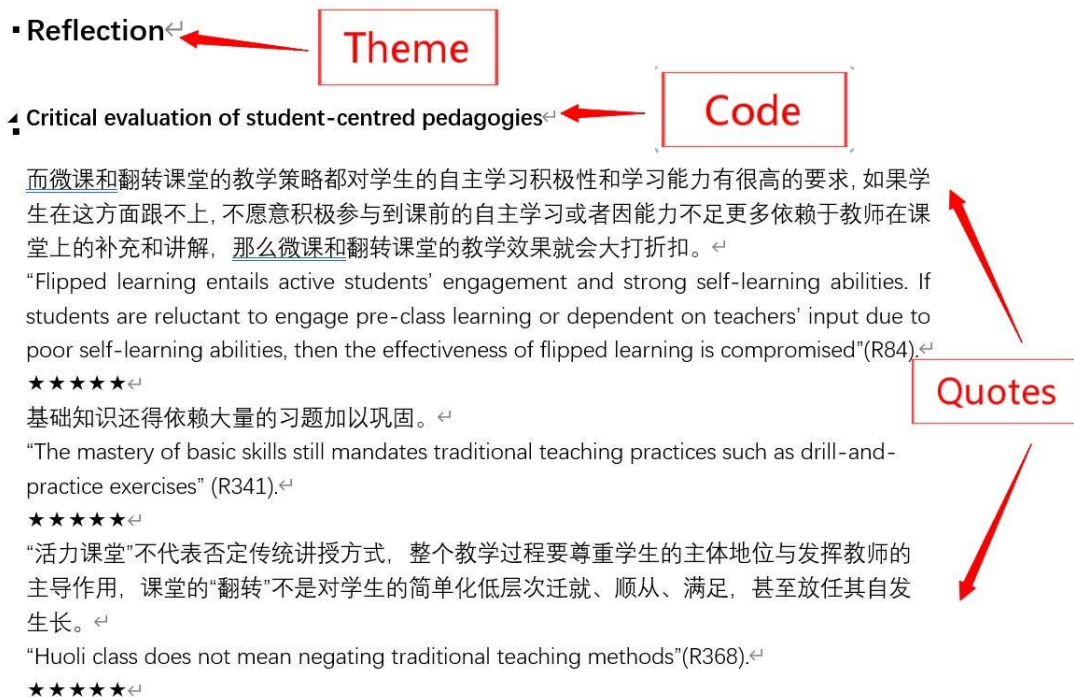


Figure 5.7 Details of research database

Note: Indicative quotes were translated into English.

Raw data was aggregated into the research database and a preliminary analysis was conducted within seven days of data collection.

Coding inductively

A code name was assigned to a section of quotes describing particular research topics. Code names came from participants' words, existing literature, and my deduction. Homogenous codes were further aggregated into themes. The whole process was carried out inductively.

Refining the codes and themes

At this stage, a preliminary structure of themes and codes was set up and data

tended to be saturated. Therefore, new evidence was collected to support the codes and themes generated in the initial stage. In addition, the codes and themes were further refined to make sure that (1) all the quotes supporting the same code were homogenous. Likewise, the codes supporting their upper-level themes were also homogenous. (2) Codes and themes at the same hierarchical level were heterogenous to each other (Patton, 2015). Moreover, the scale of different drivers and barriers to teachers' innovation adoption was measured quantitatively by counting the number of quotes supporting particular codes and themes. For example, 24 programme participants mentioned their intention of adapting the teaching and learning approaches after the piloting stage within their reflective commentaries. The sense of scale provided me with leads shaping the design of the follow-up survey. As the survey produced quantitative data on teachers' participation experiences, I present the analysis of the quantitative data in the next section.

5.7.2 Analysis of quantitative data

The analysis of the quantitative data derived from the follow-up survey questionnaire comprised the following procedures:

Descriptive statistics measuring the diversity of perceptions

The first step of the analysis of quantitative data was to use descriptive statistics to examine the diversity of teachers' responses to survey questions. Descriptive

statistics were presented in the form of response frequencies. A median scale was calculated to describe Likert-type scale data. I used median rather than mean to describe the Likert-type data because the Likert-type data in my research is ordinal data comprising multiple rank orders. These rank orders refer to survey participants' perception of the weight of drivers or barriers and the interval between these rank orders is unequal. Although numbers could be assigned to represent each rank order in questionnaires, these numbers do not have numeric values. In this regard, it is meaningless to calculate the average of ordinal data such as strongly agree or strongly disagree (Davis and Davis, 2015). Therefore, mean is not an appropriate measure for describing the central tendency of ordinal data (Khorana et al., 2023).

Breaking down descriptive statistics by demographics

All descriptive statistics were broken down into seven units of analysis by respondents' demographics. i.e., their cohorts of participation. The statistical data from the seven units of analysis was compared to examine the differences in the perceptions of teachers at different adoption stages.

Statistical tests for comparing different groups of data

Statistical tests were carried out on Likert-type scale data collected from the questionnaire. The purpose of statistical tests was to compare the perceptions of different demographic or paired samples. Paired samples refer to two

samples or measurements drawn from the same group of subjects (Hinton, 2024). For example, survey respondents rated their perceptions of the workload issue in the piloting and current stage in survey question Q7 and Q8 respectively. Thus, scale data collected from the two survey questions formed two paired samples. Statistical test was then performed to compare the two sets of data to infer whether the workload issue was significantly alleviated after the piloting stage among programme participants. SPSS 29 was used to generate descriptive and inferential statistics.

As expected, all the Likert-type scale data collected in the follow-up survey questionnaire did not follow a normal or Gaussian distribution. Consequently, the distribution of the data did not show a bell-shaped curve. There are three possible reasons contributing to a non-normal distribution of the Likert-type scale data in my research. Firstly, the impact of some barriers (e.g., heavy workload) on teachers' programme participation could be influential. As a result, they could have overwhelmingly given negative feedback in the questionnaire. Secondly, when teachers were required to rate on the practice of the programme, some of them could have provided socially desirable responses or they could have self-selected the choices randomly. Lastly, the size of the survey respondents is smaller than that of a full population and the data can be influenced by random variations in samples. In general, the scale data was often skewed towards (1) ratings favourable to the institution or (2) scales

indicating teachers' tough challenges during their implementation process.

Parametric tests assume the distribution (e.g., normal distribution) of observed data and rely on estimated parameters of the distribution (Hinton, 2024). For example, a study aims to measure whether a newly introduced pedagogy has improved students' test scores at a university. Assuming that the distribution of the students' test scores is symmetric about the mean and bell-shaped, the data is then normally distributed. In this case, a parametric test (e.g., t-test) can be used and properties of the normal distribution such as mean and standard deviation are required in the parametric test. However, the scale data in my research was skewed and did not show a normal distribution. Therefore, parametric tests are not suitable.

As non-parametric tests do not make prior assumptions about data distribution and can be used on Likert-type scale data (Cronk, 2019), non-parametric tests (Wilcoxon and Kruskal-Wallis tests) were performed to generate inferential statistics. The significance level in statistical tests, namely α , serves as a cutoff threshold deciding the significance of statistical tests. I set α in my research to 0.05 which is a conventional threshold (Miller and Ulrich, 2019) and commonly used in educational research (Ntsiful et al., 2023; Guo et al., 2024; Abulail et al., 2025). I did not select a smaller or larger cutoff threshold because a smaller α (e.g., 0.01) increases the likelihood of false negatives and a larger α (e.g.,

0.1) increases the likelihood of false positives.

In addition, statistical tests relate to the probability of accepting or rejecting a null hypothesis and thus, false positives or negatives might occur. The results of statistical tests provided one major source of evidence for my research conclusions. However, I also used evidence from other data sources to add weight to my conclusions.

The Wilcoxon test is performed to compare the data of two paired samples (Cronk, 2019). In my research, the test was used to compare programme participants' perceptions of (1) adoption workload in the piloting and current stage and (2) to identify the differences in their perceptions of in-class and out-of-class student engagement. In the reporting of Wilcoxon test results, test statistic (Z score) describes the match between sample data and the particular distribution under a null hypothesis (Davis and Davis, 2015). The test statistic was then used to calculate a *p*-value which refers to the probability describing the compatibility between sample data and the null hypothesis. Therefore, *p*-value was used to quantify the statistical significance of test results.

The Kruskal-Wallis test is suitable for comparing the data of two or more independent samples (Cronk, 2019). The test was used in my research to compare the perceptions of different cohorts of programme participants. While

in the reporting of Kruskal-Wallis test results, test statistic (H score) and p -value were calculated to determine the statistical significance. However, if the result of a Kruskal-Wallis test is significant, the test result will not reveal which cohort is significantly different from the other cohorts. In that case, I compared the data of all possible pairs of cohort groups by performing follow-up pairwise comparison, or Kruskal-Wallis 1-way ANOVA to identify the significantly different group from other groups.

In the phrasing of the Wilcoxon and Kruskal-Wallis test results, I will present the score of test statistic (Z score for Wilcoxon test and H score for Kruskal-Wallis test) and p -value. If the p -value is less than 0.05 (α , significance level of test), the two groups are reported to be significantly different from each other. Otherwise, the test result is not significant. In addition, the degree of freedom (n) for Kruskal-Wallis test is also described in the phrasing of test results.

Table 5.6 shows the types of non-parametric tests used in the research and illustrative examples of reporting test results.

Table 5.6 Types of non-parametric tests used in data analysis

Test type	Test object	Examples of reporting test results
Wilcoxon test	Paired samples	A significant difference was found in the results ($Z = -5.962$, $p < .001$), indicating that workload was significantly alleviated after the piloting stage.
Kruskal-Wallis test	Independent samples	No significant difference was found ($H(6) = 6.536$ and $p = 0.366$), indicating that the seven categories of adopters did not differ significantly from each other.

Note: The degree of freedom (n) is indicated in the round brackets attached to the test statistic H in Kruskal-Wallis tests.

Thematic analysis of free text comments

Thematic analysis was used to aggregate the free text comments from each survey question into themes. The purpose of thematic analysis at this stage was intended to complement the understanding of the survey data. Therefore, the rationale behind survey respondents' indication of particular drivers and barriers was further clarified. In addition, themes of free text comments were also used to triangulate and complement the propositions derived from the initial qualitative strand.

Next, I outline how I addressed the issue of translation as translation also impacts the rigour of my research.

5.8 Translation

I am aware that my research was carried out in a bilingual environment. As all

my research participants are native Chinese speakers, interviews and the follow-up survey were conducted in Chinese. Thus, the original interview transcripts and free text comments in the survey were all presented in Chinese. However, in the stage of writing-up, all the indicative quotes from interview transcripts and free text comments were translated into English.

A major challenge I encountered in the bilingual environment was the emergence of untranslatable words. This is because those untranslatable words were situated in the local context and thus, there might be no direct equivalent of those untranslatable words in English. However, the emergence of the untranslatable words encouraged me to explore how those words might shed new light on the understanding of the research phenomenon (Ruitenberg et al., 2016). In addition, if an untranslatable word was replaced by a close equivalent, the impact of emotional feelings from research participants was lost in the translation.

To achieve a balance of the readability of the thesis and the authenticity of the original data after translation, I used the following guidelines to address the untranslatable words in my thesis.

- I chose to find a relatively close equivalent if the untranslatable word did not contribute to enhancing the understanding of the research

phenomenon.

- I decided not to translate the untranslatable words which were related to the vision of the university-led programme, teachers' participation experiences, and their critiques of institutional policies. Alternatively, I used a brief description to explain the context and meaning of those untranslatable words when they first appeared in the thesis. Relatively close translations of those words were also given to improve the readability of the thesis. Table 5.7 shows all the untranslatable words which are critical to the understanding of the research phenomenon in the thesis.

Table 5.7 Untranslatable words in the thesis

Untranslatable word	Rationale for not translating the word into English	Close equivalent
Huoli (活力)	Huoli is the name of the university-led programme and refers to the generic vision of high-quality teaching and learning performance in the institutional context. However, what constituted high-quality teaching and learning performance was not universally agreed among programme participants.	High-quality teaching and learning performance
Jilei, or chicken ribs (鸡肋)	Emotionally impactful word referring to meaningless things or practices. Programme participants used the word to critique the institutional requirements for	Meaningless practices

	programme participation.	
Zheteng (折騰)	The word appeared in the free text comments from the survey. It refers to flip-flopping on policies or practices. However, everything is restored to its original form and nothing is gained in the end.	Flip-flopping
Xing shi zhu yi (形式主义)	Four respondents used the word to comment on the institutional requirements in the survey. In the context of China, the word is frequently used to critique practices paying more attention to appearance rather than due merits.	Box-ticking exercise

5.9 Validity checks

As my research employed multiple data collection methods, I needed to pay attention to the validity of data collected in different strands of my research. In addition, my institutional positioning might affect the design, analysis, and writing-up of my research. Moreover, I intend to improve the transferability of my qualitative research in the wider higher education systems. In this section, I discuss the process to enhance the rigour of my research. I start the discussion by first summarising the process of triangulation.

Triangulation

In Section 5.4.2, I explained that my research used mixed methods design to triangulate the research findings from different data sources. There were three

data sets in the research. In the initial qualitative strand, research findings from the two qualitative data sets, i.e., semi-structured interviews and teachers' reflective commentaries were cross-corroborated. In the follow-up quantitative strand, findings from the initial qualitative strand were translated into survey questions. Thus, initial propositions were systematically cross-checked in the follow-up survey. In addition, two sets of themes derived from the initial qualitative strand (interviews and teachers' reflective commentaries) and follow-up quantitative strand (free text comments collected in the questionnaire) were compared to further complement the research conclusions.

Cross-checking the internal consistency of survey data

To examine the reliability of survey responses, I manually checked the internal consistency between responses from different survey questions to identify whether the respondents answered truthfully or randomly in the survey. Table 5.8 illustrates the clusters of internal consistency check.

Table 5.8 Clusters of internal consistency check

Cluster	Question topic	Cluster description
Workload and willingness of new adoptions	Workload in the piloting stage (Q7)	Workload was one of the major barriers to teachers' adoption decisions and might impact their decisions to adopt another <i>huoli</i>
	Workload in the current stage (Q8)	
	Willingness to apply for new <i>huoli</i> course in the future (Q19)	

		course.
Delivery and rating of in-class and out-of-class approaches	Student engagement in in-class (Q9) and out-of-class (Q10) teaching and learning approaches.	Q9, Q10, Q12 and Q13 all related to the delivery of in-class and out-of-class teaching and learning approaches. The aforementioned topics might impact their rating of the most and least beneficial teaching and learning approaches.
	Challenges teachers encountered during the delivery of in-class (Q12) and out-of-class (Q13) teaching and learning approaches	
	Rating of teaching and learning approaches (Q14, Q15)	

In addition, the internal consistency of responses indicated by each category of adopters was also examined to check the reliability of survey data.

Rich description

Chapter 2 presented the details of the university-led programme including programme overview, institutional guidelines for the guided innovation, reward and recognition system, and institutional requirements for programme participation. Thus, rich description of the institutional context was provided so that readers can extrapolate the transferability of my research findings in similar settings (Creswell and Creswell Baez, 2021). As the literature review in the previous chapters has demonstrated that existing reward and recognition

systems and career pathways available to academics in higher education affected their uptake of pedagogical innovations, rich description serves to shed light on the findings of my research in the context of the Chinese private higher education sector and the wider higher education sector beyond my institution.

Use of theory

I predominantly drew on Rogers' (2003) Diffusion of Innovations theory to frame research questions and interpret research findings. Other theories such as Hall's (1979) Concern-based Model were also used to assist the interpretation of research findings. I employed existing theories as lenses to interpret the research phenomenon (Creswell and Creswell Baez, 2021).

Prolonged time with analysis

I spent approximately two years analysing the qualitative data. During the analysis, a research database was set up to ensure the collation of themes, codes, and quotes. In addition, prolonged time offered me a close sense of the data due to my reading and re-reading of the transcripts. Moreover, I had enough time to see the qualitative data from different perspectives.

Reflexivity

- In the stage of research design, I demonstrated my bias and how my bias shaped my propositions before data collection commenced. For example,

I realised that I did not pay due attention to teachers' intrinsic motivation for innovation adoption prior to data collection. Accordingly, I reminded myself not to filter out teachers' intrinsic motivation in the (1) interpretation of qualitative data and (2) design of survey questions. In addition, my institutional positioning encouraged me to continuously re-examine the research methods and inquiry strategies fit for insider research.

- In the stage of data analysis, I identified possible rival explanations for the research findings (Patton, 2015).
- In the stage of writing-up, findings from the initial qualitative strand and follow-up quantitative strand were presented in a sequential manner so that the research process could be audited. In addition, during the translation of research data, the emergence of the untranslatable words encouraged me to trace its origin, identify the rationale behind it, and capture the rich explanation and impactful sense of those untranslatable words.

This chapter has outlined the framework and methods for data collection, analysis, and reporting. I paid special attention to how my institutional positioning and bias might affect data collection and analysis. Accordingly, I used mixed methods to mitigate the underlying threats to the rigour of my research. In addition, I used a set of procedures to improve the validity of my research. On the other hand, extra care was exercised to protect the anonymity of research participants. In the next chapter, I present the research findings.

Chapter 6 Qualitative strand: Initial exploration of teachers' experiences of participation in the programme

Chapter 6 and Chapter 7 present findings derived from two strands of my research, i.e., the initial qualitative strand and follow-up quantitative strand. Findings from the two strands are outlined sequentially in alignment with the progress of my research. Chapter 6 presents an exploration of the initial qualitative strand. At the end of this chapter, how the qualitative strand shaped the follow-up quantitative strand is clarified. Findings from the quantitative strand are discussed in Chapter 7.

Teachers' experiences of participation in this university-led programme are categorised into two stages, i.e., their ***adoption decisions*** and ***implementation process***. The two stages are addressed by two research sub-questions respectively. Hence, this chapter discusses an initial exploration of the research phenomenon by firstly addressing research sub-question one in relation to teachers' adoption decisions:

Sub-question one:

What factors are impacting teachers' decisions to participate in this university-led educational reform?

This is intended to explore the motivating factors that encouraged teachers in this case institution to participate in the university-led educational reform, namely the *huoli* programme. Evidence supporting preliminary assumptions was derived from the data set of semi-structured interviews.

Next, this chapter addresses research sub-question two in relation to teachers' implementation process:

Sub-question two:

How are teachers implementing their teaching and learning approaches in this university-led reform?

Sub-question two speaks to an exploration of the drivers and barriers impacting teachers' decisions to continue their participation in this university-led programme. Evidence was gathered from the data sets of semi-structured interviews and teachers' reflective commentaries. The reflective commentaries are existing data that teachers submitted during their programme participation.

In the next section, I first present a brief introduction of the findings drawn from each qualitative data set and explain how these two data sets were funnelled into a synthesised presentation of the qualitative findings.

6.1 Thematic analysis of the qualitative data sets

To explore teachers' experiences of their programme participation, thematic analysis was conducted on the two qualitative data sets, which are programme participants' reflective commentaries and semi-structured interviews. Data was then aggregated into major themes and sub-themes.

To anonymise the research participants, course and individual names were all removed from the quotations and replaced with a broad description such as "my school" or "my course". In the citation of qualitative data, interviewees were anonymised and identified as "P" and a number (e.g., P5) and teachers' reflective commentaries identified as "R" and a number (e.g., R120). It needs to be clarified that there is no connection between the naming of interviewees and reflective commentaries. For example, P5 and R5 may not refer to the same programme participant. Programme participants from the two data sets are ordered independently. Additional information was added in square brackets to explain and clarify the meaning of original quotes.

6.1.1 Findings of participants' reflective commentaries

The reflective commentaries are focused on three overarching themes, which are design, practice, and reflection as shown in Figure 6.1.

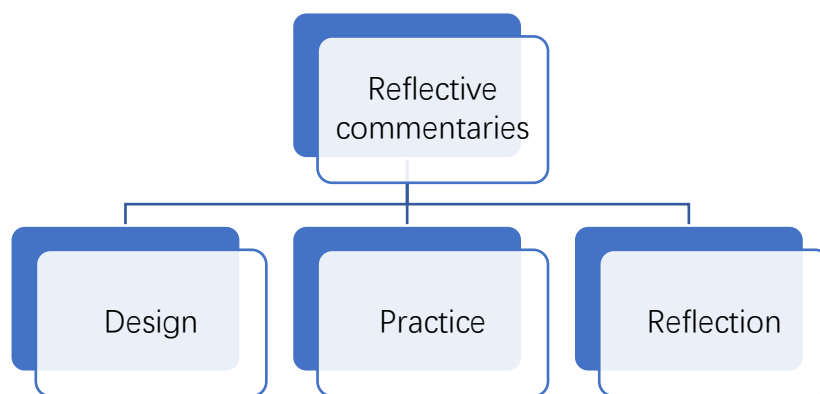


Figure 6.1 Themes of teachers’ reflective commentaries

Next, I present the sub-themes of these overarching themes. In addition, indicative quotes from the reflective commentaries are provided to illustrate teachers’ reflections on their programme participation.

Design

The theme “design” outlines how teachers designed the teaching and learning approaches of their *huoli* courses. The reflective commentaries revealed that the teaching and learning approaches teachers delivered in this *huoli* programme are divided into two major groups, which are institutionally advocated pedagogies outlined in the *huoli* pedagogical model (e.g., flipped learning, blended learning, collaborative learning, multi-dimension assessment) and teachers’ self-selected practices. Table 6.1 shows the sub-themes of “design” and its indicative quotes.

Table 6.1 The sub-themes of “design” and its indicative quotes

Sub-theme	Indicative quote
Institutionally advocated pedagogies	<i>“Before class, I divided the whole class into 4 groups and the students completed their pre-class assignments in groups. In class, the students presented their pre-class assignments in groups...After class, all individual members of each group continued their practices following feedback from their peer students” (R234).</i>
	<i>“For example, when I was about to explain the mechanism of one machine part, I divided the students into groups and each group explored the subject contents before class” (R185).</i>
	<i>“This term, I tried almost all the functions of the mobile app including pre-class learning, in-class opinion polls, online discussion forum, handouts sharing, and after-class assessment.” (R332).</i>
	<i>“Multi-dimension assessment is effective medicine to motivate and guide students” (R238).</i>
Teachers’ self-selected practices	<i>“I invited industry experts such as principals and experienced teachers from kindergartens to deliver lectures for the pre-service student teachers in my class” (R293).</i>
	<i>“The dynamic demonstrations of videos or pictures can assist students in the learning process and facilitate their understanding of the subject contents” (R255).</i>
	<i>“I paid special attention to media such as television and journals to learn the latest trend relating to art and design and collect related learning materials” (R252).</i>

Table 6.1 presents the teaching and learning approaches teachers adopted during their programme participation. Within the reflective commentaries, the pedagogies employed in the design of *huoli* courses are primarily those recommended by the institution, which suggests the influence of institutional guidelines on teachers' design of their *huoli* courses. For example, the introduction of teaching and learning approaches covering pre-class, in-class and after-class stages (R234), active learning (R185), mobile learning (R332), and multi-dimension assessment (R238) are all highlighted in the pedagogical model outlined by the institution. However, teachers also included their self-selected practices into the design of their *huoli* courses. For example, they emphasised link with industry (R293), the introduction of computer simulations (R255), and media (R252) at the piloting stage.

The next theme “practice” describes programme participants’ implementation of innovative teaching and learning approaches.

Practice

After teachers implemented the innovative teaching and learning approaches, they gained practical experiences from the piloting stage. They perceived that the teaching and learning process was enhanced by technology. However, they also encountered various challenges. Teachers’ practical experiences are summarised in Table 6.2.

Table 6.2 The sub-themes of “practice” and its indicative quotes

Sub-theme	Indicative quote
Technology enhanced practices	<i>“Some introverted students who were usually silent in class can actively voice their opinions in online environment” (R51).</i>
	<i>“The employment of applications such as taking attendance on mobile phones simplifies class management and saves us much time. In-class app-based activities such as opinion polls can track and reflect the real-time status of students’ learning in class” (R27).</i>
Unexpected challenges encountered	<i>“The participation of the huoli programme requires teachers to devote more time in preparation. Teachers need to learn and improve their skills on a regular basis. It puts extra pressure on teachers who already have heavy teaching loads” (R52).</i>
	<i>“The students complained that the VLE platform was not working well. I hope the university can provide us with a better VLE platform” (R176).</i>
	<i>“Some students voiced their objections to delivering a presentation to their peer students in class. They hoped that their teachers could lecture all the time as in the traditional way” (R227).</i>
	<i>“The textbook is pretty dense in vocabulary and subject contents. It is challenging for students to complete those (pre-class) practices and tasks independently” (R181).</i>

As teachers submitted their reflective commentaries to the institution as project reports, some of them could have provided socially desirable answers. The enhancement of student learning as shown in Table 6.2 is the dominant theme in the reporting of teachers’ implementation process. Although programme participants were not required to report challenges within their reflective

commentaries, some of them mentioned barriers such as time commitment (R52), poor infrastructure (R176), student resistance (R227), and student competency (R181). These challenges caught teachers off guard when they initially piloted the innovative teaching and learning approaches. The data suggests a lack of readiness for change on the part of the institution, the programme participants, and their students.

In the reflective commentaries, teachers voiced their reflections on the practical experiences gained in the piloting stage.

Reflection

Table 6.3 presents teachers' reflections on their practical experiences.

Table 6.3 The sub-themes of "reflection" and its indicative quotes

Sub-theme	Indicative quote
Reinvigorating passion for teaching	<i>"Love or interest, this is the most fundamental driving force to do anything. With love and interest, the body will be tired, but the heart will not be tired" (R247).</i>
Evaluation of the piloted pedagogies	<i>"Not all students can benefit from collaborative learning" (R364).</i>
	<i>"The mastery of basic skills still mandates traditional teaching practices such as drill-and-practice exercises" (R341).</i>
	<i>"Flipped learning cannot replace traditional teaching modality" (R70).</i>
Refined understanding of	<i>"I agree with my colleagues' huoli course design. However, is huoli just about performance like actors or actresses? Is there anything</i>

<i>huoli</i>	<i>more meaningful?” (R20).</i>
	<i>“A huoli class is the one where teachers and students grow in teaching” (R378).</i>
Room for improvement	<i>“The piloting in this term is just the first step. In future, I will continuously reform the teaching so that the class is full of huoli” (R251).</i>

Table 6.3 highlights teachers’ reflections on their initial experiences of piloting innovative teaching and learning approaches. The reflections revealed the change of teachers’ perceptions of these approaches after the piloting stage. The practical experiences reinvigorated teachers’ passion for teaching and encouraged them to critically evaluate the piloted pedagogies. Based on the evaluation, teachers refined their understanding of *huoli*, which is the name of the university-guided innovation and mission of the programme. In their submitted reflective commentaries, teachers shared their strategies for improving the piloted teaching and learning approaches in future.

As programme participants were assigned to submit their reflective commentaries to the institution, they could have been guarded against commenting on the institutionally advocated pedagogies. However, some of them voiced their critical reflections on these pedagogies as shown Table 6.3 perhaps because they intended to give the case institution feedback about the programme. The critical feedback from teachers’ reflective commentaries provided my research with rich data describing their implementation challenges

and intrinsic feelings about the programme. The data enabled me to dig deeper into these challenges and intrinsic feelings in the semi-structured interviews.

The next section presents a brief overview of the findings drawn from the data set of semi-structured interviews.

6.1.2 Findings of semi-structured interviews

The themes of semi-structured interviews are grouped into two major categories, which are teachers' adoption decisions and their implementation process. Table 6.4 presents the themes regarding teachers' adoption decisions.

Table 6.4 Themes of teachers' adoption decisions

Theme	Sub-theme	Indicative quote
Career progression	Starting line	<i>"All teachers in my school know their career path. The huoli programme is their starting line" (P10).</i>
	Rank promotion	<i>"For me, the most motivating factor is promotion, various promotion tracks" (P4).</i>
	Professional recognition	<i>"I felt myself recognised by the institution. Then I think it encourages me to do my job well" (P2).</i>
Financial	Increased salaries	<i>"The supplementary payment is a motivating</i>

incentive		<i>factor. Definitely, more or less it influenced [my adoption decision]" (P4).</i> <i>"The huoli champions benefit from increased salaries compared to other teachers" (P10).</i>
	Project funding	<i>"I think there is another aspect, ..., project funding for our huoli course. I believe it is incentive support for teachers" (P5).</i>
Surrounding environment	Colleagues' adoption	<i>"They influenced me a lot. Haha, they motivated me because we are in the same office. Some of my colleagues have adopted two huoli courses and I have none" (P4).</i>
	Institutional climate	<i>"I think for new teachers the institutional climate matters. An institutional climate has been shaped that everyone wants to participate in the fad [the programme]" (P9).</i>

Table 6.4 highlights different extrinsic and intrinsic motivations affecting teachers' decisions to participate in the institutional change programme. Some participants were honest about commenting on the influence of pay rise on their adoption decisions (e.g., P4, P10). In addition, some interviewees mentioned their intrinsic feelings drawn from programme participation (e.g., P2). Table 6.4 also reveals that peer pressure and institutional climate contributed to teachers'

adoption decisions.

Table 6.5 outlines themes regarding teachers' implementation of their *huoli* courses.

Table 6.5 Themes of teachers' implementation process

Theme	Sub-theme	Indicative quote
Exploration	Considerable uncertainty	<i>"When I first participated in the programme, it [the programme] was a little confusing and not very clear" (P9).</i>
	Pedagogical model	<i>"The model tells us what teachers and students should do before class and after class" (P2).</i>
	Training workshop	<i>"I remember the institution invited staff from software company to deliver many lectures on how to use the new VLE" (P8).</i>
	Informal mentoring	<i>"Our courses have a lot in common. We will discuss how to use the technology to improve student learning" (P1).</i>
Evaluation	Transformation	<i>"When various activities were introduced into the class, they were more engaged in the class" (P4).</i>
	Challenge	<i>"Programme participation is challenging for</i>

		<i>teachers. Teachers have to devote time in lesson preparation including the development of a course website” (P1).</i>
Future plans	Adaptation	<i>“The participation of the huoli programme motivated myself to continuously reform my teaching pedagogies” (P7).</i>
	Long-term goal	<i>“I know it will benefit me in the long run” (P11).</i>

Table 6.5 reveals a brief picture of teachers’ implementation process including the design of their *huoli* courses, the evaluation of various pedagogies, the challenges they encountered, and their future plans for programme participation.

In contrast to the reflective commentaries, the semi-structured interviews provided less data describing teachers’ implementation process. This is partly because the size of reflective commentaries (N=393) is larger than that of semi-structured interviews (N=11). In addition, teachers submitted their reflective commentaries to the institution usually within six months after the piloting stage. As a result, compared to interview participants, they did not have to rely on their retrospection to document their implementation process. Moreover, due to my institutional positioning, interviewees could have been guarded against

commenting on sensitive issues such as the evaluation of the institutionally recommended pedagogies within an interview setting. In contrast, some programme participants shared rich piloting experiences and critically reflected on the institutional change programme within their reflective commentaries as shown in Table 6.1~Table 6.3.

6.1.3 Synthesis of the two qualitative data sets

Teachers' programme participation is divided into their adoption decisions and implementation process. Although the reflective commentaries provide more rich data on teachers' implementation process, these commentaries, also as secondary data, do not contain any information on teachers' adoption decisions because teachers were not required to reflect on their adoption decisions within their reflective commentaries. In response, I asked programme participants about their motivation for programme participation in semi-structured interviews and thus, the data set of semi-structured interviews provides the necessary data on teachers' adoption decisions. Therefore, the two data sets complement each other in describing teachers' programme participation. I aggregated the qualitative findings from the two data sets into six major themes as shown in Table 6.6. The themes form the next series of headings in this chapter.

Table 6.6 Themes generated from the qualitative strand

Research sub-question	Stage	Themes
<i>What factors are impacting teachers' decisions to participate in this university-led educational reform?</i>	Adoption decision	Career progression
		Monetary reward
		Surrounding environment
<i>How are teachers implementing their teaching and learning approaches in this university-led reform?</i>	Implementation process	Initial exploration
		Critical reflection
		Continuous adoption

The next section outlines findings on teachers' adoption decisions, i.e., preliminary answers to the first research sub-question.

6.2 Adoption decision

This section firstly presents findings of drivers to teachers' adoption decisions in this university-led programme. Using thematic analysis, the findings are summarised into three themes as shown in Figure 6.2.

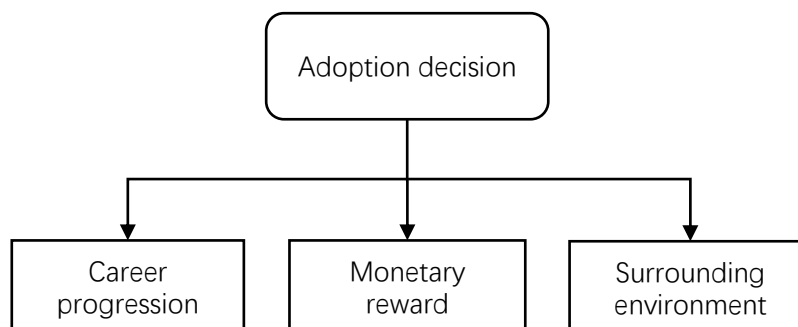


Figure 6.2 Summary of findings regarding teachers' adoption decisions

The interview data revealed that career progression, monetary reward, and surrounding environment were influential drivers to teachers' uptake of the university-guided pedagogical innovation.

6.2.1 Career progression

To encourage teachers' uptake of pedagogical innovations, the institution designed a reward and recognition career pathway as described in Section 2.5.1 of Chapter 2. By responding to my interview question of drivers to teachers' programme participation, one interviewee alluded to the career pathway pertaining to *huoli* programme participants.

"As I have already mentioned earlier, there is little room for career progression for teachers in private higher education institutions" (P3).

The above quote underlines the context of private education systems in China that some teachers in private universities feel their career progression has been constrained. For example, for teachers in this institution, academic ranks decide their career progression and remuneration as professors and associate professors are more likely to secure funding for research projects compared with their lecturer colleagues. In addition, the amount of payment for teaching in this institution is determined by teachers' academic ranks. However, rank promotion is predominantly decided by teachers' publication output while it was

reported that teachers in private universities encountered more challenges of getting their work published by academic journals than their counterparts in public universities (Fan and Qi, 2021).

Therefore, the above quote resonates with Peters' (2019) proposal to develop multiple career pathways in alignment with academics' work responsibilities. Hence, to motivate teachers to participate in the university-led programme, the institution designed a new promotion track (i.e., the *huoli* champion) exclusive to programme participants. The promotion track provided teachers with an additional career pathway in this institution.

"The programme provided a career track for us. That's one of my considerations [about participating in the programme]" (P1).

Teachers' intention of advancing their career progression by participating in the programme was echoed by five other interview participants. Teachers reported that programme participation advanced their careers in the following three aspects:

- Serving as an incubating hub for starting their teaching careers
- Getting promoted to *huoli* champions
- Attaining professional recognition

1. Incubating hub

Teachers perceived their programme participation as the incubating hub for (1) kick-starting their teaching profession, (2) winning teaching awards and (3) advancing teaching and learning focused research. When asked about why teachers in their school were passionate about programme participation, an interviewee responded that beginning teachers in their school were told that the participation in the *huoli* programme was the starting point of their teaching professions.

“When new teachers join [our school], we will arrange induction training programme for them. We will tell them that you should know the pathway of your careers. Then the huoli programme is the first project with which new teachers can engage. You must develop your professional competence as a teacher. After that, you can progress on in other career tracks” (P10).

The vision of improving professional competence by programme participation was echoed by academics in the institution especially by teachers from this school as evidenced in the above quote. It is perhaps the departmental administrators’ advocacy that encouraged more teachers from this disciplinary school to participate in the *huoli* programme than any other schools in this case institution (see Table 2.2 in Chapter 2).

In addition, there is evidence highlighting the improvement of teachers' professional competence in the delivery of teaching and learning approaches. For example, they improved their digital skills by "the construction of course website" (P7) because the *huoli* programme entailed the uptake of online teaching and learning approaches. Furthermore, programme participants gained the edge over their competitors in teaching competitions because they refined their course design and thus "*the adoption laid the foundation [for their participation in teaching competitions]*" (P11). Moreover, teachers perceived that their programme participation should take credit for winning teaching prizes in undergraduate course because they "*built on previous experience, and gradually attained achievements in teaching*" (P8).

The teaching prize in undergraduate course awarded by the local government entailed the design and implementation of innovative pedagogies (Ministry of Education, 2019) and was in line with the vision of the *huoli* programme (Shen University, 2015). Thus, teachers' programme participation laid the foundation for their application to those prizes. In this sense, programme participation served as the hub "incubating" teaching and learning focused prizes and publications.

"It is like an incubating hub for [teaching] research" (P9).

However, for programme participants, winning teaching prizes or advancing teaching and learning focused research might just serve as their transitional goals. An interviewee (P11) commented on their motivation for programme participation.

“After conducting many rounds of teaching research, I achieved something, including publications. I continuously made progress and finally I was promoted to huoli champion. It’s more like motivation, or progression track”
(P11).

The above quote delineates the career pathway for programme participants in this institution. They participated in the *huoli* programme, advanced teaching research, won teaching prizes, and got promoted to *huoli* champions. In this regard, promotion to *huoli* champions may be one of their long-term goals. Next, I discuss teachers’ perceptions of the new career pathway and how the pathway changed their behaviour.

2. Rank promotion

It seemed that some programme participants regarded the promotion to *huoli* champions as one of the ultimate goals of the new career pathway designed by the institution.

“For me, the most motivating factor is promotion, various promotion tracks. You see, I am all qualified except the participation in the huoli programme. And the huoli champions. You must develop your huoli course to get promoted to huoli champion, right? This is very important, for me, the most important factor” (P4).

The impact of the promotion rank of *huoli* champions on teachers’ adoption decisions was evidenced in their passion for entering teaching competitions in this institution. Because being awarded teaching competition prizes at provincial level was one of the promotion criteria for getting promoted to *huoli* champions, some teachers acted decisively to participate in the teaching competitions that they might not otherwise enter.

“Now they [my colleagues] have to enter teaching competitions so that they can get promoted to huoli champions. Actually, they are not made for winners of teaching competitions. But they acted decisively to enter teaching competitions” (P2).

The above quote illustrated how the new promotion criteria changed some teachers’ behaviour in their professional life and led to unintended consequences. The underlying rationale behind the phenomenon is that their intrinsic motivation was bought off by extrinsic rewards (Deci, 1971). Although

teaching competitions in China are professional activities in which teachers demonstrate their teaching expertise such as the delivery of innovative teaching practices, their motivation for entering competitions in this institution was probably influenced by the presence of the new promotion criteria. This is partly because the *huoli* programme provided an additional career pathway that focused on teaching activities rather than research output. As a result, the pathway motivated teachers' re-orientation of their professional activities in the case institution. This contrasts with the widespread phenomenon in higher education settings that some teachers prioritise research over teaching activities (Bruggeman et al., 2021). Therefore, the underlying mechanism triggering teachers' selective devotion to research or teaching activities was context-specific promotion and reward systems.

On the other hand, teachers' passion for winning teaching awards in this institution highlighted the effectiveness of promotion criteria in raising the profile of teaching-related activities in higher education settings. In deep contrast, Ramsden and Martin's (1996) research identified academics' disaffection with teaching awards when they found that those awards from the institution were not counted in promotion decisions. In this sense, the promotion criteria reflect espoused institutional values.

In addition, the unintended consequence suggests that the new career pathway

exerted a controlling effect on academics' professional activities. The controlling effect resonates with the comment shared by one interviewee at the beginning of this section that teachers' career progression in this case institution was constrained. Thus, they participated in those professional activities that would count toward their career progression although some of them were less competitive in those activities. Extrinsic rewards such as teaching prizes per se do not control academics' behaviour. However, when those extrinsic rewards are connected to teachers' career progression, the rewards controlled their behaviour.

Although the promotion criteria geared teachers to participate in promotion-related activities, there was evidence highlighting that intrinsic motivation continued to influence their adoption decisions. The influence of intrinsic motivation on academics' adoption decisions is discussed in the next section.

3. Professional recognition

In addition to rank promotion, teachers' intrinsic motivation also encouraged them to participation in this university-led programme as evidenced in the following quote.

"I think there are two aspects. One is intrinsic factor. It is the intrinsic factor that plays a larger role. That is, internally, you are self-motivated to improve

yourself. I don't want to teach this way. I still want to have some breakthroughs [in teaching]. The demand for our self-improvement. This is the intrinsic factor" (P5).

It could be argued that the "*breakthroughs in teaching*" such as winning teaching prizes developed their "*professional competence as a teacher*" (P10). For experienced teachers, they shared that that the programme participation brought freshness to their teaching careers because they had "*a sense of career burn-out after teaching in this institution for more than one decade*" (P9).

Probably because the *huoli* programme was an institutionally strategic practice which received widespread publicity within the institution, teachers perceived their programme participation recognised by the institution as evidenced in the following quote.

"I felt myself recognised by the institution [from being promoted to huoli champion]. Then I think it encourages me to get the [teaching] job well done...To make my teaching huoli, that's my target" (P2).

The above quote was from an interview with a *huoli* champion. It seemed that programme participation and promotion accorded teachers public esteem in the institution. This was because the esteem boosted "*teachers' presence in the*

school” (P1) and “*recognised academics’ excellent teaching*” (P10).

The above evidence in this section revealed that teachers perceived that their programme participation was “*a career ladder on which they grew and matured*” (P10). The above quotes indicated that programme participants perceived their progression in career tracks. The progression in the institutional context manifested itself in terms of gaining promotion, earning esteem, and attaining high-quality teaching performance.

Therefore, the university-led programme rewarding and recognising innovative teaching practices created an informational aspect that the programme imparted information of competence. Interviewees’ sharing of their professional growth and recognition suggested that their uptake of the guided innovation and promotion to champions affirmed excellence of professional competence. Therefore, the informational aspect of the programme enhanced programme participants’ intrinsic motivation for introducing innovation and change in teaching.

Moreover, extrinsic rewards such as winning teaching prizes and rank promotion provided positive competence feedback for teachers’ programme participation. For example, A total of four interviewees (P6, P8, P9, P11) mentioned their programme participation contributed to their winning of teaching prizes. One

interviewee (P2) perceived their professional recognition from being promoted to champions as evidenced in the quote at the beginning of this section. The positive competence feedback from extrinsic rewards such as teaching prizes and rank promotion had an incremental effect on their intrinsic motivation because those rewards awarded by the local government signified high levels of competence. In this regard, continuous provision of positive competence feedback during programme participation enhanced teachers' intrinsic motivation for their uptake of the guided innovation.

As a manager of this *huoli* programme, I reviewed the statistics on *huoli* champions in December 2023. The institutional data revealed that approximately 30% of the programme participants had been promoted to *huoli* champions. Therefore, for those promoted teachers, there was little room for further progression within the new promotion track. In addition, the promotion to *huoli* champions entailed being awarded national or provincial-level teaching prizes. Those prizes were not easily attainable by all programme participants. In this regard, career progression in terms of promotion might not serve as an effective driver for all teachers. As the university-led programme also accorded teachers repeated monetary reward, I explore its role in teachers' adoption decisions in the next section.

6.2.2 Monetary reward

Teachers reported three types of monetary rewards in interviews:

- Project funding
- Supplementary payment
- Champion subsidy

Firstly, when teachers completed the piloting of their *huoli* courses, they would receive a sum of one-off project funding. Secondly, after the piloting stage, they would repeatedly receive supplementary payment for the teaching of their *huoli* courses upon the completion of the institutional requirements for programme participation, i.e., a set of online teaching and learning approaches (see Table 2.3 in Chapter 2). Lastly, *huoli* champions would receive monthly subsidies accounting for approximately 5-10% of their remuneration.

Although interviewees might have been guarded against commenting on sensitive issues such as financial incentives, there were traces of evidence highlighting the impact of monetary reward on teachers' adoption decisions. It seemed that some academics perceived the reward as the compensation for their investment and effort in the *huoli* programme as evidenced in the following quote.

"The reward is just right there, if you get your job well done, you can get it"

(P11).

In addition, two interviewees (P4, P7) mentioned the “*supplementary payment*”, three of them (P3, P5, P7) commented on the motivating factor of “*project funding supporting the development of high-quality courses*” and three of them (P1, P7, P10) considered the champion subsidy was “*a reflection of programme participants’ additional reward compared with non-programme participants*”. It seemed that teachers considered the incentives as a reward for their extra investment and effort. This was because the adoption of the university-guided pedagogical innovation entailed extra workload regarding the fulfilment of the institutional requirements. In this regard, the provision of monetary reward boosted teachers’ performance in the practice of teaching and learning approaches.

Accordingly, the provision of monetary reward for teachers’ uptake of the university-guided pedagogical innovation greatly boosted the relative advantage of innovation adoption. As relative advantage is the prime attribute of innovations (Rogers, 2003), the amount of advantage that adopters could gain from innovation adoption affects their adoption decisions. In this institution, teachers gained considerable advantage because the adoption of the university-guided pedagogical innovation awarded them monetary reward and pay rise as evidenced in the following quote.

“I think many teachers participated in the programme for pay rise, didn’t they? The most important thing is pay rise ” (P2).

Although in Section 6.2.1 interviewees stated that their programme participation served as the incubating hub for winning teaching prizes and advancing teaching research, their comments might not represent the perceptions of all programme participants. This was because they might have provided socially desirable answers in interviews. For those teachers whose chances of winning teaching prizes were limited, their perceptions of the relative advantage gained from programme participation were evidenced in the following quote.

“Definitely everyone is for the supplementary payment. The so-called teaching prize. We don’t care. Because the competition for those prizes is quite intense. So nobody cares [about those teaching prizes]” (P2).

As the supplementary payment described in the above quote amounted to the same as monetary reward or teachers’ remuneration in this case institution, the interviewee’s (P2) sharing suggested that there were programme participants who attributed the cause of their uptake of the university-guided innovation to the collection of monetary reward. In this regard, not all programme participants expected themselves to get promoted to *huoli* champions. Although winning national or provincial-level teaching prizes was the promotion criteria for *huoli* champions, they might have perceived that the chances of winning those prizes were slim. The number of teaching prizes awarded within the institution could shed more light on understanding the impact of monetary reward on teachers’

adoption decisions. Institutional data revealed that from 2020-2022, a total of 32 teachers were awarded teaching prizes in undergraduate course. In this regard, for programme participants, receiving monetary reward was an easily attainable goal in near future. Therefore, monetary reward might have played a critical role in influencing teachers' adoption decisions.

To further explore the impact of extrinsic rewards on teachers' adoption decisions in this institution, I collected institutional data on the number of programme applicants from 2016 to 2022. In addition, I reviewed institutional documents on the enactment of institutional incentive policies to examine whether there was a relationship between programme participation and those policies. Figure 6.3 shows the number of programme applicants from 2016 to 2022.

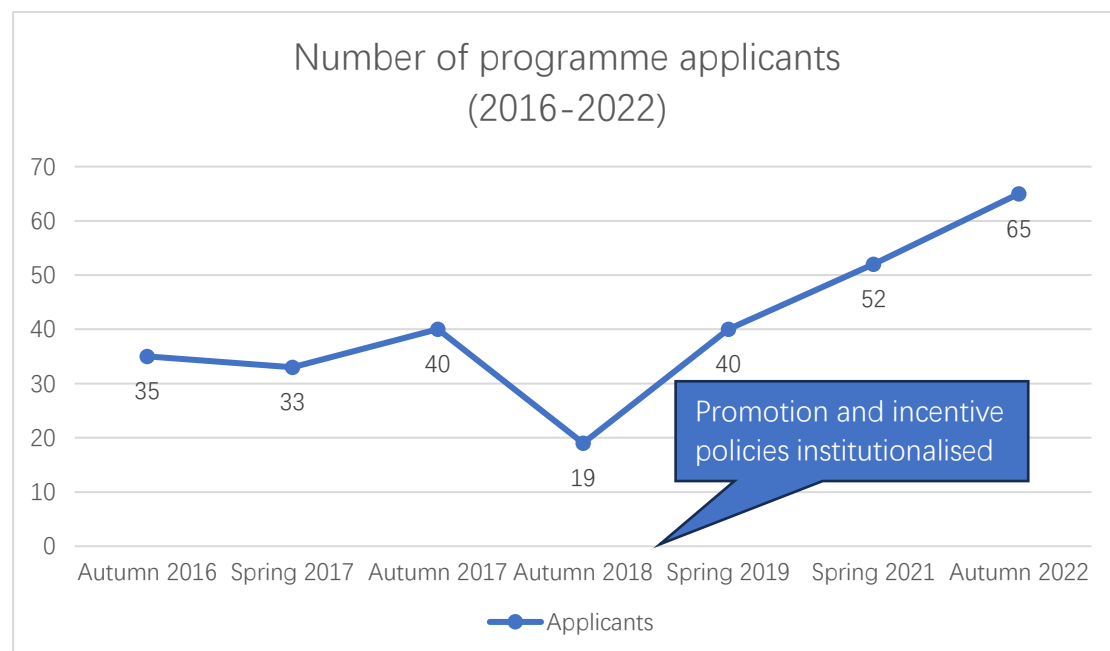


Figure 6.3 The number of programme applicants from 2016 to 2022

Note: The number of applications is higher than that of approved courses shown in Table

2.2 in the chapter of research context because not all applications were approved by the institution.

The above graph reveals that there was a dip in autumn 2018 because voluntary applicants dropped dramatically probably because teachers were uncertain about what they could gain from programme participation. Although the case institution announced the introduction of incentivisation when the programme was initiated, the reward for teachers' uptake of the guided innovation was provisional (Shen university, 2016b). However, the number of applicants took off since 2019 probably because institutional policies regarding career progression and monetary reward were finally institutionalised in 2018. Firstly, in December 2018, the institution revised its original payment scheme for teaching. The revised scheme accorded all *huoli* courses supplementary payment. Secondly, in December 2018, the institution promoted 26 *huoli* champions and since then the promotion activity takes place once every two years. Therefore, the extrinsic rewards of supplementary payment and rank promotion might have supplied academics a powerful incentive for their uptake of the guided innovation.

In addition, it seemed that monetary reward controlled some academics' behaviour. In 2020, there was a rumour circulating within the institution that the programme would be suspended and the rumour caused some disruptions to teachers' adoption decisions.

"I'm just saying, not all courses are fit for huoli. But now to attain pay rise, [teachers participated in the programme]. Because we all thought this was the last term for the institution to approve huoli courses, so nobody would let this chance slip. But is the course fit for huoli teaching and learning approaches?" (P2)

The above quote provided further evidence illustrating that monetary reward exerted a controlling force on academics' behaviour. Academics acted decisively to apply for *huoli* courses because the *huoli* programme was rumoured to be suspended in the future. Another interviewee (P4) also mentioned "a sense of urgency to apply" for developing *huoli* course under the influence of the circulated rumour. The "sense of urgency" to apply for *huoli* course was probably attributed to teachers' limited pathway for pay rise in this institution. Therefore, the limited pathway for pay rise could have contributed to the creation of the controlling effect of extrinsic rewards on teachers' behaviour.

In addition, the above quote from the interviewee (P2) suggested that extrinsic rewards might undermine their intrinsic motivation for the uptake of the guided innovation. The interviewee (P2) shared that some teachers might have participated in the programme without due consideration to the alignment between course objectives and the institutionally advocated teaching and learning approaches. The undermining effect was probably attributable to a shift

in academics' cognitive evaluation of the cause of their uptake of the university-guided innovation. For example, the interviewee (P2) argued that pay rise was their goal of programme participation. Thus, the innovation was more than introducing change in undergraduate teaching. Academics could repeatedly obtain expected monetary reward from their uptake of the guided innovation. Therefore, some of them might have perceived the uptake of the guided innovation as the means to obtain pay rise. In such circumstances, they did not pay due attention to the intrinsic motivation for their uptake of the innovation. As a result, they sometimes chose the courses which were unfit for the institutionally advocated teaching and learning approaches. In this regard, academics' cognitive re-evaluation of the cause of their innovation adoption turned their attention from introducing innovative pedagogies in undergraduate teaching to obtaining extrinsic rewards. Consequently, the cognitive re-evaluation undermined their intrinsic motivation.

Section 6.2.1 and 6.2.2 revealed that the drivers of career progression and monetary reward boosted the visibility of teaching activities in this institution and hence, increased the chance of "observing successful others". The observation shaped a third driver, namely surrounding environment to teachers' adoption decisions. I explore its role in the next section.

6.2.3 Surrounding environment

The surrounding environment facilitated teachers' adoption decisions by exerting the influence of peer pressure and institutional climate on potential adopters.

1. Peer pressure

Teachers were closely observing their colleagues' innovation adoption and the observation created peer pressure on potential adopters. The perception of "lagging behind" was evidenced in the following quote.

"If I have not adopted [the huoli course] while my colleagues adopted, the feeling is like I am lagging behind. I think other teachers may have the same feeling. They just don't want to be left behind" (P2).

Moreover, peer pressure was also premised on the observation of successful others.

"Motivation from colleagues. Haha. It is very influential. You can sense the atmosphere of my office. They are all very active, not just in the participation in the huoli programme, but also in other aspects. For example, they are very active in their promotions" (P4).

The above quote reveals that the pressure from colleagues' adoption, or peer pressure in the diffusion of innovations was related to the advantage they could gain from innovation adoption. In addition, the quote resonates with Dany et al.'s (2011) argument that academics' uptake of professional activities is sometimes oriented towards the pathway of their career progression, especially the promotion of their academic ranks. In this regard, career progression is an influential factor impacting teachers' orientation of their professional activities as also evidenced in this private university in China. As the institution developed a promotion pathway for programme participants, the competition for getting promoted to *huoli* champions among teachers encouraged them not to "miss a step" in their promotion track as evidenced in the following quote.

"Look at the atmosphere in my office. Now everyone is taking turns in entering teaching competitions. Because we all know everyone has adopted the huoli course, so our next goal is the promotion to huoli champion. The first one to win teaching competition award will be the first one to get promoted to huoli champion " (P2).

Two interviewees (P2, P4) mentioned "*atmosphere*" and thus, it seemed that there was an atmosphere of fierce competitions between peer colleagues because teachers were closely observing each other the career progression of their colleagues. This is in line with the phenomenon of "watching while being

watched” in the diffusion of innovations (Rogers, 2003). The phenomenon refers to people basing their adoption decisions on their expectation of other members’ future behaviour as the behaviour is perceived as the group choice within the social system. Accordingly, the phenomenon contributed to shaping peer pressure relating to innovation adoption. In addition, peer pressure derived from interpersonal communication channels made the extrinsic rewards more controlling on academics’ behaviour.

However, it could be argued that the presence of peer pressure in the institutional context was inseparable from the boosted relative advantage teachers could attain from the adoption. In this regard, the visibility of the potential gains from innovation adoption is grounded in the flow of information through interpersonal communication channels. Consequently, the two diffusion elements, namely innovation attributes (e.g., visibility and relative advantage) and communication channels are intertwined with each other in the diffusion of innovations.

2. Institutional climate

The “atmosphere” of competing for programme participation and getting promoted to *huoli* champions in turn might have shaped an institutional climate encouraging the adoption of the institutionally advocated teaching and learning approaches as evidenced in the following quote.

“You can’t help but feeling the climate. Nowadays, we must innovate our teaching pedagogy. This is influenced by your surrounding environment. It is not just from the institution. All your colleagues have changed their teaching pedagogies” (P8).

Under the influence of the institutional climate, the adoption of innovative teaching and learning approaches had become academics’ normative practices in the classrooms. Teachers considered the programme participation as a *“fad that everyone wants to participate in”* (P9). In this sense, there was a perception among teachers that the adoption of the university-guided pedagogical innovation was an “institutional fad”. The perception indicated that teachers were imitating exemplary teaching and learning approaches from their colleagues. Moreover, the imitation was encouraged and rewarded by the institution.

6.2.4 Section summary

Based on evidence gathered from the data set of semi-structured interviews, the section identified three drivers (i.e., career progression, monetary reward, and surrounding environment) to teachers’ adoption decisions in this university-led programme by answering the first research sub-question.

What factors are impacting teachers’ decisions to participate in this university-led educational reform?

By analysing the data set of semi-structured interviews, I propose that:

Career progression, monetary reward, and surrounding environment synergistically jump-started teachers' uptake of the university-guided pedagogical innovation.

The programme rewarding and recognising innovation and change in undergraduate teaching provided teachers with a career pathway through which they developed their professional competence, won teaching prizes, and gained promotions. Therefore, career progression enhanced the informational value, or positive value properties of the guided innovation. Teachers perceived that the uptake of the guided innovation signified high levels of professional competence as evidenced in their sharing of professional recognition (P2, P10) in interviews. In addition, the progression achievements down the pathway provided academics with positive competence feedback during their innovation adoption. Qualitative data in this section revealed that both the informational value of the guided innovation and positive competence feedback during teachers' programme participation contributed to the enhancement of their intrinsic motivation.

Monetary reward for academics' professional practices reflects the goal and values of an institution (Wolcott, 1997). The provision of supplementary

payment, project funding, and promotion subsidies effectively boosted the relative advantage of the uptake of the guided innovation, encouraged teachers' extra investment in the delivery of innovative teaching and learning approaches, and boosted their performance in teaching activities.

The influence of surrounding environment manifested itself in term of peer pressure and institutional climate. However, the influence was premised on the boosted advantage of innovation adoption by providing career progression and monetary reward for programme participants. The influence might wane or even disappear if the relative advantage of adopting the university-guided pedagogical innovation is withdrawn by the institution.

However, it needs to be mentioned that some interviewees commented on their programme participation in hindsight. For example, for those who successfully got promoted to *huoli* champions, they (e.g., P11) could have emphasised their promotion in interviews (see Section 6.2.1). The hindsight could have influenced their indication of various drivers and barriers to their uptake of the guided innovation in my research. I will further discuss the impact of programme participants' hindsight on their responses to interview and survey questions in later sections and chapters.

In addition, unintended consequences emerged as (1) the promotion criteria

geared teachers towards meeting the criteria (2) and some teachers ignored the alignment between the pedagogies and course objectives in their applications to the institution to develop *huoli* courses. The unintended consequences described in Section 6.2 suggested that extrinsic rewards exerted a controlling effect on academics' professional activities and had an undermining effect on some teachers' intrinsic motivation in this case institution. The undermining effect is partly attributable to the shift in teachers' cognitive re-evaluation of the cause of their innovation adoption.

In the next section exploring teachers' implementation process, I further elaborate on the rationale behind the unintended consequences relating to teachers' programme participation and how an institutional reward system exerted a controlling effect on academics' behaviour.

6.3 Implementation process

This section discusses how the programme participants implemented their *huoli* courses in the university-led educational reform. Findings in this section draw on two qualitative data sets, which are semi-structured interviews and teachers' reflective commentaries.

In this section, I used time as the thread to generate the themes regarding teachers' implementation process. Accordingly, I categorised their

implementation process into three developmental stages, which are **initial exploration**, **critical reflection** and **continuous adoption** as shown in Figure 6.4.

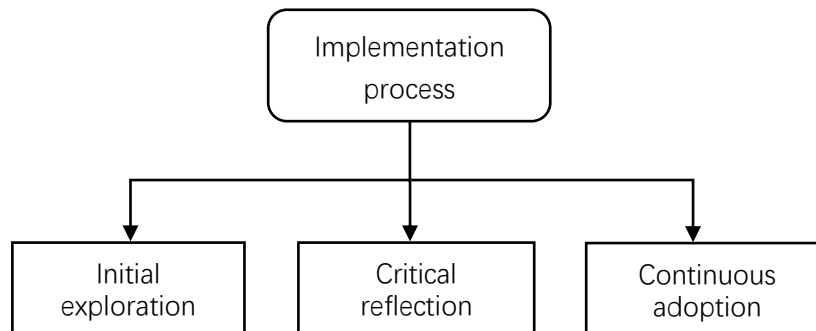


Figure 6.4 Summary of findings regarding teachers' implementation process

Programme participants initially explored the exemplary pedagogies outlined by the institution. The practical experience triggered their critical reflection of those pedagogies. After evaluating the gains and barriers to the adoption of the university-guided pedagogical innovation, most of them continued their adoption and adapted the teaching and learning approaches specific to the needs of the institutional requirements and their course objectives. The developmental stages of teachers' implementation process are shown in Figure 6.5.

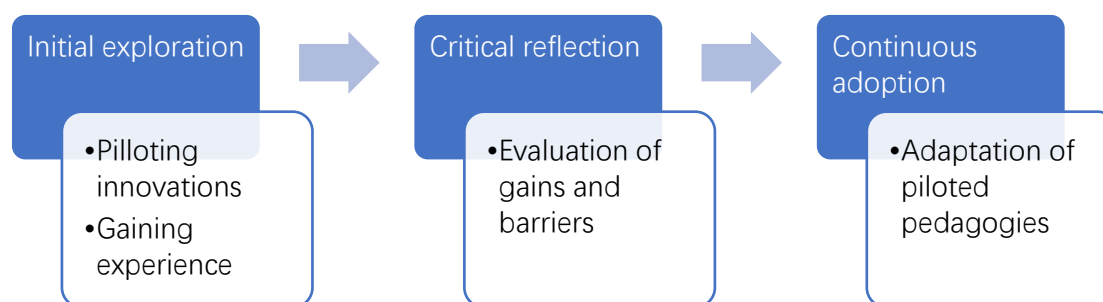


Figure 6.5 The developmental stages of teachers' implementation process

6.3.1 Initial exploration

For programme participants, they were tasked with the mission of translating the objective of the university-led programme, i.e., *huoli* into specific teaching and learning approaches. There was considerable uncertainty about programme participation in the initial stage. The perception was evidenced in the following quote.

"I think the initial stage of my programme participation was like crossing the river by feeling the stones" (P2).

The interviewee (P2) used a Chinese proverb "*crossing the river by feeling the stone*". The proverb was popular in China when China initiated the policy of reform and opening to the outside world in the late 1970s. The proverb denotes exploration and adjustment when practitioners set foot in unfamiliar territory. Thus, the interviewee (P2) from cohort 3 used the proverb to suggest that initially they were uncertain about the implementation of the university-guided

pedagogical innovation. Three more interviewees in the early cohorts shared their initial experiences of programme participation in semi-structured interviews. For example, they commented that the programme “*was a little confusing and not very clear*” (P9, cohort 3) and “*didn’t know how to do it*” (P8, cohort 2). In addition, they were unsure how the programme could advance their careers as they initially thought it was “*just a small-scale research project*” (P11, cohort 2).

The above evidence highlighted the fact that the practice of the university-guided innovation, i.e., *huoli* course was still perceived as new by the programme participants when they participated in the programme. Accordingly, the guided innovation carried little informational value from programme participants’ perspectives. Therefore, programme participants might have limited intrinsic motivation for their uptake of the innovation. Consequently, to reduce uncertainty about the pedagogical innovation, the institution provided teachers with support for course design.

1. Support

Teachers reported that both the institution and their colleagues supported them in the design of their *huoli* courses. The institution provided the following support facilitating teachers’ course design:

- Institutional guidelines (programme vision and a pedagogical model)

- Teacher training workshops and handouts printed by the institution

The institution clarified the vision of the programme (see Section 2.4.4 in Chapter 2) upon the launch of the university-guided pedagogical innovation. The vision emphasised that (1) lecture-based teaching should be replaced with student-centred pedagogies and (2) the purpose of the programme was to foster student thinking abilities. In this sense, the vision delivered an institutional definition of *huoli* as (1) student-centredness and (2) student empowerment in thinking abilities. There was evidence illustrating that teachers perceived student-centredness as the major objective of the programme probably due to the influence of the vision.

“Before I participated in the programme, I predominantly adopted lecture-based teaching, and the students just passively listened to my lecture in class” (P5).

Moreover, the vision assisted teachers in adopting the university-guided pedagogical innovation by listing exemplary student-centred pedagogies. Therefore, the recommended teaching and learning approaches from the vision influenced programme participants’ course design. For example, they introduced *“lots of group discussions” (P8)* and *“enhanced interactions in class” (P10)*.

Grounded in the programme vision, the institution outlined a pedagogical model (see Figure 2.2 in Section 2.4.6, Chapter 2) guiding teachers' design of their *huoli* courses. The model enhanced the institutional definition of *huoli* by enumerating exemplary in-class and out-of-class student-centred pedagogies. In addition, innovative use of technology in teaching and learning was included in the model. Therefore, the model effectively instructed teachers how to implement the university-guided pedagogical innovation because it offered teachers a "*a preliminary framework*" (P9), informed them "*what teachers and students should do before class and after class*" (P2), and encouraged them to "*establish connections between all the learning activities inside and outside the class*" (P8).

However, student empowerment as part of the *huoli* outlined by the institution was not incorporated into the model. As the model received much more publicity among programme participants than the programme vision, it might have solidified teachers' understanding of *huoli* as student-centredness when they initially designed their *huoli* courses. This was evidenced in the fact that only 11 teachers incorporated student empowerment in thinking abilities into their course design after I reviewed all programme participants' reflective commentaries.

In addition to the programme vision and model, the institution organised training

workshops to improve teachers' digital expertise. Engineers from software vendors were invited to deliver a series of training workshops for teachers. They reported the workshops "*helped a lot in enhancing teachers' mastery of digital skills regarding the new VLE platform*" (P8). Moreover, teachers responded that the printed handouts from the institution facilitated their course design because the handouts contained "*the summary of prior experience*" (P8).

In addition to the support from the institution, the presence of teachers' colleagues also reduced the uncertainty about innovation adoption. Their colleagues shaped three types of interpersonal communication channels facilitating the uptake of the pedagogical innovation:

- demonstration lessons
- project reports
- colleagues' informal mentoring

The practice of demonstration lessons was part of teachers' programme participation and open to all staff in the institution. In demonstration lessons, teachers observed exemplary classroom practices performed by their colleagues. As programme participants were required to document the staff who observed their demonstration lessons, I reviewed the project reports and found that observers and practitioners of demonstration lessons were usually from the same disciplinary school. Thus, information regarding the practice of

the pedagogical innovation trickled from experienced practitioners to potential adopters and the meaning of the innovation became clearer to new and potential adopters as evidenced in the following quote.

“I think the information [obtained from demonstration lessons] is very important. I knew how to make the students more engaged in class. I learned from the sharing of teaching from my colleagues within the institution” (P8).

Project reports were the second type of communication channels through which teachers learned from their colleagues. Teachers were required to submit documents containing their lesson plans, slide shows, and their students' learning outcomes (e.g., project, presentation, and assignment) to progress in programme participation. Those reports were public documents within the institution and teachers could apply for reviewing those reports from the institution. In some cases, they turned to their colleagues for the review of those reports as evidenced in the above quote. Thus, by reviewing their colleagues' project reports, programme participants were better informed of the implementation of the university-guided innovation because they *“learned from their [colleagues'] prior adoption experience”* (P5).

In addition, teachers exchanged their practical experience of the delivery of

teaching and learning approaches in informal occasions. Thus, informal mentoring further facilitated the implementation process because teachers obtained “*inspiration*” (P1) from their colleagues.

In this regard, this section has demonstrated that a combination of communication channels contributed to the flow of information about the guided innovation in the institution. The institutional guidelines, institutional handouts, and teacher training workshops served as heterophilous communication channels while the demonstration lessons, project reports, and teachers’ informal mentoring constituted homophilous communication channels (the definitions of heterophilous and homophilous communication channels are presented in Section 4.1 of Chapter 4) in the diffusion of this university-guided innovation.

However, the teaching and learning approaches practised in demonstration lessons and the project reports submitted to the institution embodied the institutional requirements for programme participation. Thus, the demonstration lessons and project reports might have further solidified teachers’ understanding of *huoli* as student-centredness in the piloting stage. Moreover, teachers might have perceived that they were encouraged to imitate the institutionally advocated pedagogies in the classrooms. The imitation behaviour was evidenced in their course design which is covered in the next section.

2. Design

Under the support from the institution and their colleagues, teachers adopted a blend of student-centred teaching and learning approaches. I reviewed teachers' reflective commentaries and identified the pedagogies from 222 *huoli* courses. Table 6.7 presents the pedagogies teachers delivered in the piloting stage.

Table 6.7 Pedagogies delivered by programme participants in the piloting stage

Pedagogy	Number of courses¹ (%)
Flipped learning	185 (83.3)
Team-based learning	186 (83.8)
Multi-dimension assessment	118 (53.2)
Case/ project-based learning	139 (62.6)
Online learning centre/ Learning app²	128 (57.7)
Mind map	29 (13.1)
Learning by doing	25 (11.3)
Field trip	19 (8.6)
Link with industry	7 (3.2)
Portfolio assessment	7 (3.2)
Computer simulation	5 (2.2)

Note:

1. As teachers usually adopted more than one teaching and learning approach, the number of courses in the second column of the table does not add up to the total number of all *huoli* courses.

2. Online learning centre/ Learning app refers to the institutionally approved Virtual Learning Environment (VLE) in which teachers can deliver various online teaching and

learning approaches such as opinion polls. The approaches can also be delivered through a mobile application called “Learning app” on phones.

Table 6.7 reveals that the most popular teaching and learning approaches are flipped learning (83.3%), team-based learning (83.8%), multi-dimension assessment (53.2%), case/project-based learning (62.6%), and learning approaches on the Online learning centre/Learning app (57.7%). The above-mentioned pedagogies were all listed in the pedagogical model outlined by the institution. Other pedagogies such as mind map (13.1%) or learning by doing (11.3%) were not the dominant teaching and learning approaches and they were used by only a minority of programme participants perhaps because those pedagogies were not present in the pedagogical model.

The review of the pedagogies that teachers adopted in their piloting stage suggested that institutional guidelines played a dominant role in influencing the design of their *huoli* courses. The underlying rationale is that the guidelines delivered an institutional definition of *huoli* and thus, implied institutional expectations of programme participation. Fuelled by the provision of demonstration lessons and documents of project reports, imitations of the institutionally defined *huoli* occurred on a large scale in the classrooms among programme participants. Therefore, the guidelines effectively contributed to teachers’ widespread uptake of the institutionally advocated pedagogies. The phenomenon resonates with the findings from existing literature that

institutional guidelines and support are indispensable in the implementation of university-guided pedagogical innovations (Ertmer, 1999; Garrison and Vaughan, 2013).

However, the coming sections will demonstrate that when teachers gained practical experience from the imitations of exemplary teaching and learning approaches, they became more critical in the conceptualisation of *huoli* in their classrooms. Their critical reflection encouraged them to develop their independent understanding of high-quality teaching and learning performance. As the institutional definition of *huoli* remained comparatively constant, teachers' developmental understanding of *huoli* might have triggered a mismatch with the institutional definition.

In addition, the review of teachers' course design suggested that the institutional guidelines such as the pedagogical model had a tight control over programme participants' selection of piloted pedagogies. The likely ramification of this phenomenon was that teachers might perceive their experience of innovation adoption as being controlled. The perception of being controlled was evidenced both in the qualitative and quantitative strand of my research. I will present further details about teachers' demand for more academic autonomy in their programme participation in the following sections.

Consequently, the mismatch in the understanding of high-quality teaching and learning performance and teachers' experience of being controlled might have led to more unintended consequences. In the next section I discuss teachers' critical reflection after their initial exploration of the university-guided innovation. Moreover, teachers' reaction to the controlling aspect of the institutional guidelines is also presented in the next section.

6.3.2 Critical reflection

In the diffusion of innovations, adopters' evaluation of innovation adoption plays a critical role in their decisions to continue the adoption and thus, it is possible that adopters might discontinue their adoption after initial exploration (Rogers, 2003). In educational settings, Garrison and Vaughan (2013) reported the discontinuation of a blended learning initiative among academics in a Canadian higher education institution. Discontinuation of innovation adoption in this case occurred partly because adopters perceived that the adoption did not bring expected gains after their critical evaluation.

In this regard, this section explores teachers' reflection on the practical experience they gained from the piloting stage. By understanding their reflection process, I explored the drivers and barriers to their continuous uptake of the university-guided pedagogical innovation. Programme participants reported that their uptake of the guided innovation brought about transformation

in existing teaching and learning experience.

1. Transformation

Before the initiation of the university-led *huoli* programme in 2016, teachers in this institution predominantly adopted lecture-based teaching. Lecture-based teaching was argued to pose a hindrance to quality student learning experience in the Chinese higher education system (Shi and Liu, 2022). In addition, the use of technology was not widespread in teaching and learning in this case institution. It is in this context that the institution initiated a pedagogical change programme to improve its undergraduate education (see Chapter 2). Therefore, when teachers piloted student-centred teaching and learning approaches, they perceived that the “*huoli course transformed traditional pedagogies*” (R263). The sense of transformation was an indication that teachers gained fairly fresh experience from the piloting stage and they perceived that student learning experience was improved. The perception was evidenced in their comments in interviews. For instance, they shared that “*after the piloting, the interaction between teacher and students was strengthened*” (P5) and “*the students were gradually getting engaged in the class because they played the major role in learning*” (P8).

The enhanced teacher-student interaction was partly attributable to the use of technology in teaching. As “*the students preferred the use of electronic devices*

in class" (R350), various teaching and learning approaches delivered from the Online learning centre, the institutionally approved VLE brought freshness to class. For example, opinion polls in class sessions "*broke the routine of just listening to teachers' lectures without any participation on the part of the students*" (P1). In addition, teachers commented that technology reduced marking time and enabled "*timely feedback in students' learning process*" (P1).

By tradition, students are required to raise their hand and stand up to ask and answer questions in China. The practice is also common in class sessions in the case institution. Thus, the use of technology was conducive to introverted students' active participation in the classrooms because they "*did not have to stand up to answer questions*" (R49) and they could "*actively voice their opinions in online environment*" (R51). In addition, students' participation in online learning approaches could be anonymised by their teachers. For example, teachers could "*anonymise the students who mark the assignments of their peers*" (P4). Therefore, the anonymity of online participation could have been a contributing factor to enhanced student engagement in online learning environment.

Moreover, the provision of rich learning resources on the Online learning centre benefited the students' learning experience in two aspects. Firstly, "*it was easier for the students to understand the dense subject contents*" (P1) by reviewing

the video clips made of computer animation. Secondly, the students could *“access those learning resources [on the Online learning centre] and review the resources at a pace that suits them”* (P7).

On teachers' side, they reported that the efficiency of their class management was improved by the introduction of technology. For example, they could *“keep track of the students' real-time learning process”* (R27) and use the phone to take attendance or *“access the instructional materials anytime on mobile devices”* (R18).

The above evidence highlighted the fact that student-centred pedagogies transformed the way to deliver teaching and learning in the institution. In addition, technology enhanced teachers' practices and made learning more accessible to their students. Thus, programme participants' sharing of the improvement of student learning experience was an indication that the guided innovation created information that signified a degree of excellence of performance. The excellence of performance might contribute to (1) boosting teachers' perceptions of their professional competence and (2) enhancing their intrinsic motivation for introducing innovation and change in teaching. However, teachers also reported considerable challenges in the implementation process.

2. Challenge

The challenges teachers encountered were:

- extra time commitment,
- mixed student engagement and abilities,
- lack of infrastructure, and
- their disaffection with the institutional requirements.

13 teachers commented in their reflective commentaries that the uptake of the student-centred teaching and learning approaches entailed extra time and effort. The extra time commitment was partly attributed to course development (e.g., course website) and mastery of digital skills. For example, teachers commented that they *“spent large amounts of time on collecting and creating video clips and handouts for pre-class flipped learning”* (R214). In addition, as programme participants were required by the institution to deliver certain quantities of online teaching and learning approaches, the institutional requirements added extra time and effort in course management. For instance, three interviewees (P1, P3, P9) reported that the duty of following up students’ online learning activities (e.g., responding to students’ queries and monitoring their learning progress) outside the class put extra workload on them.

“Because after class, actually you have a lot of online instructional practices to administer. For example, setting online assignments, responding to students’ queries or providing feedback” (P9).

The above evidence suggested that teachers still perceived that the day-to-day

delivery of teaching and learning approaches entailed extra investment and effort. In this regard, it could be argued that the workload issue relating to teachers' uptake of pedagogical innovations in the institutional context was alleviated over time, but it might still pose a major disincentive to their decisions to continue the adoption.

The second challenge teachers encountered was mixed student engagement and abilities as evidenced in the following quote.

"The most challenging thing is that the students are not what you expected. Your teaching was well planned. But when you implemented your teaching and learning approaches, the effectiveness was compromised. No matter how you passionately motivated them, they were just not engaged and reluctant to interact with you. The class was just inactive" (P10).

Three interviewees (P5, P7, P11) shared that the students were less engaged in pre-class learning activities as *"the completion rate of (online assignments) for each chapter was only 50%"* (P7). Similar comments were evidenced in teachers' reflective commentaries and they added that *"some students' self-learning engagement needed to be improved"* (R39). Low student engagement compromised the quality of in-class group work because *"only the group leader was working on the group work"* (R93). In addition, teachers reported the

phenomenon of “*free riding*” (R249) in group work as some students contributed less or nothing to the completion of their group work.

Teachers summarised the underlying rationale behind low student engagement with student-centred pedagogies. Firstly, there was considerable variability in students’ personality traits as “*the introverted students tended to be passive in class*” (R249). Secondly, 15 teachers added in their reflective commentaries that their students were too busy to complete the out-of-class learning activities. Thirdly, some students had no prior experience of student-centred learning and thus, they “*were not used to group work and inquiry-based learning*” (R181). Lastly, four teachers in their reflective commentaries and two interviewees shared that their students’ abilities were not up to some teaching and learning approaches. For example, in a language class, some students “*could not express their ideas or opinions freely constrained by their mastery of grammar or vocabulary*” (R286). In such circumstances, the students were passive in class and they needed “*spoon feeding*”, or “*teachers’ input in self-learning activities*” (P5).

The third challenge teachers faced was lack of infrastructure support. For example, as some of the classrooms were not covered by Wi-Fi connection, “*time was wasted in waiting*” (R67) for the download of online learning resources. Two teachers reflected that the Online learning centre crashed

because of “*large class size*” (R11, R242). Moreover, the classroom layout was not “*conducive to the implementation of team-based learning*” (R223, R237).

The last challenge was teachers’ disaffection with the institutional requirements for programme participation. The requirements were a set of online teaching and learning approaches that teachers were required to deliver in their *huoli* courses. Details about the requirements were outlined in Table 2.3 of Chapter 2. Those requirements drew teachers’ critiques as evidenced in the following quote.

“Some teachers told me that the use of online teaching and learning approaches felt like jilei (chicken ribs). They were quite dissatisfied with the institutional requirements” (P7).

The interviewee (P7) used the word “*jilei*” to refer to the delivery of the institutionally required teaching and learning approaches. In Chinese language, “*jilei*” refers to “*chicken ribs*” and the phrase denotes something of little value. This is because chicken ribs are not as tasty as other parts. But if they are thrown away, it will be a waste of food. The word “*jilei*” in Chinese culture conveys people’s strong disaffection with specific professional practices. As one anonymous programme participant used the word describing the institutional requirements in an interview conducted by the institution in 2022

(see Section 2.5.2 in Chapter 2), the emergence of the emotional word in my research further reflected that teachers were unsatisfied with the fulfilment of the institutional requirements.

The probable reason for teachers' disaffection was the misalignment between the institutional requirements and course objectives as teachers stated that *"some of the online teaching and learning approaches may not fit into some courses"* (P1). Thus, the institutional requirements confined teachers' professional autonomy in course design and reduced their perception of self-determination. Thus, teachers might perceive their adoption of the guided innovation as being controlled. In addition, the institutional requirements might have disrupted their teaching sessions as they *"had to spend large amounts of time in class delivering various online teaching and learning approaches"* (P11).

Another probable explanation was that teachers considered the delivery of the institutionally required teaching and learning approaches did not always improve student learning after critical reflection. In the next section I explore teachers' evaluation of the teaching and learning approaches in detail.

3. Comparison

The preceding section revealed that teachers gained mixed experience during their piloting stage. The practice of innovative pedagogies improved classroom

teaching and learning. However, considerable challenges abounded. Therefore, programme participants compared the university-guided innovation with lecture-based teaching they used to deliver prior to programme participation. The comparison encouraged them to evaluate whether the pedagogical innovation could replace the original lecture-based teaching. Consequently, the evaluation process was critical to their decisions to continue the adoption and served as the tipping point in teachers' implementation of the university-guided pedagogical innovation. Programme participants responded that student-centred pedagogies could not replace lecture-based teaching due to:

- lack of efficiency in covering course contents and
- failing to benefit all students.

Firstly, teachers perceived that student-centred pedagogies were not effective in covering scheduled course contents on time. For example, five teachers commented in their reflective commentaries and interviews that the delivery of student-centred pedagogies was time-consuming because in team-based learning, the students "*disagreed with each other and the learning efficiency was low*" (R70) and the teachers could not "*cover all the course contents*" (P1). Some teachers perceived that student-centred pedagogies and lecture-based teaching were two dichotomous approaches and thus, it was challenging for them to balance the two approaches. The perception was evidenced in the following quote.

"Because you need to assure the quality and effectiveness of your teaching.

At the same time, you also need to make the students engaged and active in class. It is pretty challenging, isn't it?" (P4).

There are three possible explanations for teachers' complaints about the low efficiency of student-centred pedagogies:

(1) Teachers might still hold a teacher-centred belief in teaching because they perceived that their course goals were to transmit all the subject contents covered in their traditional course structures.

(2) As teachers were required to submit their teaching plans to the institution, they were held accountable for completing their plans on time. However, they realised that it was challenging to cover all the teaching contents in student-centred learning modalities because the delivery of those pedagogies was time-consuming.

(3) It was likely that teachers were still developing their professional competence in the implementation of student-centred teaching and learning approaches. Thus, they were still exploring how to effectively teach their students by student-centred pedagogies. Consequently, student learning outcomes such as group projects or presentations might have failed to reach teachers' expectations in the piloting stage.

In addition, teachers perceived that student-centred pedagogies did not benefit

all students. For example, because of mixed student engagement and abilities, some students *“had fewer opportunities to participate in in-class learning activities”* (R315) and *“the effectiveness of flipped learning was compromised due to [some students’] poor self-learning abilities”* (R84). Accordingly, 8 teachers shared in their reflective commentaries that the student-centred pedagogies were not fit for all students as evidenced in the following quote.

“For highly engaged students, the student-centred modality is fit for them and they benefit from it. While for those low-achieving and less engaged students, they may oppose or fear the pedagogies because those pedagogies require them to spend a considerable amount of time on self-directed learning and preparation after class” (R118).

The above comment also highlighted teachers’ concern for “weaker” students in student-centred learning modalities. This is in line with Skelton’s (2005) investigation of ordinary teachers and students’ perception of excellent teaching in the classrooms. In the context of this research, teachers perceived that the delivery of student-centred pedagogies harmed the interests of low-achieving and less engaged students because they had fewer chances in participating in learning activities. The concern for “weaker” students was the indication that some programme participants gradually shaped their own understanding of high-quality teaching and learning performance in the case institution. In this

regard, teachers perceived that high-quality teaching and learning performance was premised on inclusivity and thus, fostering an equitable learning environment for all individual students.

Probably due to mixed student learning experiences in student-centred pedagogies and teachers' concern for weaker students after the piloting stage, programme participants began to re-evaluate lecture-based teaching. Two interviewees (P8, P10) shared that lecture-based teaching should not be replaced by student-centred learning. When asked about the challenges teachers encountered in the implementation process, one interviewee (P8) shared that they used to doubt the effectiveness of lecture-based teaching in improving student learning as lecture-based teaching was intended to be replaced by student-centred pedagogies in this *huoli* programme. However, they changed their perceptions as evidenced in the following quote.

“Originally, I thought lecturing-based teaching was not good at all and lecturing was an old-fashioned pedagogy. Now I realised that my original thought was incorrect. I gradually realised that I should give credit to the pedagogy of lecturing. Now I have a whole new understanding of lecturing”
(P8).

Programme participants' perceptions of lecture-based teaching after the piloting

stage were echoed by 15 of other teachers within their reflective commentaries submitted during programme participation. They argued that “*it was inappropriate to flip the class blindly*” (R131) and “*traditional teaching was superior to flipped learning in terms of instructional effectiveness*” (R70). Therefore, they contended that “*the huoli teaching and learning approaches complemented traditional teaching and would be more effective only if standing on the shoulder of traditional class*”(R196).

The above comments suggested that teachers’ practical experience might have changed or strengthened their beliefs in the effectiveness of lecture-based teaching in improving student learning experience. This ran counter to the mission of the university-led programme, which aimed to replace lecture-based teaching. This is because teachers’ implementation of the student-centred pedagogies in the case institution did not always yield better student learning outcomes. Hence, the practical experience gained from the implementation process encouraged teachers to refine their understanding of *huoli* in this institution.

In addition, teachers’ perceptions of lecture-based teaching might suggest that they demanded for self-determination in the delivery of their professional practice. Their advocacy of lecture-based teaching in the above quotes was perhaps their rebellious responses to their experience of being controlled. As

the institution intended to replace lecture-based teaching with student-centred pedagogies and some teachers encountered considerable challenges in the delivery of student-centred pedagogies as evidenced in the previous section, it seemed that they intentionally emphasised the merit of lecture-based teaching in interviews with the manager of the programme and in reflective commentaries submitted to the institution.

However, their comments on lecture-based teaching are also an indication of the development of their understanding of the guided innovation after practical experience.

4. Development

Teachers developed a variety of understanding of *huoli*, or high-quality teaching and learning performance based on the practical experience gained from the piloting stage. They argued that high-quality teaching and learning performance was more than the delivery of the institutionally advocated teaching and learning approaches in the classrooms. The argument was evidenced in the following quote.

“The so-called huoli class is not about teachers dancing like ‘clowns’ in the classrooms or telling jokes to please the students. On the contrary, teachers are guides of their students in learning. They should create learning

environments, know student needs, set clear learning objectives, design elaborate teaching plans, provide rich learning resources, and deliver a blend of pedagogies to engage their students in learning, activate their critical thinking and attain self-realisation on the part of students” (R201).

The first sentence from the above comment was probably alluding to the showcasing of student-centred pedagogies performed by their colleagues in the institutionally organised demonstration lessons. However, the teacher (R201) argued that *huoli* was not about the superficial showcasing of pedagogies. The second part of the comment revealed that teachers began to explore the underlying rationale behind the delivery of the student-centred pedagogies. They shared that *“teaching should serve the purpose of unleashing the potentials of both teachers and students”* (R133). In this regard, programme participants began to realise that *huoli* in this institutional context was more than the delivery of student-centred pedagogies. They argued that teachers should also be included in the conceptualisation of *huoli*. Table 6.8 illustrates the conceptualisation of *huoli* identified from the qualitative data sets.

Table 6.8 Teachers’ conceptualisation of *huoli*

Conceptualisation of <i>huoli</i>	Description and indicative quotes
Inclusivity	● Concern for “weaker” students <i>“Not all students benefited from project-based learning”(R364).</i>

Student empowerment	● Lifelong development <i>“A class of growth: the purpose of education should serve students’ lifelong development” (R378).</i> ● Thinking abilities <i>“The yardstick by which to measure the teaching effectiveness of huoli class is whether it successfully promotes students’ thinking abilities” (R56).</i> ● Self-learning abilities <i>“Teachers do not give their students fish, but rather teach students how to fish” (R192).</i> ● Unleashing potentials <i>“The purpose of the programme is to empower students to become their better selves and unleash their potentials” (R249).</i>
Teacher empowerment	● Latest developments in subject areas <i>“ The ultimate goal of huoli is to keep abreast of the latest developments in subject areas and introduce state-of-the-art information technology” (R286).</i> ● Teachers’ self-reflection <i>“ Teachers’ huoli comes from their continuous reflection and refinement of pedagogies” (R327).</i> ● Professional competence <i>“Teachers should be familiar with the taught subject matter. Three</i>

		<i>minutes on the lectern entail 10 years of lesson preparation</i> " (R247).
Rapport students	with	● Respect for students <i>"Equal dialogue with students. Respect their thinking and creative idea"</i> (R312). ● Encouragement <i>" Encourage students. Creatively encourage them to express themselves"</i> (R303).

Table 6.8 shows that teachers developed a variety of understanding of *huoli*. For example, they considered the delivery of the institutionally advocated teaching and learning approaches as ways and means of empowering their students in areas such as lifelong development and critical thinking. However, they did not regard all the institutionally advocated pedagogies as "good practices" in terms of attaining student empowerment. They perceived that their colleagues acted the role of "clowns" superficially imitating their colleagues' teaching practices as evidenced in the quote (R201) at the beginning of this section. Hence, from their perspectives, *huoli* was not about "clowns' performance" for the institution but rather inclusivity, rapport with students, and empowerment of both teachers and their students. In this sense, it seemed that teachers' disaffection with the institutional requirements was partly caused by their critical reflection on the understanding of high-quality teaching and learning performance.

In addition, teachers' diversified understanding of *huoli* as shown in Table 6.8 reveals how the name of a pedagogical innovation nurtured educational practitioners' potential for creativity. In this regard, the ambiguity of innovation names is a double-edge sword. It could pose a hindrance to practitioners' translation of the innovation into teaching practices. However, it could also provide space for practitioners' creativity in their professional practice.

It could be argued that after the piloting stage, there was a mismatch between the institution and teachers about how *huoli* was interpreted. This was due to the fact that programme participants developed their understanding of high-quality teaching and learning performance based on the practical experience they gained from the piloting stage. Challenges such as mixed student engagement and abilities and teachers' concern for "weaker" students contributed to the development of their understanding of high-quality teaching and learning performance. In addition, teachers' re-evaluation of lecture-based teaching was partly attributed to the challenges they encountered in the delivery of student-centred pedagogies. Consequently, they refined their understanding of high-quality teaching and learning performance. In this regard, their understanding was enquiring and dynamic while the institutional definition of *huoli* remained unchanged. However, other than the reflective commentaries submitted to the institution, there was no official feedback mechanism for teachers to share their piloting experience. Accordingly, the practice of

programme participation remained unchanged since the programme was initiated. Thus, a mismatch in the interpretation of *huoli* emerged although the university-led programme set out with noble vision.

In addition, teachers' understanding of *huoli* was a reflection of their belief system regarding particular teaching and learning approaches. As Ertmer et al. (2012) highlighted the correspondence between teachers' belief system and their enacted classroom practices, it was likely that teachers would adopt the teaching and learning approaches in line with their belief system. Some teachers stated that lecture-based teaching should not be replaced by student-centred learning within their reflective commentaries and interviews as evidenced in the previous section. Those teachers would probably continue lecture-based teaching after the piloting stage. A teacher reported reverting back to lecture-based teaching within their reflective commentary.

“Considering that the textbook is in English and the students’ language proficiency is not high, now I am the leading role in class instead of my students in the teaching of some chapters. Of course, the subject knowledge was transmitted although the students were a little bit passive in the process” (R173).

The above quote revealed that some programme participants reverted back to

lecture-based teaching because they perceived that student-centred pedagogies did not always yield expected learning outcomes. In this regard, the uptake of the guided innovation did not impart high levels of professional competence in relation to improving student learning. On the contrary, they perceived that lecture-based teaching was more efficient to “transmit” the subject knowledge after an evaluation of student ability.

In brief, after the piloting stage, teachers’ critical reflection was an indication that they were evaluating the drivers and barriers to their uptake of the university-guided pedagogical innovation. Although the university-led programme transformed the teaching and learning of the piloted courses, some teachers also reported considerable barriers such as extra time investment and mixed student engagement in the implementation process. Compounded by the mismatch between the institution and teachers in the conceptualisation of *huoli*, some programme participants might decide to discontinue their adoption if they perceived that (1) the costs of continuous uptake outweighed the gains or (2) the guided innovation did not signify excellence of performance or competence. However, large-scale discontinuation of innovation adoption did not occur in this institutional change programme. As an administrator of this university-led programme, I reviewed the institutional data on the average attrition rate of programme participation in the past four years. The attrition rate of programme participation remained stable and relatively low as shown in Figure 6.6.

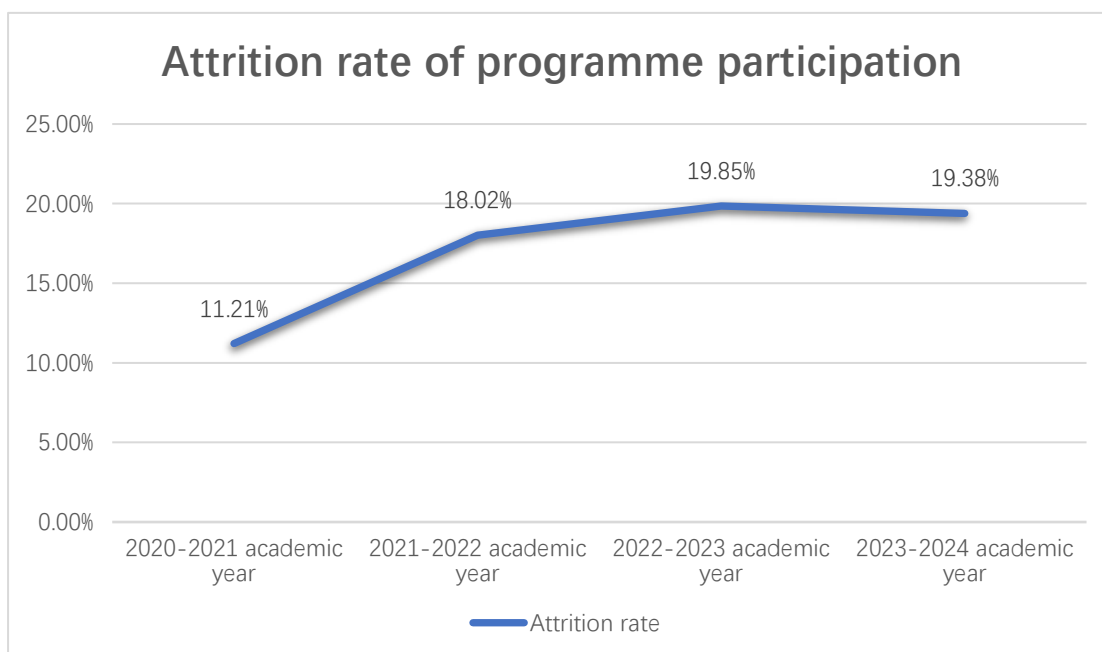


Figure 6.6 Attrition rate of programme participation (2020-2024)

Note: The attrition rate of programme participation was calculated as follows.

Attrition rate =

$$\frac{\text{Number of programme participants who discontinued their adoption after the piloting stage}}{\text{Number of programme participants who completed the piloting stage}}$$

The above figure reveals that programme attrition after the piloting stage remained relatively stable at a rate of less than 20%. In this regard, after programme participants completed their piloting of the university-guided innovation, more than 80% of them continuously reapplied for performing the institutionally advocated pedagogies.

In this sense, institutional intervention or teachers' intrinsic motivation might have contributed to their continuous uptake of the university-guided innovation in this institution. In the next section, I explore why and how programme participants continued their adoption.

6.3.3 Continuous adoption

The previous section revealed that some programme participants faced considerable challenges and they progressed toward a critical understanding of *huoli* after the piloting stage. However, more than 80% of them chose to continue their adoption and completed the teaching and learning approaches required by the institution. In this regard, exploring teachers' decision-making process after the piloting stage is critical to understand the rationale behind their continuous adoption of innovations.

1. Persistence

It seemed that the new promotion track contributed to teachers' persistence in programme participation as evidenced in the following quote.

"The participation is not over when I piloted the huoli teaching and learning approaches, fulfilled the institutional requirements and received a sum of project funding. Although I have attained nothing substantial for now, but I know it will benefit me in the long run. Currently it's more like an honour. But if you keep refining your huoli course..." (P11).

The interviewee (P11) appears to be alluding to the possibility of getting promoted to *huoli* champions if they chose to continue their adoption. Teachers stated explicitly within their reflective commentaries that they intended to "keep

working and striving for getting promoted to huoli champion" (R336). From 2018 to 2023, 68 programme participants had been promoted to *huoli* champions after their piloting stage. As the new promotion track was institutionalised, the presence of "role models" might have contributed to the low attrition rate of programme participation as shown in Figure 6.6 in the previous section.

In this regard, the low attrition rate of programme participation was in line with Fairweather's (1995) argument that promotion criteria played a critical role in boosting the profile of teaching in higher education settings. In addition, programme participants' intention of getting promoted to *huoli* champions further underlined the context of higher education system that career pathways are critical to academics' orientation of their professional practice.

Moreover, the above quote from the interviewee (P11) suggested that some programme participants began to shift their perceptions of the uptake of the guided innovation from improving student learning experience towards attaining their individual achievements in career progression. It seemed that some programme participants' attention was drawn to career progression instead of the enjoyment of innovation adoption. In this regard, the new career pathway exerted a controlling effect on teachers' orientation of their professional activities. Moreover, the quote is an indication that some programme participants attributed part of the cause of their innovation adoption to the

advancement of their career progression.

However, career pathways (promotion in particular) might not constitute the only motivation for teachers' continuation of their adoption. Firstly, I reviewed the institutional data on the university-led programme and the data revealed that more than 95% of the *huoli* champions continued their adoption after they got promoted. Secondly, not all programme participants could meet the promotion criteria. It seemed that monetary reward (e.g., supplementary payment) might serve as the second driver to teachers' decisions to continue their adoption. This was premised on the fact that the supplementary payment derived from programme participation was not a one-off reward. Teachers could repeatedly receive supplementary payment for the fulfilment of the institutional requirements during the teaching of their *huoli* courses. The role of monetary reward in affecting their decisions to continue the adoption was evidenced in the following quote:

"If we teach the subject matter with lots of student-centred teaching and learning approaches, to be honest, the students learn less compared with traditional teaching. But we will try our best to meet the institutional requirements" (P4).

The above quote further highlighted the controlling effect of extrinsic rewards

on teachers' behaviour. The quote revealed that there was inconsistency between teachers' enacted classroom pedagogies and their belief in the effectiveness of those pedagogies. The possible rationale for the inconsistency was the intervention of extrinsic rewards. Although some teachers did not perceive that their students could learn more from the institutionally advocated teaching and learning approaches, they completed those approaches probably for supplementary payment. The phenomenon resonates with the context of the Chinese private higher education sector that some academics intend to engage in professional practices that would count toward pay rise as they are less paid than their counterparts in public universities (Xu and Zhang, 2017).

In addition, it appears that the provision of monetary reward undermined some teachers' intrinsic motivation for improving undergraduate teaching and led to unintended consequences. Two interviewees (P1, P2) alluded to the unintended consequences as evidenced in the following quotes.

"But as for whether they [the institutional requirements] can be performed well, or the quality of those teaching and learning approaches, it's hard to tell" (P2).

"However, how can we know whether teachers rushed all the online teaching and learning approaches required by the institution right before the due time or they delivered the approaches throughout the course. No one knows" (P1).

The above quotes revealed that some programme participants completed the teaching and learning approaches required by the institution without considering the quality of those approaches. Moreover, there were programme participants who rushed the completion of those institutional requirements just for the monetary reward. The unintended consequences evidenced in the above quotes indicated that programme participants varied their performance greatly in relation to the completion of the institutional requirements. Similar unintended consequence was also evidenced in the phenomenon that teachers completed the institutionally advocated teaching and learning approaches which “*were of little relevance to the course objectives*” (P11). In this sense, they completed the institutionally required practices without considering the actual merits of those practices. It seemed that extrinsic rewards bought off their intrinsic motivation (Deci, 1971). Thus, the extrinsic rewards mitigated teachers’ intrinsic resistance to the institutional requirements and worked to encourage them to continue the university-guided innovation. In such circumstances, some programme participants performed box-ticking exercises just for the monetary reward.

In contrast to the unintended consequence that teachers’ intrinsic motivation was undermined by extrinsic rewards, there was evidence suggesting that the public esteem of programme participation in the case institution enhanced academics’ intrinsic motivation for improving the piloted teaching and learning

approaches.

“Compared with other teachers [non-programme participants], programme participants need to practise more reflections on how to improve their teaching and learning approaches, or how their students can benefit more from the learning process” (P10).

The intention to practise reflection and refine *huoli* teaching and learning approaches was echoed by 24 teachers within their reflective commentaries and 8 teachers within their interviews. Because the university-led programme intended to raise the profile of teaching within the institution, the esteem accorded to programme participants motivated them to “*advance the teaching with the times*” (P7), “*continuously reform the teaching*” (R251) and “*become better teachers*” (R373). The refinement of existing pedagogies emanated from teachers’ voluntary decisions and thus, it was an indication of their intrinsic motivation for improving student learning experience. It appears that the image of excellent teaching projected by the vision of the *huoli* programme contributed to the enhancement of academics’ intrinsic motivation for improving student learning experience.

However, there is another possible explanation for teachers’ motivated intention of practising more reflections and refining piloted pedagogies during

programme participation. Evidence presented in Section 6.1.2 revealed that programme participants perceived the financial incentive as the reward for their extra investment and effort in teaching. In a similar vein, teachers' motivated intention of refining their pedagogies after the piloting stage evidenced in this section highlighted the effect of rewards on teachers' devotion in teaching activities. Evidence in Section 6.2.2 and this section suggests that some programme participants intended to reduce their perception of being overpaid by boosting their performance. For example, they emphasised that programme participants practised more reflections and refinement "*compared with other teachers [non-programme participants]*" (P10). Thus, it is an indication of the controlling effect of rewards on academics' behaviour. While in this case, extrinsic rewards enhanced teachers' motivation for improving the practice of the guided innovation as they justified their attainment of financial reward by practising more reflections and refinements of existing pedagogies.

Therefore, evidence in this section suggested that the presence of extrinsic rewards and intrinsic motivation encouraged teachers to adapt their teaching and learning approaches after the piloting stage.

2. Adaptation

Teachers learned their lessons from the practical experience gained from the piloting stage. They realised that they needed to adjust their expectations of

students. This was evidenced in the following quote.

All individual students are unique. As a teacher, I am not supposed to oblige all students to meet my expectations. Instead, I should adjust my expectations about our students based on their aptitudes. It is a great achievement for an introverted student to speak loudly in class” (R373).

Therefore, some programme participants realised that it was unrealistic to hold a normative expectation about the performance of their students in the classrooms. They reflected on the rationale behind mixed student engagement and abilities and concluded that it was due to the diversity of the student population. Consequently, they suggested that teachers should recognise and respect the diversity. For example, 17 teachers emphasised course design in accordance with students’ aptitudes within their reflective commentaries.

Moreover, they accepted that silent classroom was the normative phenomenon in this institution because *“they had been learning in teacher-directed modality all the way from K-12 to universities”* (P10). Accordingly, teachers *“refined the instructional materials or practices from each setback”* (P11) and increased their professional competence in the delivery of student-centred pedagogies. For example, they *“set a time limit”* (P5) to group discussion, awarded bonus points to encourage the completion of *“quizzes and peer assessments before*

class” (R379), and clarified “*division of labour in group work*” (R176) to avoid “free riding”. In addition, teachers developed creative methods to address the challenges of practising student-centred pedagogies. For example, they invited students to write down their ideas in class to “*cope with the students’ silent learning mode*” (P10). It needs to be mentioned that some of the above-mentioned strategies are situated in the local context that lecture-based teaching is the dominant pedagogy in Chinese undergraduate systems (Shi and Liu, 2022). Therefore, some students may not be used to student-centred pedagogies. In this regard, programme participants refined their student-centred pedagogies specific to the needs of the institutional context.

However, the above adaptations were attributable to the synergistic interplay of teachers’ extrinsic and intrinsic motivation. On the one hand, teachers were rewarded supplementary payment once they fulfilled the institutional requirements near the end of term. On the other hand, their intrinsic motivation for improving student learning encouraged them to refine the institutionally advocated teaching and learning approaches. The interplay of extrinsic and intrinsic motivation was evidenced in the following quote.

If I administer too many student-centred activities in my class, then it is just a good performance only for the institution. However, the huoli course will lose its meaning without enough student-centred activities. That is, it is just

a minor modification of the traditional pedagogy. Therefore, I need reflect on how to achieve the balance” (R93).

The above quote revealed that an interplay of extrinsic and intrinsic motivation encouraged teachers to “*achieve a balance*” between fulfilling the institutional requirements for extrinsic rewards and improving student learning by becoming better teachers. In this sense, the interplay fuelled teachers’ decisions to adapt their day-to-day teaching and learning approaches. However, the intention to “achieve a balance” underlined that extrinsic rewards had a controlling effect on programme participants’ behaviour in this case institution.

Findings presented in this section support Ramsden and Martin’s (1996) argument that university reward system is one of the most effective means to encourage teachers’ uptake of pedagogical innovations. On the other hand, teachers demonstrated their intrinsic motivation for becoming better teachers by adapting their teaching and learning approaches after the piloting stage. In addition, the “balance” was also a manifestation of the gap between teachers and the institution in the interpretation of high-quality teaching and learning performance.

6.3.4 Section summary

This section identified three themes (i.e., initial exploration, critical reflection,

and continuous adoption) regarding teachers' implementation process in this university-led programme by answering the second research sub-question.

How are teachers implementing their teaching and learning approaches in this university-led reform?

By analysing the data sets of semi-structured interviews and teachers' reflective commentaries, I propose that:

The presence of extrinsic and intrinsic motivation mitigated the barriers teachers encountered during the implementation process and encouraged them to continue their adoption.

Institutional guidelines such as the programme vision and the pedagogical model enumerated exemplary teaching and learning approaches and thus, delivered an institutional definition of high-quality teaching and learning performance. Consequently, the guidelines reduced the uncertainty among programme participants and encouraged them to imitate the innovative teaching practices outlined by the institution. In addition, peer support such as demonstration lessons further fuelled the imitation of teaching practices among programme participants during the stage of initial exploration.

The practical experience gained from the piloting stage encouraged teachers to reflect on the gains and costs associated with programme participation. The delivery of student-centred pedagogies and innovative use of technology transformed teaching and learning by fostering student engagement and improving the efficiency of both teaching and learning. On the other hand, challenges abounded such as extra time commitment, mixed student engagement, and teachers' disaffection with the institutional requirements. Upon critical reflection of their mixed experiences, they progressed toward a critical and fuller understanding of *huoli* and a mismatch in the interpretation of *huoli* between the institution and teachers emerged.

However, an interplay of extrinsic and intrinsic motivation mitigated the negative impact of the challenges. The potential gains in career progression and monetary reward in particular contributed to teachers' persistence in the adoption of this university-led pedagogical innovation. The intrinsic motivation for becoming better teachers encouraged them to refine their teaching and learning approaches.

On the other hand, evidence in this section further confirmed that extrinsic rewards exerted a controlling effect on teachers' behaviour. The controlling effect is evidenced in (1) the dominant role of institutional guidelines on programme participants' course design, (2) the inconsistency between

classroom practices and programme participants' pedagogical beliefs, and (3) some programme participants' intention of achieving a balance between their pedagogical beliefs and the institutional requirements. The qualitative data in this section revealed that the controlling effect of extrinsic rewards on teachers' behaviour is attributed to teachers' justification of the cause of their innovation adoption. The promise of rank promotion and monetary reward carried high levels of personal significance for programme participants and thus, the extrinsic rewards controlled their behaviour.

In addition, this section further revealed that extrinsic rewards undermined some teachers' intrinsic motivation. This is evidenced in the phenomenon of box-ticking exercises, i.e., teachers completed the institutional requirements without assessing the merit and quality of those requirements. There are three possible factors behind the undermining effect of extrinsic rewards on teachers' intrinsic motivation. (1) Firstly, evidence in Section 6.2.2 and Section 6.3.3 revealed that teachers' attention was drawn to the attainment of extrinsic rewards from the institution. (2) Secondly, this section has highlighted the development of teachers' critical understanding of the institutionally advocated pedagogies. Therefore, they did not perceive that all those pedagogies signified excellence of performance. Moreover, the experience of being controlled reduced their perceptions of self-determination. The reduced perceptions of self-determination might compromise the level of competence that those

pedagogies conveyed. Thus, teachers might lose the intrinsic motivation for implementing those pedagogies. (3) Lastly, the promise of monetary reward in this case institution did not require a standard of performance and thus, programme participants varied greatly in their performance. In this regard, the arrangement of those extrinsic rewards contributed to the undermining of intrinsic motivation.

Section 6.2 and 6.3 in this chapter have presented detailed findings of teachers' adoption experience regarding their adoption decisions and implementation process. The findings were derived from the initial qualitative strand of my research. Next, I outline the summary of the strand.

6.4 Summary of the qualitative strand

The analysis of the qualitative strand provided an initial exploration of teachers' experiences of participation in the university-led educational reform and identified themes and sub-themes regarding their programme participation as shown in Table 6.9.

Table 6.9 Themes and sub-themes identified from the qualitative strand

Stage	Theme	Sub-theme	Findings
Adoption decision	Career progression	Incubating hub	Career progression, monetary reward, and surrounding environment are effective drivers to academics' adoption decisions.
		Rank promotion	Extrinsic rewards had a controlling effect on academics' behaviour when those rewards carried personal significance for them.
		Professional recognition	Surrounding environment contributed to this controlling effect.
	Monetary reward	Project funding	Teachers' intrinsic motivation was influenced by extrinsic rewards. High levels of competence that the guided innovation conveyed enhanced academics' intrinsic motivation. In addition, extrinsic rewards boosted teachers' performance in teaching activities. However, the unintended consequences also highlighted the undermining effect of rewards on teachers' intrinsic motivation.
		Supplementary payment	
		Champion subsidy	
	Surrounding environment	Peer pressure	
		Institutional climate	

Implementation process	Initial exploration	Support	A combination of extrinsic and intrinsic motivation mitigated the barriers to academics' implementation process and encouraged them to adapt their teaching and learning approaches. However, extrinsic rewards undermined some teachers' intrinsic motivation probably due to (1) teachers' justification of the cause of their innovation adoption, (2) their perceived competence signified by those rewards, and (3) reward arrangement.
		Design	
	Critical reflection	Transformation	
		Challenge	
		Comparison	
		Development	
	Continuous adoption	Persistence	
		Adaptation	

However, there are limitations to the preliminary findings derived from the initial qualitative strand.

Firstly, the weight of different drivers and barriers to their adoption decisions could not be identified from the qualitative strand because the data set of semi-structured interviews was small-scale. In addition, the data set of teachers' reflective commentaries did not include their perceptions of extrinsic rewards because teachers submitted their reflective commentaries to the institution for the purpose of reporting their piloting of innovative pedagogies.

Secondly, it is challenging to identify the difference between early and late adopters in their perceptions of various drivers and barriers due to the small scale of the qualitative strand. As the distribution of adoption experience and academic ranks (i.e., *huoli* champions) among early and late adopters varied widely, the differences in the perceptions of teachers at different adoption stages remains to be answered by a follow-up survey.

Thirdly, evidence of sensitive topics such as their disaffection with the institutional requirements was limited because teachers might have been unwilling to comment on such topics in interviews due to the influence of my institutional position as a manager of the programme. Further exploration of those sensitive topics might reveal how the extrinsic rewards had a controlling effect on teachers' behaviour and the rationale behind the detrimental effect of extrinsic rewards on teachers' intrinsic motivation.

In this regard, the research warrants a follow-up quantitative survey to answer the above questions and thus, enhance the understanding of academics' experiences of participation in this university-led programme. In addition, the follow-up survey provides programme participants with a feedback platform on which they could anonymously share their participation experiences and voice their suggestions for the improvement of their professional practice. The preliminary findings of the initial qualitative strand informed the development of

the follow-up quantitative strand in the following aspects:

- The themes and sub-themes generated in the qualitative strand shaped lines of inquiry. Those lines of inquiry were converted into corresponding survey questions.
- The drivers and barriers to programme participants' adoption decisions and implementation process as described in interviews and reflective commentaries were translated into selection items in survey questions. Participants' perceptions of the weight or ratings of those items could then be measured quantitatively.
- The design of survey questions allowed for some degree of statistical tests so that the perceptions of teachers at different adoption stages could be measured.
- Survey respondents should be encouraged to provide additional comments in the survey, especially on sensitive issues such as monetary reward and the institutional requirements for programme participation.

After the summary of the research findings generated from the initial qualitative strand, I present how I conducted the follow-up quantitative strand for enhancing the understanding of my research.

Chapter 7 Quantitative strand:

Enhanced understanding of the impact of the drivers and barriers to teachers' programme participation

Although the initial qualitative strand identified six themes relating to teachers' participation experiences, I conducted a follow-up quantitative strand to further explore and enhance the initial findings derived from the qualitative strand. In the follow-up quantitative strand, a survey questionnaire was developed grounded in the research findings of the initial qualitative strand. The questionnaire was developed to enhance the understanding of the research phenomenon in the following aspects:

1. The diversity of teachers' perceptions was measured.
2. The perceptions of teachers at different adoption stages were explored.
3. Propositions about the research findings were triangulated or refined.

Details about the design of the survey questionnaire are covered in the next section.

7.1 Survey overview

In Section 5.6.3 of Chapter 5 "Research design", I briefly outlined the strategies for guiding the design of the survey questionnaire. In this section, I present how

I implemented those strategies by first elaborating on the alignment between survey questions and findings of the initial qualitative strand.

To contain the number of survey questions so that the questionnaire could be completed in no more than 10 minutes, I aggregated the initial qualitative findings (see Table 6.9 in Chapter 6) into 20 lines of inquiry. The survey questions were developed based on those 20 lines of inquiry and each line of inquiry was translated into one corresponding survey question. In addition, as the quantities of themes and sub-themes in each line of inquiry are variable, a mixture of binary-choice, multiple-choice, and Likert-type scale questions were designed in the questionnaire.

The questionnaire was structured in four sections:

- Section 1 – Demographics (Q1 ~ Q2)
- Section 2 – Adoption decision (Q3 ~ Q4)
- Section 3 – Implementation process (Q5 ~ Q17)
- Section 4 – Future plans and suggestions (Q18 ~ Q20)

Table 7.1 illustrates the correspondence between survey questions and lines of inquiry.

Table 7.1 The correspondence between survey questions and lines of inquiry

Survey section	Question	Question type	Lines of inquiry
Demographics	1	Multiple choice	Adoption time
	2	Binary choice	Attrition
Adoption decision	3	Multiple choice	Extrinsic drivers to adoption decision
	4		Intrinsic drivers to adoption decision
Implementation process	5	Multiple choice	Factors assisting course design
	6		Piloted pedagogies
	7	Likert-type scale	Workload in the piloting stage
	8		Workload in the current stage
	9		In-class student engagement
	10		Out-of-class student engagement
	11		Student ability
	12	Binary choice	Challenges encountered in the delivery of in-class pedagogies
	13		Challenges encountered in the delivery of out-of-class pedagogies
	14	Multiple choice	The most beneficial teaching and learning approaches
	15		The least beneficial teaching and learning approaches
	16	Multiple choice	Adaptation of teaching and learning approaches after the piloting stage
	17	Binary choice	Understanding of <i>huoli</i>
Future plans and suggestions	18	Binary choice	Perceptions of the institutional requirements
	19		Intentions of new adoptions
	20	Likert-type scale	Overall rating of the university-led programme

7.1.1 Section 1: Demographics

Section 1 of the questionnaire measured the profile of survey respondents and served three purposes:

- to verify whether the survey responses are a representative sample of all programme participants.

- to use the demographic groupings (i.e., adoption time) to explore the differences in the perceptions of teachers at different adoption stages and conduct statistical tests on the Likert-type scale data gathered in later sections of the survey.
- to explore the percentage of programme attrition and its rationale among survey respondents for the improvement of the university-led programme.

The institution approved the development of *huoli* courses in seven cohorts from 2016 to 2022. Survey question Q1 invited respondents to indicate when they first participated in the university-led programme in one of the seven question items (Cohort 1~Cohort 7). Survey question Q2 related to programme attrition and survey respondents were asked whether they had been continuously implementing their *huoli* courses since those courses were approved by the institution. Free text comment box was provided for survey respondents to indicate the reason why they left the *huoli* programme.

7.1.2 Section 2~4: Main body

The purpose of the questionnaire main body (section 2~4) was to achieve the following purposes:

- to measure (1) programme participants' perceptions of the weight of various themes such as drivers to their adoption decisions (Q3~Q4), factors assisting course design (Q5), and pedagogies delivered in their *huoli*

courses (Q6) and (2) their rating of the institutionally advocated teaching and learning approaches (Q14~Q15),

- to explore teachers' perceptions of the level of challenges (e.g., workload, student engagement and ability) and capture the intensity of those challenges (Q7~Q11),
- to identify whether there were blind spots, or themes that might not have been identified in the initial qualitative strand due to the methodological limitations of my research, or my institutional positioning and prior assumptions (Q12, Q13, Q16, Q17),
- to gather more qualitative data (e.g., by optional comment boxes) to triangulate the initial qualitative findings and enhance the understanding of the research phenomenon and
- to collect recommendations on the improvement of programme participants' professional practice (e.g., institutional requirements for programme participation) from survey respondents (Q18~Q20).

Next, I present how the questions (Q3-Q20) in the main body of the survey were designed.

1. The measurement of weight and ratings

As there are many extrinsic and intrinsic drivers and piloted pedagogies, converting each driver or pedagogy into a corresponding Likert-type scale

question would create too many questions for survey respondents to answer. Therefore, to contain the number of survey questions, the measurement of (1) the weight of various drivers and (2) teachers' rating of pedagogies was carried out in the form of multiple-choice survey questions. For example, survey question Q3 intended to measure programme participants' perceptions of the weight of six extrinsic drivers identified in the initial qualitative strand. The respondents were required to indicate no more than three of the most critical drivers from the survey items to prevent them from selecting the items randomly. The following lines of inquiry were presented in the form of multiple-choice questions as they contained multiple question items.

- Extrinsic and intrinsic drivers (Q3~Q4),
- Factors assisting course design (Q5),
- Piloted pedagogies (Q6),
- The rating of various teaching and learning approaches (Q14~Q15) and
- Programme participants' adaptation of teaching and learning approaches (Q16).

2. The exploration of teachers' perceptions of the level of challenges

The lines of inquiry in relation to teachers' implementation challenges were designed in the form of Likert-type scale questions. For example, in survey question Q7, respondents were required to rate their perceptions of workload

in the piloting stage on a 5-point Likert-type scale (1=way less than, 2= less than, 3= the same, 4= more than, 5=way more than). The rationale for using Likert-type scale questions was:

- To improve the practice of the *huoli* programme by measuring the level of challenges that teachers perceived in their implementation process and
- To compare the perceptions of different demographic groups and matched groups (e.g., piloting and current stage) by statistical tests.

3. The identification of blind spots

As the data set of semi-structured interviews in the initial qualitative strand was small-scale, it is possible that there are other themes that might not have been identified in the strand. In addition, my institutional positioning and prior assumptions might pose a hindrance for me to identify certain themes. Thus, survey respondents were invited to indicate other drivers or barriers in optional comment box.

In addition, binary questions were introduced to explore whether teachers encountered other challenges in the delivery of in-class (Q12) and out-of-class pedagogies (Q13) or whether they developed new understanding of *huoli* (Q17).

4. The gathering of qualitative data

To further gather qualitative data, optional free text comment boxes were

provided to invite survey respondents to comment on the rationale for their indication in the survey questions. For example, in survey question Q3, respondents were invited to explain why the drivers they indicated in the questionnaire were critical to their adoption decisions. The completion of free text comment boxes was optional. All survey questions generated 391 free text comments.

5. The improvement of teachers' professional practice

The last three survey questions were designed to elicit teachers' future plans and suggestions for the improvement of their professional practice. Q18 and Q19 are binary questions and invited survey respondents to indicate (1) their opinions about the adjustment of the institutional requirements for programme participation and (2) their intention to adopt a new *huoli* course. Q20 used Likert-type scale (1= least satisfied, 5= most satisfied) to invite survey respondents to rate the university-led programme. In addition, respondents were invited to contribute their suggestions for the programme in free text comment boxes.

7.1.3 Questionnaire distribution

The questionnaire was distributed online to a total of 173 *huoli* programme participants in November 2023 and was closed in December 2023. In total, 120 responses were collected which reflected a relatively high response rate of

69.4%. Responses to nine survey questions (Q7~Q13 and Q16~Q17) from one anonymous respondent were missing probably because the data was lost in the process of transmission. Thus, the nine survey questions collected 119 rather than 120 responses. The demographics of 120 survey respondents are presented in the next section.

7.2 Demographics

The first survey question Q1 addressed respondents' demographic information. The distribution of the 120 survey respondents (N=120)⁴ and the response rate of each cohort are illustrated in Figure 7.1 and Figure 7.2 respectively.

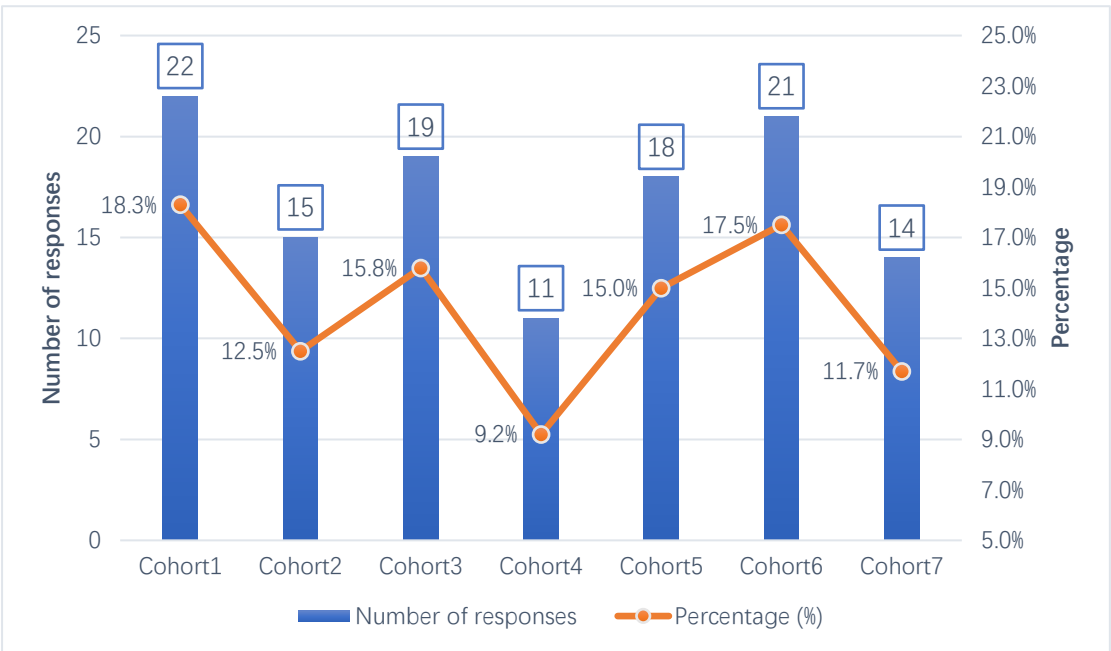


Figure 7.1 The distribution of the survey respondents

Notes:

1. The blue bar represents the total number of responses in each cohort, shown in the box on the top of each bar.
2. The orange line with percentage values shows the proportion of responses in each cohort to the total number of survey responses.

⁴ A capital N represents the size of a full sample.

Figure 7.1 reveals that the survey respondents were distributed among all seven cohorts. Cohort 1 and cohort 6 accounted for 18.3% ($n=22$)⁵ and 17.5% ($n=21$) of total responses respectively. Cohort 4 produced the fewest number of responses. This is because the institution approved only 19 *huoli* courses in 2018 while on average 30-40 courses were approved for each other cohort.

Figure 7.2 shows the response rate of each cohort.

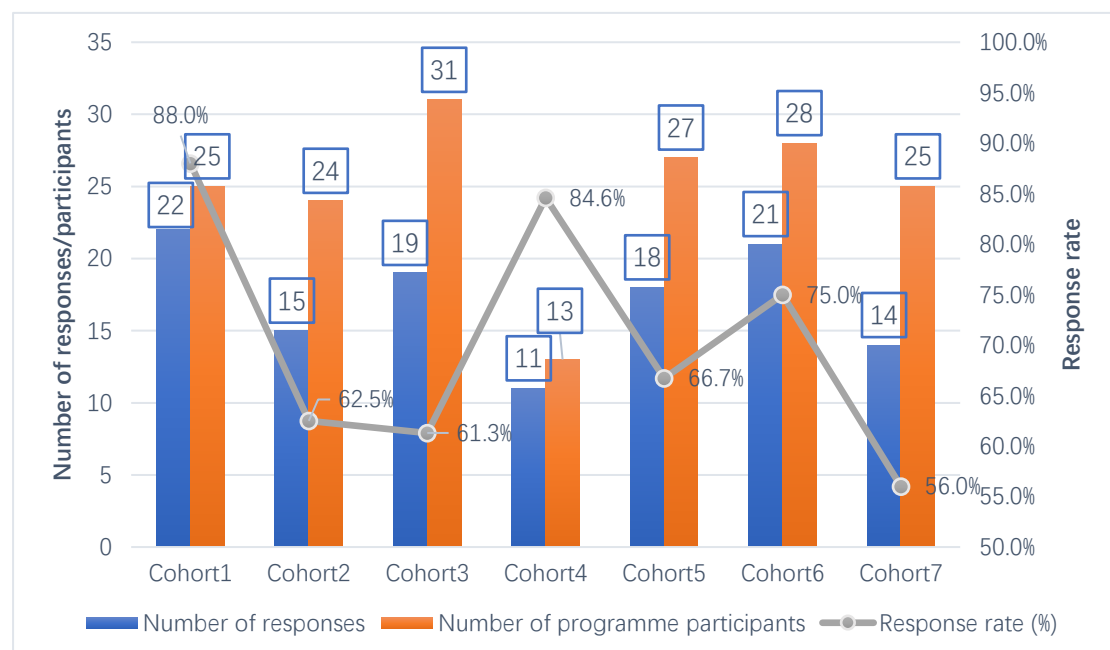


Figure 7.2 The response rate of each cohort

Notes:

(1) The blue bar represents the total number of survey responses in each cohort and the orange bar illustrates the total number of programme participants in each cohort, shown in the box on the top of each bar. The grey line with percentage values shows the response rate of each cohort, i.e., the proportion of responses in each cohort to the number of programme participants in this cohort.

(2) Some of the programme participants had left the institution when the survey was distributed. They did not participate in the survey, so the calculation of response rate in this research was based on the number of programme participants who were still in the institution.

(3) There were teachers who adopted two *huoli* courses. In the survey, respondents were invited to indicate the first course they adopted and therefore, these respondents were counted as participants of the cohort in which they piloted their first *huoli* course. Thus, the

⁵ A lower-case n refers to the size of a sub-sample drawn from the full sample.

number of programme participants for each cohort in this table is smaller than the number of courses approved by the institution since 2016.

Figure 7.2 reveals that cohort 1 had the highest response rate (88.0%) followed by cohort 4 (84.6%) while the lowest response rate came from cohort 7 (56.0%).

Survey question Q2 explored the attrition rate of programme participation. Responses from Q2 revealed that teachers might have left the *huoli* programme involuntarily. Four respondents from cohort 1, 2, 5 and 7 respectively indicated that they had not been continuously implementing their *huoli* courses since these courses were approved by the institution. All the four respondents offered the reasons for their attrition. One teacher indicated the reason of studying abroad. Three teachers responded that they lost the chance to teach their *huoli* courses because of the adjustment of undergraduate degree programmes. For example, the *huoli* course they used to teach was no longer offered in existing degree programmes.

After the discussion of the demographics of survey respondents, I present programme participants' responses to their adoption decisions to participate in the *huoli* programme in the next section.

7.3 Adoption decision

Survey question Q3 and Q4 explored the extrinsic and intrinsic drivers to teachers' decisions to participate in the university-led programme.

7.3.1 Extrinsic drivers to adoption decision

The overall responses (N=120) to extrinsic drivers are shown in Figure 7.3.

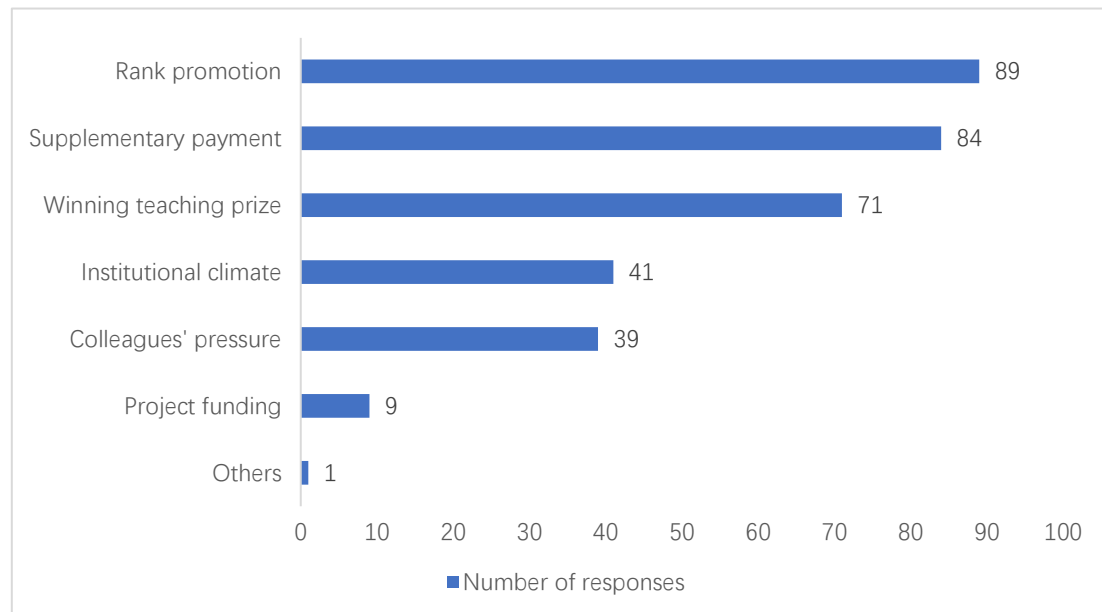


Figure 7.3 The overall responses to extrinsic drivers to adoption decision

Survey respondents were required to select no more than three of the most critical drivers from the listed items in Q3. Figure 7.3 reveals that the three most critical extrinsic drivers to teachers' adoption decisions are rank promotion (n=89, 74.2%), supplementary payment (n=84, 70.0%), and winning teaching prize (n=71, 59.2%). In this institution, winning teaching prize was the promotion criteria for *huoli* champions. In this sense, it was likely that teachers' passion for winning teaching prizes was attributed to their intention of career progression in rank promotion.

Figure 7.3 also shows that institutional climate (n=41, 34.2%) and colleagues' pressure (n=39, 32.5%) were also effective drivers to teachers' adoption decisions. However, they were less influential than career progression (e.g.,

rank promotion) and monetary reward (e.g., supplementary payment). In this sense, career progression and monetary reward exerted a far greater influence on teachers' adoption decisions than institutional climate and colleagues' pressure.

Figure 7.3 illustrates that project funding (n=9, 7.5%) was a way less influential driver impacting teachers' adoption decisions. The probable reason is that the amount of the one-off funding accorded to programme participants was small and therefore, it did not play a critical role.

To understand teachers' perceptions of these extrinsic drivers over different categories of adopters, Figure 7.4 shows the responses (N=120) to extrinsic drivers indicated by each cohort.

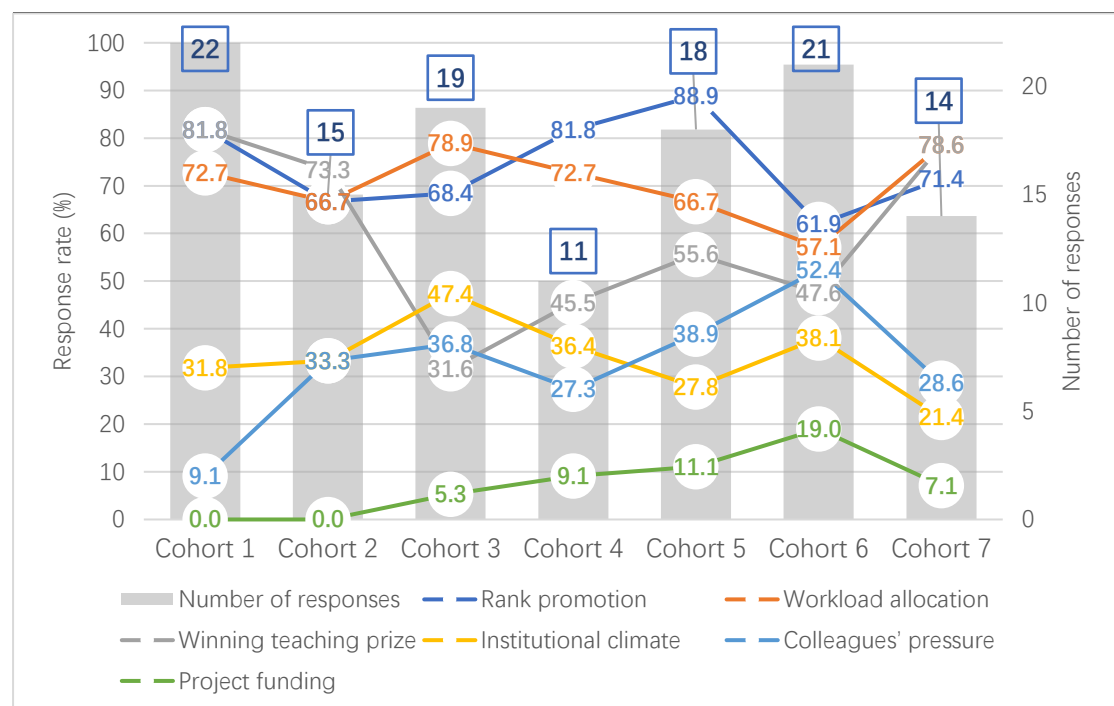


Figure 7.4 Extrinsic drivers indicated by each cohort

Notes:

(1) The grey bar represents the number of responses in each cohort, shown in the box on the top of each bar.

(2) The coloured lines with numeric numbers show the rate of responses indicating different survey items in each cohort.

Figure 7.4 reveals that at least 61.9% of all categories of adopters related that rank promotion was impactful on their adoption decisions. The influence of rank promotion was most obvious among cohort 5 (88.9%). They participated in the programme in 2019 and it was likely that programme participants from cohort 5 would meet the promotion criteria soon after their completion of the survey.

Moreover, at least 57.1% of the respondents in each cohort reported supplementary payment was critical to their adoption decisions.

The influence of winning teaching prizes on the seven categories of adopters varied widely. Cohort 1 (81.8%) and cohort 7 (78.6%) indicated that the influence was apparent while cohort 3 (31.6%) and cohort 4 (45.5%) responded that it was less important. The probable reason is that the earliest adopters (cohort 1) were more likely to get themselves exposed to the promotion activities of *huoli* champions since the promotion system was institutionalised in 2018. As winning teaching prizes was the promotion criteria for *huoli* champions, they might have considered that those teaching prizes really counted towards their promotions. The higher indication of winning teaching prizes among survey respondents from cohort 1 was perhaps affected by their

hindsight. On the other hand, the latest adopters (cohort 7) were least experienced in programme participation and therefore, they could have been eager to win teaching prizes as a proof of the development of their professional competence.

In addition, the influence of colleagues' pressure, or peer pressure was most impactful among cohort 6 (52.4%) followed by cohort 5 (38.9%). The possible rationale for higher indication of peer pressure among cohort 5 and cohort 6 is the competition for *huoli* champions. The two cohorts participated in the programme in 2019 and 2021 respectively. As programme participants were required to complete at least two rounds of piloting before they could apply for promotion to *huoli* champions, cohort 5 and 6 were probably competing for promotion at the time of survey distribution in 2023. Moreover, the extrinsic driver of rank promotion was most apparent in cohort 5 (88.9%). Higher indication of rank promotion and peer pressure in this cohort suggests that the pressure from colleagues' adoption was premised on the boosted advantage of innovation adoption such as the provision of rank promotion for programme participants. In this regard, it appears that programme participants from cohort 5 were closely observing "successful others", their promoted colleagues.

Figure 7.4 reveals that teachers' perceptions of peer pressure and winning teaching prize varied widely across different categories of adopters. This was

probably because that they had different concerns about their progression in career tracks. In this regard, the progression of programme participants' academic promotion might have affected their perceptions of different extrinsic drivers.

It needs to be mentioned that the interpretation of the numeric data as shown above was filtered through my institutional positioning as a manager of the programme. I drew on my insider knowledge in the interpretation process. The free text comments from survey respondents provided further evidence testing out my prior propositions. Teachers provided 24 free text comments in Q3 indicating why these extrinsic drivers were critical to their decisions to participate in the programme. Table 7.2 shows the themes with indicative comments.

Table 7.2 Themes of free text comments on extrinsic drivers

Theme	Indicative comments
Career progression	<i>"Once I develop my 'huoli' course, I have the credentials to win teaching award on course design and thus, get the [champion] subsidy."</i> <i>"I want my teaching recognised."</i>
Monetary reward	<i>"I have a family to feed."</i> <i>"I want to get a pay rise."</i> <i>"A reward for my invested effort."</i> <i>"Fruits of labour."</i>
Institutional climate	<i>"Pushed by the climate."</i> <i>"Follow the educational reform led by the institution."</i>
Project funding	<i>"The undertaking of teaching research requires funding."</i>
Role models for others	<i>"As an associate dean, my participation contributed to encouraging other teachers in my school to follow my footsteps."</i>

Improving teaching expertise	<i>“Research and teaching are teachers’ important job responsibilities.”</i> <i>“Online learning is conducive to student learning and improves learning outcomes.”</i>
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Most of the themes of free text comments in Table 7.2 are in line with the extrinsic drivers identified in the initial qualitative strand. Of the 24 comments collected in survey question Q3, nine teachers commented on the role of career progression through programme participation and seven teachers forthrightly made comments on monetary reward as shown in Table 7.2. For example, one respondent emphasised they *“had a family to feed”*. The comment suggested that teachers’ intention of obtaining pay rise played a role in their adoption decisions because programme participants could collect supplementary payment for their uptake of the university-guided innovation from the institution. Survey respondents’ comments on monetary reward highlighted academics’ personal concern about increasing their income in this case institution. Academics’ concern for pay rise underlines the context of my research that some of them are under great financial burden of high living cost in large cities in China. In addition, the intention to increase their income suggested that some programme participants attributed part of the cause of their innovation adoption to the attainment of pay rise. Moreover, two respondents commented that extrinsic rewards were fruits of their *“invested effort”* and *“labour”* as shown in Table 7.2. The comments suggested that extrinsic rewards had an incremental effect on reward recipients’ motivation for better performance in their

professional practice.

In addition, a new theme was identified from the comments. As all the associate deans in my institution participated in the programme, they were also invited in the survey to indicate the drivers to their adoption decisions. One respondent who identified themselves as an associate dean in the free text comment indicated the intention of serving as role models for other teachers. The quote revealed that academics' administrative positions also contributed to their adoption decisions as they intended their colleagues to "follow their steps" as evidenced in Table 7.2.

Moreover, the free text comments revealed that the participation of the university-led programme signified high levels of teaching competence from teachers' perspectives. For example, they perceived that their programme participation was a recognition of their teaching competence as indicated in Table 7.2. In this regard, the data added weight to the findings from the initial qualitative strand that the *huoli* programme created an informational aspect about the uptake of the guided innovation. The informational aspect signified excellence of teaching performance and had an incremental effect on teachers' intrinsic motivation. I present a detailed description of teachers' indication of their intrinsic motivation in the next section.

7.3.2 Intrinsic drivers to adoption decision

Teachers indicated the intrinsic drivers to their adoption decisions in survey question Q4. Likewise, respondents were required to select no more than three of the most critical drivers from the listed items. The overall responses (N=120) are illustrated in Figure 7.5.



Figure 7.5 Overall responses to intrinsic drivers to adoption decision

Figure 7.5 shows that the most critical intrinsic drivers to teachers' adoption decisions are improving teaching expertise (n=103, 85.8%) and advancing teaching research (n=92, 76.7%) followed by achieving professional goals (n=63, 52.5%) and bringing freshness to teaching (n=50, 41.7%). Although teachers shared in their reflective commentaries that their teacher-student relationship was improved during programme participation, improving teacher-student relationship (n=19, 15.8%) was not a major intrinsic driver to their adoption decisions. The responses (N=120) to intrinsic drivers indicated by each cohort are shown in Figure 7.6.

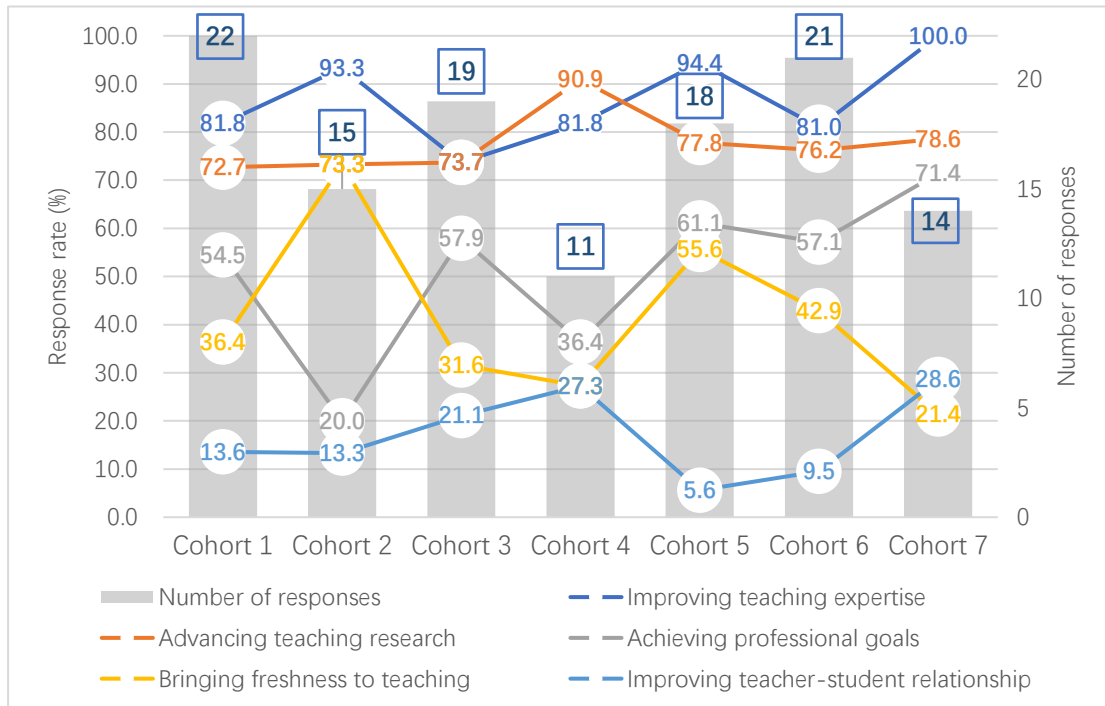


Figure 7.6 Intrinsic drivers indicated by each cohort

Notes:

- (1) The grey bar represents the number of responses in each cohort, shown in the box on the top of each bar.
- (2) The coloured lines with numeric numbers show the rate of responses indicating different survey items in each cohort.

Figure 7.6 reveals that at least 72.7% of all seven categories of respondents indicated that improving teaching expertise and advancing teaching research were impactful intrinsic drivers to their adoption decisions. All the respondents from cohort 7 (100%) stated that improving teaching expertise was an impactful driver. Teachers' responses to the drivers of achieving professional goals and bringing freshness to teaching careers varied widely among the seven cohorts. However, Figure 7.6 reveals that achieving professional goals (71.4%) and improving teacher-student relationship (28.6%) played a more influential role among cohort 7 than other cohorts. Data from Figure 7.6 suggested that

teachers with the least adoption experience were more motivated to adopt pedagogical innovations to develop their professional competence as a teacher than their experienced counterparts.

In addition, survey respondents' high indication of improving teaching expertise suggests that overall, programme participants perceived that the uptake of the university-guided innovation conveyed high levels of teaching competence. It is this perceived competence that contributed to enhancing teachers' intrinsic motivation for introducing innovation and change in teaching in this case institution.

Moreover, bringing freshness to teaching was most influential in cohort 2 (73.3%) followed by cohort 5 (55.6%) and cohort 6 (42.9%). This intrinsic driver was least apparent in cohort 7 (21.4%). Excluding cohort 1, cohort 2 were more experienced in programme participation than other cohorts. Teachers from cohort 7 had only participated in the programme since 2022. The data suggested that teachers' adoption experience might serve as a contributing factor to their perceptions of intrinsic motivation.

Table 7.3 illustrates the themes generated from the analysis of 22 comments provided by respondents.

Table 7.3 Themes of free text comments on intrinsic drivers

Theme	Indicative comments
Becoming better teachers	<i>"I want to be a better teacher." "Teaching is my job responsibility, devoting myself to teaching is central to my professional ethos." "Sense of fulfilment"</i>
Improving student learning	<i>"The students can acquire more knowledge and our teaching is more effective from innovative pedagogies." "To improve teacher-student relationship and interactions."</i>
Bringing freshness to teaching	<i>"I like trying creative teaching practices and it is fun." "As a young teacher, I would like to apply state-of-the-art teaching and learning approaches in my class."</i>
Advancing professional careers	<i>"Teaching research can advance my career progression."</i>

The themes of free text comments are in line with the themes identified from the initial qualitative strand. Of the 22 teachers who provided free text comments, 16 of them indicated the goal of "improving teaching expertise" in the quantitative part of the survey question. It might suggest that those teachers were not satisfied with the pedagogies they used to deliver prior to their programme participation. The free text comments highlighted the fact that improving student learning intrinsically motivated them to adopt pedagogical innovations in this institution. On the other hand, improvement in student learning was also a benchmark against which teachers evaluated the relative advantage of adopting pedagogical innovations. Therefore, teachers' perceptions of the effectiveness of the university-guided pedagogical innovation in improving student learning were critical to their decisions to continue the adoption. In Section 7.4, I discuss teachers' evaluation of the

institutionally advocated pedagogies in detail.

7.3.3 Section summary

This section has revealed the impact of different extrinsic and intrinsic drivers on teachers' decisions to adopt the university-guided pedagogical innovation in the case institution. The conclusions drawn from the analysis of the survey data are presented as follows.

1. Teachers assigned more weight to career progression and monetary reward than surrounding environment in influencing their adoption decisions. Surrounding environment in terms of peer pressure and institutional climate played an influential but not dominant role in motivating teachers to adopt pedagogical innovations. In addition, the free text comments perhaps highlighted the context of this research that some educational practitioners are under great financial burden partly due to the high cost of living in this large city in China. Thus, they intend to increase their income by engaging in professional practices that promise extrinsic rewards. It is in this context that monetary reward might have affected their decisions to adopt the university-guided innovation. Thus, some programme participants attributed part of the cause of their adoption behaviour to collecting supplementary payment from the institution, or obtaining pay rise. This is the indication that they cognitively re-evaluated the justification for their uptake of the university-guided innovation.

2. The comments in the survey added weight to the finding in the initial qualitative strand that extrinsic rewards boosted some academics' performance in teaching practices (Section 6.2.4). However, these academics considered extrinsic rewards as compensation for their boosted performance. In this regard, they intended to establish a balance between the extrinsic rewards they received and their devotion to professional practice. Therefore, extrinsic rewards enhanced some academics' motivation for improving their professional practice. However, the enhanced motivation is externally controlled.

3. Teachers in this institution intended to improve their professional competence by their uptake of the guided innovation. The intention is indicative of teachers' perception that the participation of the university-led programme signified excellence of teaching competence. Thus, the level of competence that the guided innovation imparted affected teachers' intrinsic motivation.

4. Teachers' progression in the new promotion track and their adoption experience might have contributed to programme participants' perceptions of different extrinsic and intrinsic drivers such as rank promotion and improving teaching expertise. However, the perceptions of those drivers such as winning teaching prizes, peer pressure, achieving professional goals, and bringing freshness to teaching varied greatly across different demographic groups as evidenced in Figure 7.4 and Figure 7.6. In addition, these perceptions did not

vary proportionately with the increase of their adoption experience. It is likely that there were other moderating factors impacting their extrinsic and intrinsic motivation for programme participation. Another possible explanation for the great variation in their perceptions was actually a result of random variations due to the small sample size of each cohort.

5. Some senior staff members perceived the pressure to adopt the guided innovation because of their institutional positioning as evidenced in the free text comment from an anonymous associate dean. The evidence shed light on the perceptions of institutional administrators in the diffusion of innovations in educational settings. In addition, the data revealed that institutional positioning can encourage institutional administrators to serve as the role of innovation champions who actively promote the adoption of innovations in an organisation (Rogers, 2003).

6. The intrinsic drivers teachers indicated in the survey highlighted one of the yardsticks by which teachers measured the relative advantage of innovation adoption after the practical experience they gained. Improvement in student learning was one of the major drivers to teachers' innovation adoption.

However, it needs to be mentioned that the seven categories of survey respondents were at different adoption stages at the time of survey distribution.

For example, cohort 1 had gained seven years of adoption experience while cohort 7 participated in the programme one year ago. Therefore, experienced participants progressed further in the career pathway pertaining to the *huoli* programme (e.g., promotion to *huoli* champions), their participation experiences might have impacted their responses to different extrinsic and intrinsic drivers. This is evidenced in the survey data that the perception of rank promotion was more apparent among cohort 1 than cohort 6 and 7. Therefore, teachers from cohort 1 could have responded to the extrinsic driver of rank promotion in hindsight. As a result, more of them indicated the driver compared with the late adopters of cohort 6 and 7 as evidenced in Figure 7.4. In this regard, the comparative results between different groups of adopters in this research are influenced by the fact that the survey respondents were at different points in their journey of programme participation.

While this section has presented drivers to teachers' adoption decisions, I outline programme participants' responses to their implementation process in the next section.

7.4 Implementation process

This section presents findings of teachers' implementation process. The section comprises three parts, which are course design, practical experience, and adoption summary.

7.4.1 Course design

Survey respondents were invited to select no more than 3 of the most critical factors that assisted the design of their *huoli* courses. Figure 7.7 presents teachers' overall responses (N=120).

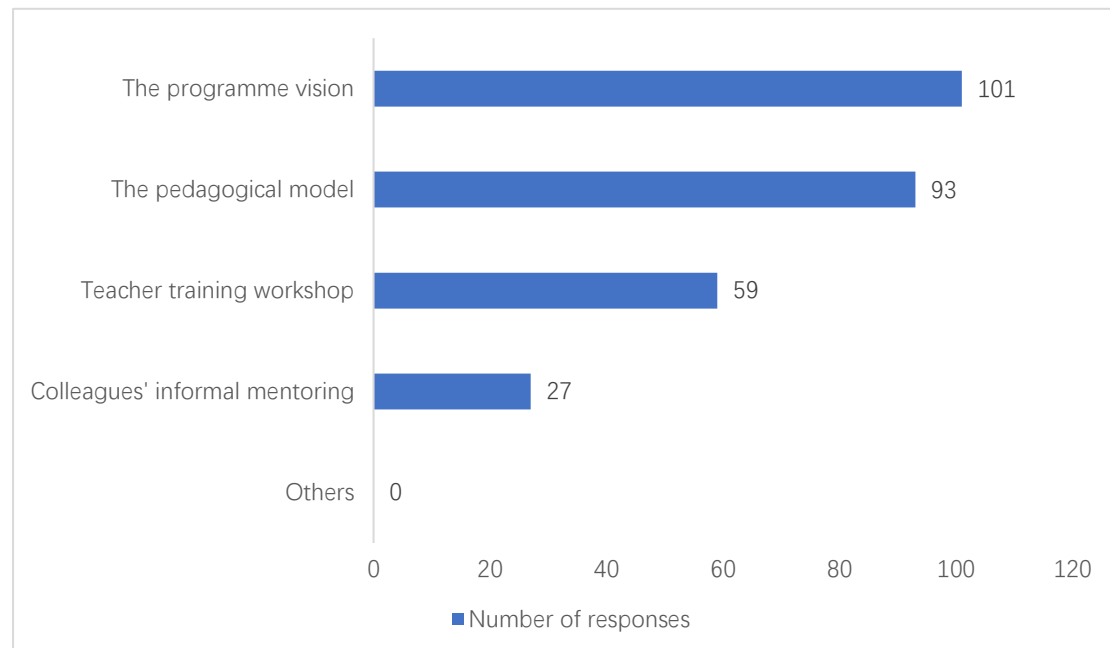


Figure 7.7 Overall responses to factors that assisted course design

Figure 7.7 reveals that the programme vision (n=101, 84.9%) and the pedagogical model (n=93, 78.2%) outlined by the institution are the major factors that assisted teachers in the design of their *huoli* courses. Teacher training workshop (n=59, 49.6%) and colleagues' informal mentoring (n=27, 22.7%) are less influential compared to the vision and model outlined by the institution. Figure 7.8 shows the responses (N=120) indicated by each cohort.

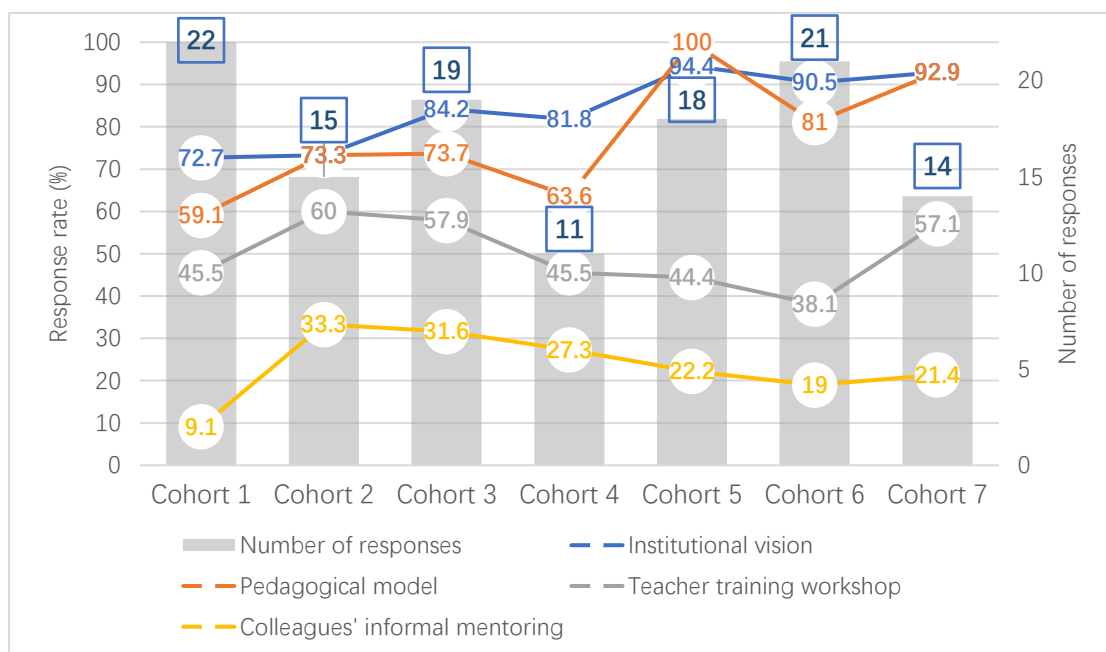


Figure 7.8 Responses to factors that assisted course design indicated by each cohort

Notes:

- (1) The grey bar represents the number of responses in each cohort, shown in the box on the top of each bar.
- (2) The coloured lines with numeric numbers show the rate of responses indicating different survey items in each cohort.

Figure 7.8 shows that at least 59.1% of all categories of respondents indicated that the programme vision and pedagogical model played a critical role in their course design. However, it seemed that the vision and model had a greater influence on late adopters (cohort 5~7) than early adopters (cohort 1~4). For example, 92.5% and 90.6% of late adopters indicated the impact of the vision and model on their course design respectively. In contrast, 77.7% and 67.2% of early adopters indicated the vision and model in the survey. It could be assumed that early adopters were more independent in their course design. This was probably due to the fact that they gained more practical experience and might have shaped their own understanding of excellence of teaching and

learning performance. In addition, only 9.1 % of the respondents from the earliest adoption group (cohort 1) related the factor of colleagues' informal mentoring in the survey. This could be explained by the fact that they were the most experienced adopters in the institution. Therefore, they might have increased their professional competence in course design and thus, become less reliant on colleagues' informal mentoring. Another possible explanation was that when they piloted the innovative pedagogies, there were fewer colleagues who had participated in the programme.

Table 7.4 presents the themes generated from the analysis of free text comments.

Table 7.4 Themes of free text comments on factors assisting course design

Theme	Indicative comments
Changing roles	<i>"The goals of subject and object in the classrooms were changed."</i> <i>"Student-centredness is to transform the mode of teacher-directed learning."</i>
Guiding framework	<i>"We learned the requirements and programme vision from the pedagogical model in a better way."</i> <i>"The model refined my course structure."</i>
Encouraging reflection	<i>"Encouraging self-reflection"</i> <i>"It encouraged me to reflect on my 'huoli' course and benefited my pedagogical reform."</i>
Mentoring climate	<i>"The climate of helping each other within my school."</i>

The free text comments shown in Table 7.4 highlighted the fact that teachers were informed of the programme vision and the institutional definition of *huoli* as student-centredness. Thus, programme participants were encouraged to

replace lecture-based teaching with student-centred learning and use the pedagogical model outlined by the institution to refine their course structures. In addition, teachers' self-reflection was an indication that they were evaluating the forthcoming changes in the classrooms.

In summary, the survey data on factors assisting course design revealed that institutional guidelines (i.e., the programme vision and pedagogical model) exerted a greater influence than the role of colleagues' informal mentoring in teachers' design of their teaching and learning approaches. Although Ertmer et al. (2012) argued that teachers' informal mentoring is key to the design of their teaching practices, the survey result yielded contradictory findings probably due to the change of context. The *huoli* course in the context of this research was a university-guided pedagogical innovation while Ertmer et al.'s (2012) research was situated in a grassroot movement among teachers. As the institution rewarded teachers' uptake of the guided innovation, teachers perceived those guidelines as institutional norms to be implemented in their course design.

On the other hand, as the institutional guidelines were a manifestation of the institutional definition of excellence of teaching and learning performance, the influence of those guidelines on programme participants' course design suggested that the guidelines played a dominant role in guiding teachers' initial understanding of excellence of teaching and learning performance. Moreover,

early adopters had become more critical in course design and understanding of excellence of teaching and learning performance probably because they had increased their professional competence in course design.

In addition, the dominant influence of the institutional guidelines on teachers' course design underlined the fact that the guidelines were generally accepted by programme participants as excellence of teaching and learning performance. Thus, the alignment between the university-led programme and programme participants in their conceptualisation of excellence of teaching and learning performance contributed to the enhancement of academics' intrinsic motivation for their uptake of the guided innovation. The enhancement of programme participants' intrinsic motivation is evidenced in Section 6.2.1 of Chapter 6.

Figure 7.9 presents the overall responses (N=120) to the teaching and learning approaches teachers employed in their *huoli* courses.

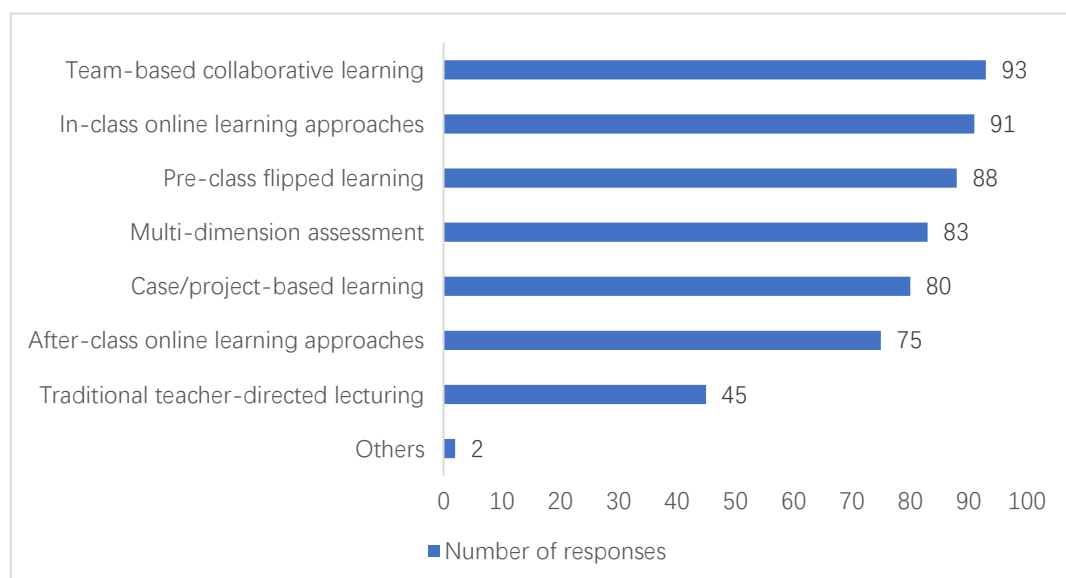


Figure 7.9 Teaching and learning approaches employed in *huoli* course

Figure 7.9 reveals that teachers adopted a blend of student-centred pedagogies which were all listed in the pedagogical model outlined by the institution (see Figure 2.2 in Chapter 2). The overall responses indicated that all those student-centred pedagogies were almost evenly distributed in teachers' *huoli* courses without particularly dominant ones. This was because the institution did not advocate specific teaching pedagogies enumerated in the model.

However, 37.5% of the teachers (n=45) responded that they still delivered traditional teacher-directed lecturing in their *huoli* courses although the institution encouraged teachers to replace lecturing-based teaching with student-centred learning. The phenomenon might confirm the findings from the initial qualitative strand that (1) teachers still had to rely on lecture-based teaching to cover all the course content or (2) they did not always regard student-centred pedagogies as effective teaching and learning approaches in improving student learning.

The teaching pedagogies employed by different categories of adopters (N=120) are shown in Figure 7.10.

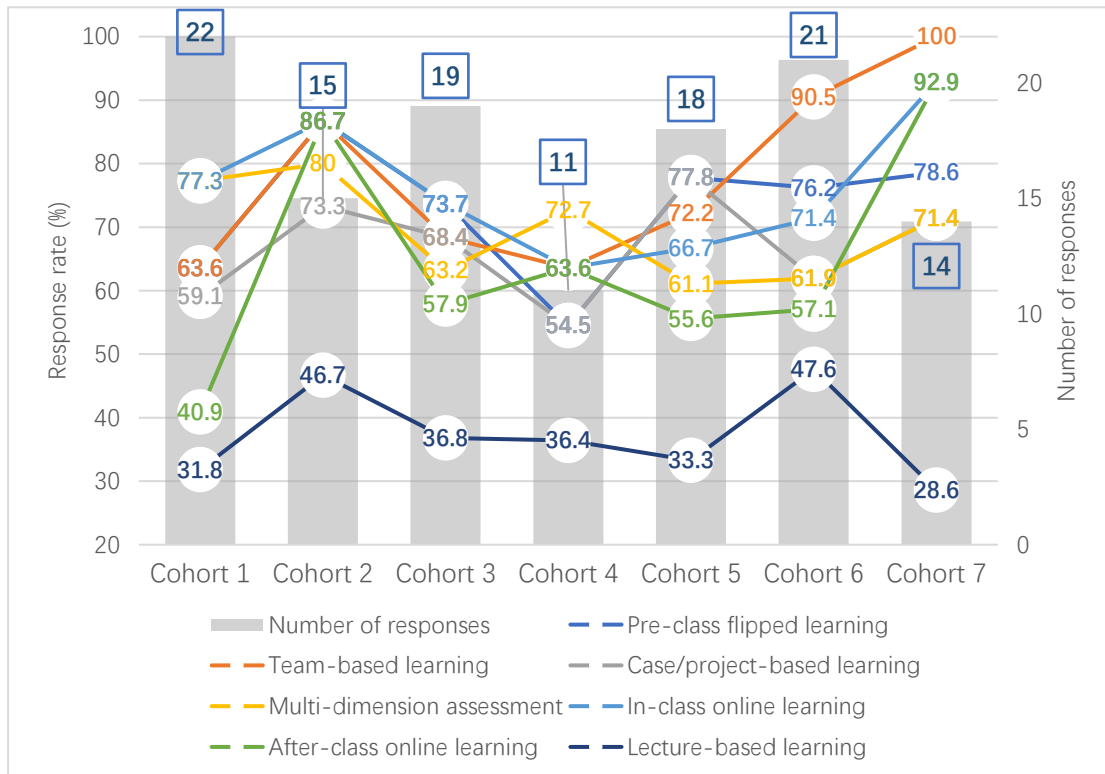


Figure 7.10 Teaching pedagogies employed by different categories of adopters

Notes:

- (1) The grey bar represents the number of responses in each cohort, shown in the box on the top of each bar.
- (2) The coloured lines with numeric numbers show the rate of responses indicating different survey items in each cohort.

Figure 7.10 shows that respondents from cohort 2 had a higher tendency (86.7%) to implement pre-class flipped learning while cohort 2 (86.7%), cohort 6 (90.5%), and cohort 7 (100%) preferred to deliver team-based learning. In addition, cohort 2 (86.7%) and cohort 7 (92.9%) were more inclined to adopt in-class and after-class online learning activities. It seemed that the latest adopters (cohort 7) were more likely to adopt the institutionally advocated pedagogies. On the contrary, only 40.9% of the earliest adopters (cohort 1) delivered after-class online learning. The probable reason was that early

adopters were more selective in their teaching and learning approaches after their critical reflection upon the rich practical experience they gained. On the other hand, it was likely that late adopters were experimenting with the teaching practices advocated by the institution or showcased by their colleagues in the practice of demonstration lessons.

Data from Q5 and Q6 regarding course design revealed that:

- Early adopters (cohort 1~4) tended to be more critical in the institutional guidelines and the institutionally advocated pedagogies than late adopters (cohort 5~7) as fewer early adopters indicated that the institutional guidelines assisted their course design and fewer of them performed the institutionally advocated pedagogies compared with late adopters (see Figure 7.6 and Figure 7.8). The lessons learned from the piloting stage might have influenced their perceptions. In addition, it suggested that due to the rich experience gained since their *huoli* courses were approved by the institution, early adopters might have practised thoughtful reflection on the institutional guidelines when they responded to the survey question Q3 and Q4.
- Institutional guidelines played a dominant role in influencing their course design among all categories of adopters. However, teachers might perceive their participation experiences as being controlled. Their perception of being controlled is evidenced in their comments on the practical experience

of their implementation process, which is presented in the next section.

7.4.2 Practical experience

This section explores teachers’ practical experience covering their workload, student engagement and ability, and challenges encountered.

1. Workload

Survey question Q7 and Q8 measured teachers’ perceptions of workload in the teaching of their *huoli* courses compared to other courses on a 5-point Likert scale (1=way less than, 5=way more than). Q7 addressed their perceptions in the piloting stage while Q8 explored the perceptions in the current stage. Figure 7.11 presents the overall responses (N=119) to the amount of time teachers spent in the delivery of their *huoli* teaching and learning approaches in the piloting stage.

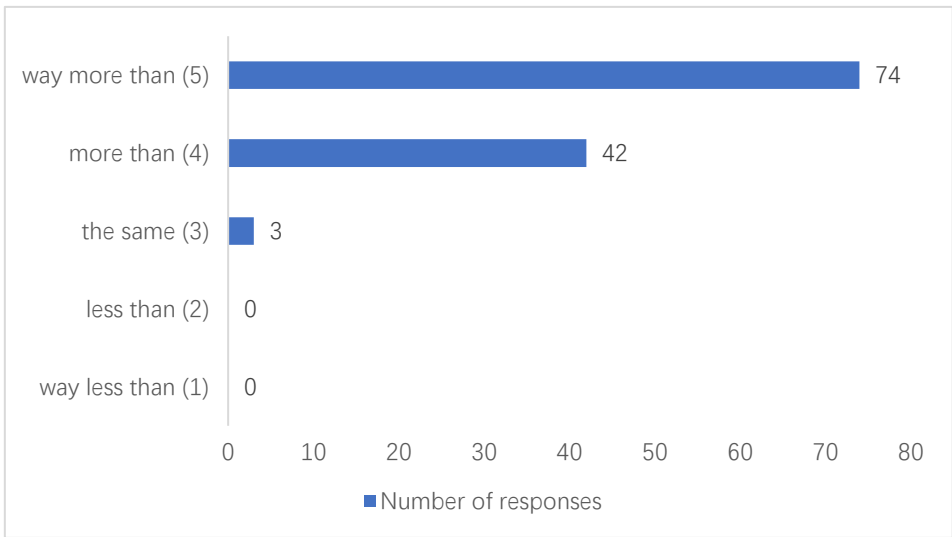


Figure 7.11 Teachers’ perceptions of workload in the piloting stage

Figure 7.11 reveals that in the piloting stage, teachers spent large amounts of time in the delivery of *huoli* teaching and learning approaches (Median scale =

5, way more than). 33 teachers commented on the workload issue in the piloting stage in the survey. Table 7.5 shows the themes of their free text comments.

Table 7.5 Themes of free text comments on workload in the piloting stage

Theme	Indicative comments
Lesson preparation	<i>"I had to redesign the course and adjust how to organise the teaching."</i> <i>"The development of online course website."</i>
Course management	<i>"Marking students' assignments and responding to students' queries."</i> <i>"The management of two separate systems, online and offline teaching and learning content"</i>
Programme participation	<i>"Programme application, course design, and demonstration lessons"</i>

The comments are predominantly centred around two themes, which are lesson preparation and course management. Only one respondent indicated the workload entailed by programme participation such as the delivery of demonstration lessons. The survey results suggested that the transfer from teacher-centred to student-centred pedagogies entailed the upfront cost of redesigning their original courses. In addition, teachers indicated the day-to-day administrative duties of course management, such as setting and marking assignments, responding to student queries, and organising online group discussions. This survey question on workload generated 33 free text comments, more than any previous survey questions. It reflected teachers' concern for heavy workload in the uptake of pedagogical innovations. This is in line with the findings from existing literature that workload issue posed a major barrier to teachers' uptake of pedagogical innovations (Teixeira Antunes et al.,

2021). Figure 7.12 illustrates the responses (N=119) indicated by each cohort.

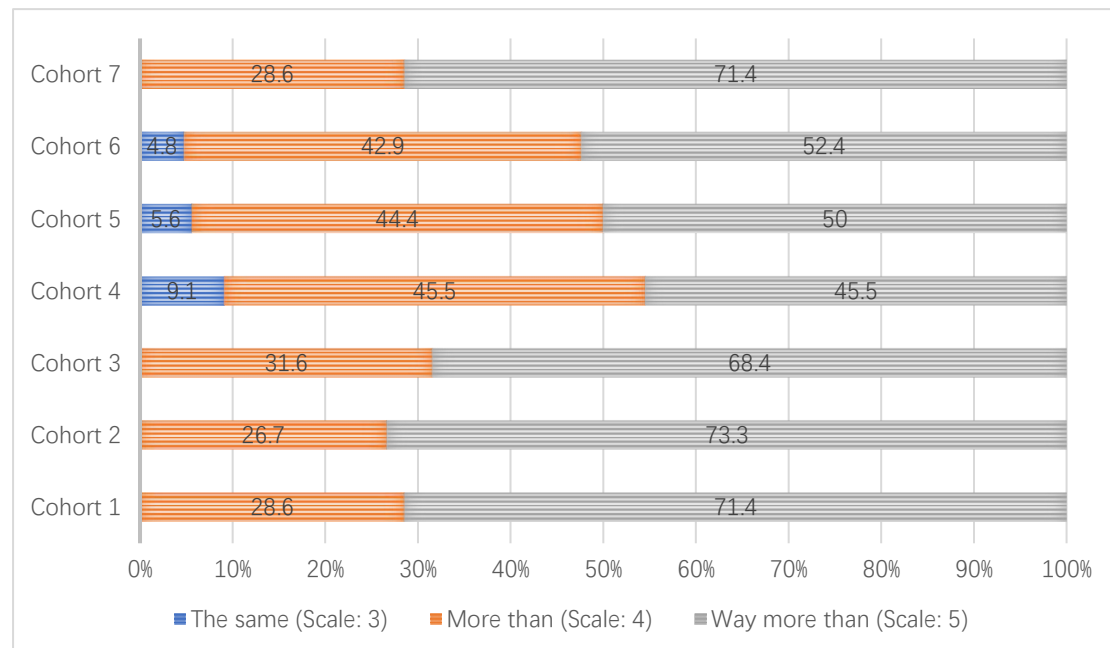


Figure 7.12 Responses to the workload issue in the piloting stage indicated by each cohort

Note: No respondents indicated “way less than” or “less than” in survey question Q7.

An independent-samples Kruskal-Wallis test⁶ was performed to compare the results of workload perceptions among the seven cohorts in the piloting stage. No significant difference was found ($H(6) = 6.536, p = 0.366$), indicating that the seven categories of adopters did not differ significantly from each other. The statistical test illustrates that workload posed as a major barrier to all categories of adopters in the piloting stage. The initial qualitative strand of my research identified that programme participation increased teachers’ workload in two major aspects, i.e., (1) the mastery of digital skills and (2) delivery of innovative teaching and learning approaches. As cohort 6 and cohort 7 participated in the

⁶ Details of Kruskal-Wallis test are described in Section 5.7.2 of Chapter 5.

programme in 2021 and 2023 respectively, they should have developed their digital skills from the experience of emergency remote teaching during the Covid-19 lockdown in 2020. However, the perception of heavy workload was still apparent in the two cohorts when they piloted their *huoli* courses after the emergency remote teaching. The survey data on teachers' perceptions of workload suggested that after the Covid-19, the delivery of teaching and learning approaches rather than the mastery of digital skills accounted for much of their time commitment in programme participation. The free text comments shown in Table 7.5 revealed that the guided innovation added new duties such as *“the management of two separate systems (i.e., online and offline)”* to teachers' workload.

Q8 explored teachers' perceptions of the workload issue in the current stage and Figure 7.13 shows the overall responses (N=119).

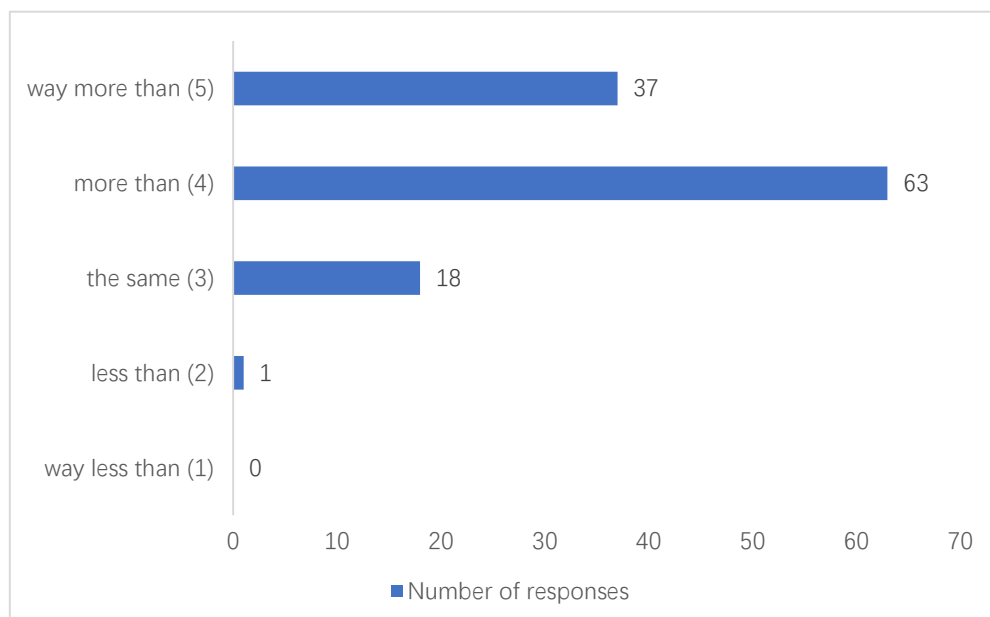


Figure 7.13 Teachers' perceptions of workload in the current stage

A paired-samples Wilcoxon test⁷ was performed to compare programme participants' workload perceptions in the piloting stage with their perceptions in the current stage. A significant difference was found in the results ($Z = -5.962$, $p < .001$), indicating that workload was significantly alleviated after the piloting stage. This contradicts Francom's (2020) argument that teachers' workload issue relating to their uptake of pedagogical innovations was unchanged over time. On the other hand, the phenomenon supports Hall's (1979) argument that teachers' uptake of innovations was a developmental process because it took time for academics to develop their professional competence in the delivery of innovative teaching practices. However, the barrier of workload issue was not eliminated over time. The perception of heavy workload in the current stage was still apparent (Median scale = 4, more than).

Free text comments shown in Table 7.6 revealed the rationale for heavy workload in the current stage.

Table 7.6 Themes of free text comments on workload in the current stage

Theme	Indicative comments
Day-to-day administrative duties	<i>"Each round of teaching was as new as the initial piloting. Except that the course materials were ready." "Responding to students' queries was more time-consuming. The efficiency was low."</i>
Improving professional competence	<i>"To keep abreast of the latest developments in subject areas. Update subject knowledge in teaching."</i>

⁷ Details of Wilcoxon test are described in Section 5.7.2 of Chapter 5.

Teachers indicated the reason why workload was still heavy in the current stage. Four respondents emphasised that their workload was just the same or heavier due to day-to-day administrative duties. For example, they shared that *“responding to students’ queries was more time-consuming and the efficiency was low”* as evidenced in Table 7.6. It seemed that teachers perceived the day-to-day administrative duties as completion of trivial tasks. In this regard, the uptake of the university-guided innovation was no longer perceived as innovations or new practices from some teachers’ perspectives. The change of perception might influence the level of competence that the innovative teaching practices conveyed to programme participants.

In addition, one teacher from cohort 1 indicated their enhanced responsibility of developing academics’ professional competence. For example, they updated subject knowledge and refined teaching practices.

However, one survey respondent from cohort 3 shared that the workload was the same as other courses because all their other courses had *“adopted huoli teaching and learning approaches.”* In this regard, the adoption of the guided innovation in *non-huoli* courses was intrinsically motivated rather than motivated by extrinsic rewards. This is the evidence suggesting that the vision of the university-led programme, i.e., improving student learning experience by introducing innovation and change was accepted by the respondent. The

acceptance of the programme vision by the survey respondent further illustrated that the guided innovation signified excellence of teaching competence from the respondent’s perspective. As a result, the respondent implemented the guided innovation beyond the programme. It provides some evidence highlighting an institutional spread of the university-led pedagogical innovation into courses that had not been approved by the *huoli* programme.

Figure 7.14 illustrates the responses (N=119) to the workload issue indicated by each cohort.

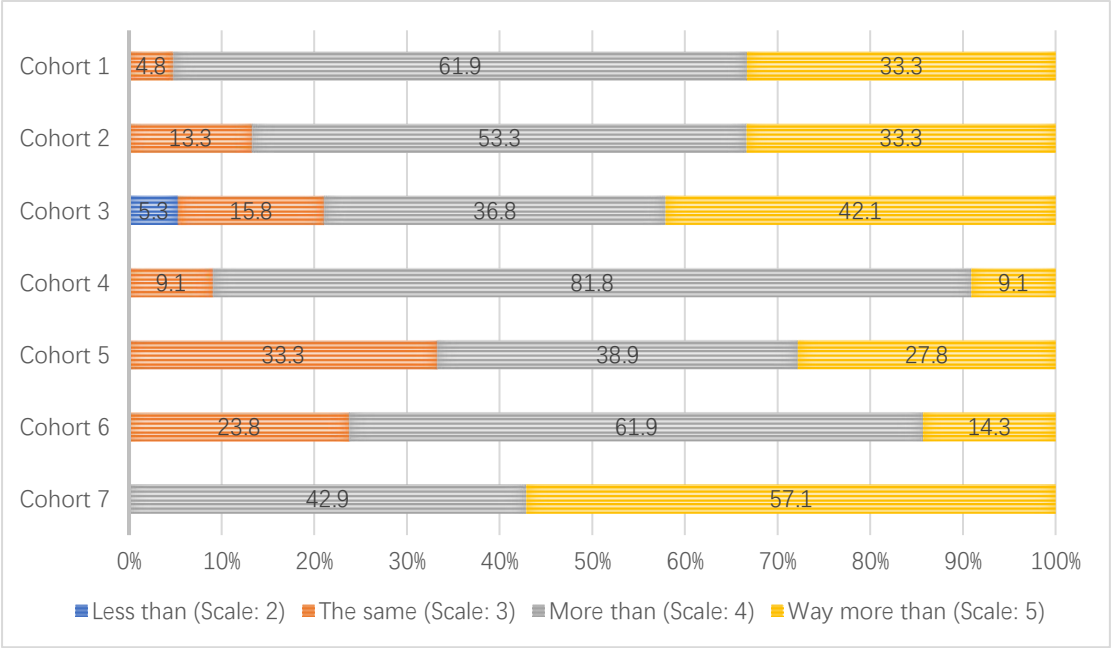


Figure 7.14 Responses to the workload issue in the current stage indicated by each cohort

Note: No respondents indicated “way less than” in survey question Q8.

An independent-samples Kruskal-Wallis test was performed to compare the results of workload perceptions among seven cohorts in the current stage. No

significant difference was found ($H(6) = 11.447, p = 0.075$), indicating that the seven categories of adopters did not differ significantly from each other in their perceptions of the workload issue in the current stage. However, cohort 7 reported a higher median scale (Median scale = 5) than all other cohorts (Median scale = 4). This was perhaps because cohort 7 had just finished the piloting of innovative teaching and learning approaches and thus, the perception of the workload issue was still fresh in their mind.

In summary, survey data on the workload issue revealed that:

- The workload issue was significantly relieved over time but not eliminated.
- The day-to-day administrative duties and academics' intrinsic motivation for improving professional competence contributed to their increased workload.

2. Student engagement and ability

Survey question Q9 and Q10 measured teachers' perceptions of student engagement in in-class and out-of-class learning approaches. They were invited to rate their perceptions on a 5-point Likert scale (1=very low, 5=very high). Figure 7.15 shows their perceptions of student engagement in in-class learning approaches (N=119).

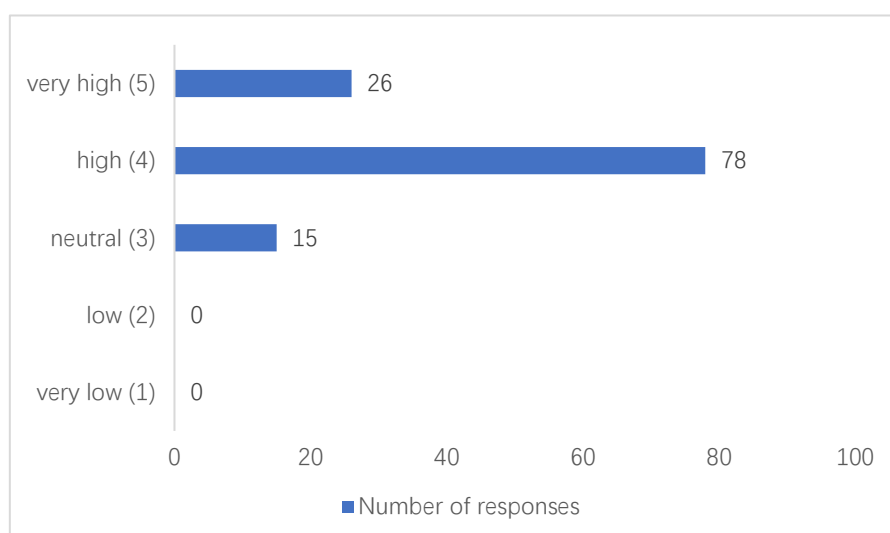


Figure 7.15 Teachers' perceptions of student engagement in in-class learning approaches

On average, teachers' perceptions of student engagement in in-class learning approaches were positive (Median scale: 4, high). 28 respondents commented on the factors impacting student engagement in in-class learning approaches.

Table 7.7 illustrates the themes generated from free text comments.

Table 7.7 Themes of free text comments on factors impacting student engagement in in-class learning approaches

Theme	Indicative comments
Conducive to students' participation	<i>"Activities such as opinions polls brought freshness in the classrooms."</i> <i>"The activities were centred around students and they were deeply engaged."</i>
Part of final mark	<i>"The pressure from the final grade."</i> <i>"In-class activities are part of the final mark."</i>
Student ability	<i>"Some of the theoretical knowledge was too dense for students to learn by themselves before class. Thus, they could not participate in in-class learning approaches."</i> <i>"Student ability hindered the delivery of many learning approaches."</i>
Lack of climate for learning	<i>"There was variability in student engagement across different degree programmes."</i> <i>"There was a prevailing climate of lack of hard-working spirit among students."</i>
Course design	<i>"Teachers' guidance."</i> <i>"Design of teaching activities."</i>

10 respondents indicated that in-class learning approaches were fun and conducive to their students' participation. Seven of them shared that the students were pressured to engage in in-class learning activities because their participation was included into the final mark. Five teachers stated that student ability hindered in-class participation. In addition, two teachers indicated that climate for learning varied considerably across different student groups. No new themes were identified from the free text comments compared with the initial qualitative strand. The frequency of their comments indicating specific themes further confirmed that programme participants were generally positive about student engagement in in-class learning approaches. However, there was variability in student engagement across different student groups.

Figure 7.16 illustrates teachers' perceptions of student engagement in in-class learning approaches (N=119) indicated by each cohort.

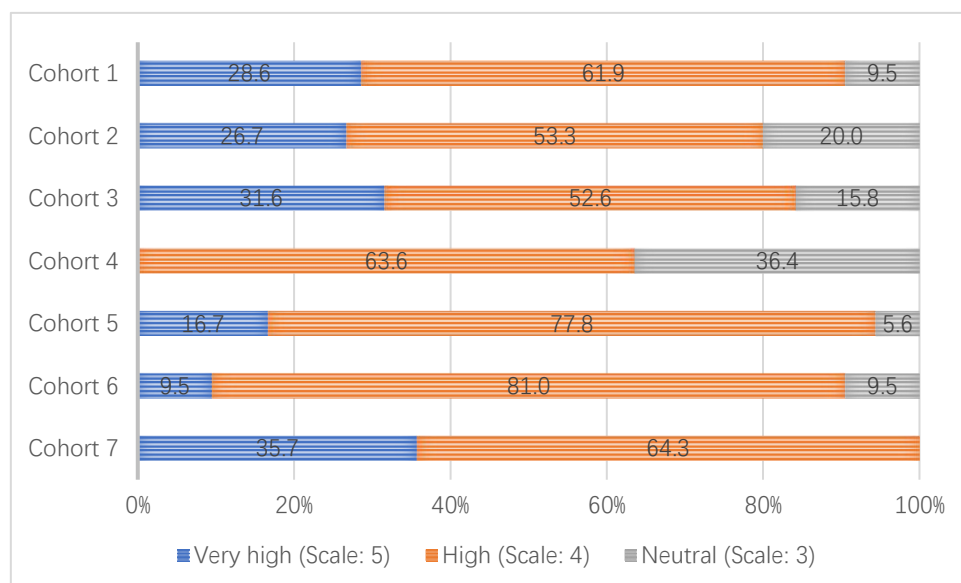


Figure 7.16 Responses to student engagement in in-class learning approaches indicated by each cohort

Note: No respondents indicated “low” and “very low” in survey question Q9.

An independent-samples Kruskal-Wallis test was performed to compare teachers' perceptions of in-class student engagement among seven cohorts. No significant difference was found ($H(6) = 10.961, p = 0.090$), indicating that the seven categories of adopters did not differ significantly from each other. As the p -value of the test is relatively small, I conducted follow-up pairwise comparisons⁸ and compared all possible pairs of cohort data within the seven cohorts. The follow-up comparisons indicated that the perceptions of cohort 4 differed significantly from cohort 7 ($p = 0.050$). I reviewed the free text comments provided by the five respondents from cohort 4 and found that three of them indicated that student ability and lack of hard-working spirit adversely affected their students' engagement in in-class learning approaches. In addition, of the five teachers who provided comments, three of them rated their students' engagement as "neutral" (3 out of 5 points). It could be assumed that survey respondents from cohort 4 might have encountered lower student engagement in the delivery of in-class learning approaches compared with other adopters.

Figure 7.17 illustrates the overall responses ($N=119$) to student engagement in out-of-class (i.e., pre-class and after-class) *huoli* learning approaches.

⁸ Pairwise comparison serves to identify which cohort is significantly different from other cohorts. Details of pairwise comparison are presented in Section 5.7.2 of Chapter 5.

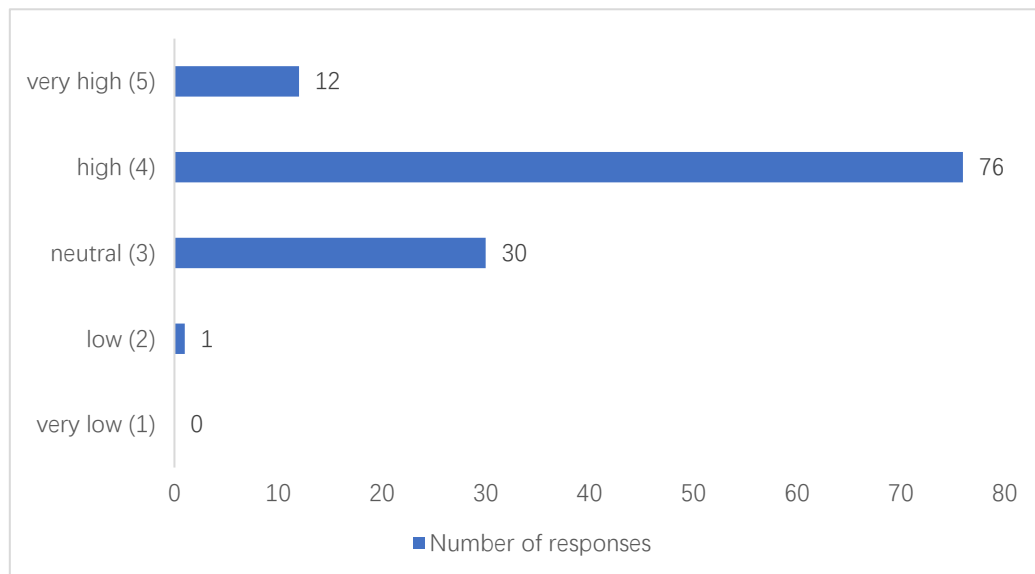


Figure 7.17 The overall responses to student engagement in out-of-class learning approaches

Figure 7.17 shows that teachers' perceptions of student engagement in out-of-class *huoli* learning approaches were on average positive (Median scale: 4, high). A paired-samples Wilcoxon test compared the results of programme participants' perceptions of in-class and out-of-class student engagement. A significant difference was found in the results ($Z = -5.096, p < .001$), indicating that their students were significantly less engaged in out-of-class learning than in-class learning from survey respondents' perspective. The respondents shared the factors impacting student engagement in out-of-class learning approaches. Table 7.8 illustrates the themes generated from free text comments.

Table 7.8 Themes of free text comments on factors impacting student engagement in out-of-class learning approaches

Theme	Indicative comments
Part of the final grade	<i>“The students were more engaged in after-class learning because the learning was part of their assessment.”</i> <i>“Out-of-class learning was recorded.”</i>
Teachers’ presence	<i>“The students are more engaged in group work under teachers’ monitoring. But the completion of after-class assignments is a myth in the absence of teachers’ presence.”</i>
Excessive workload	<i>“Our students have so many classes that they don’t have enough time.”</i> <i>“Out-of-class learning entails large amounts of time. Imagine a student has to take more than one ‘huoli’ course in the same term.”</i>
Student ability	<i>“The capabilities of some students were not up to some learning tasks.”</i>
Lack of motivation	<i>“The students like neither take-home assignments nor preview assignments. They are less motivated.”</i>

The themes from Table 7.8 underlined the factors that impacted student engagement in out-of-class learning approaches. Firstly, nine teachers indicated that including out-of-class learning into part of the final grade contributed to student engagement in those activities. The practice is underlined by the context of this research that students in private universities in China are usually less academically engaged compared with their counterparts in high-ranking public universities. Secondly, teachers’ presence played a critical role in influencing student engagement. Therefore, their students were less engaged in out-of-class learning approaches partly due to lack of teachers’ supervision or presence in those learning activities. In addition to student ability and lack of motivation, five teachers shared that excessive workload impacted their students’ engagement in out-of-class learning.

Figure 7.18 illustrates teachers' perceptions of student engagement in out-of-class learning approaches (N=119) indicated by each cohort.

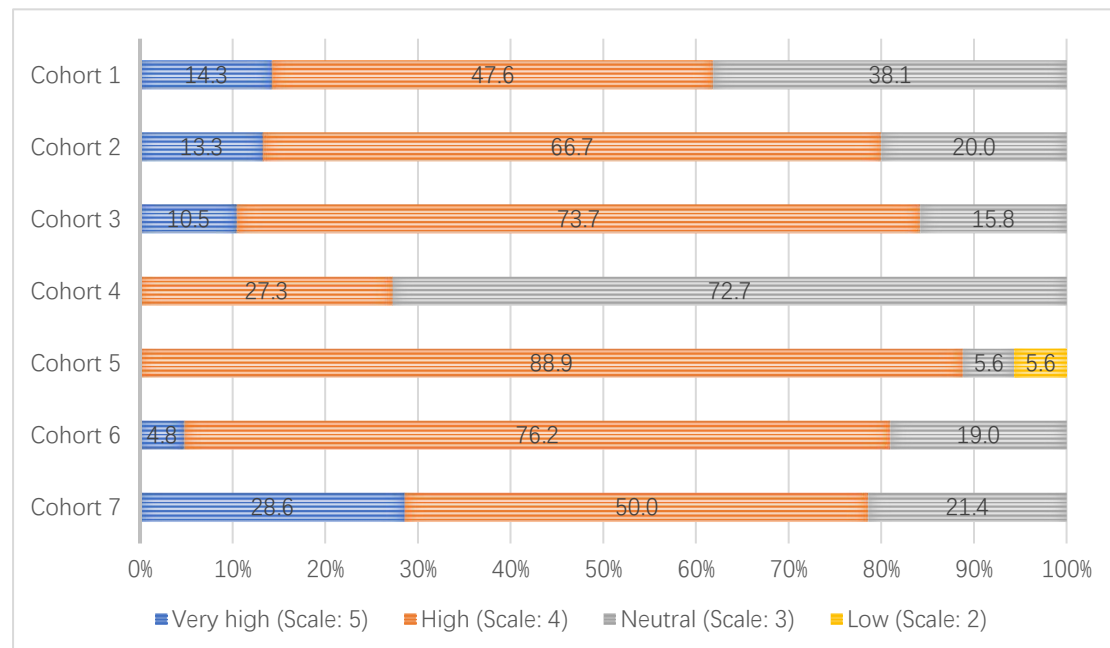


Figure 7.18 Responses to student engagement in out-of-class learning approaches indicated by each cohort

Note: No respondents indicated “very low” in survey question Q10.

An independent-samples Kruskal-Wallis test was performed to compare the results of the perceptions of out-of-class student engagement among seven cohorts. A significant result was found ($H(6) = 14.480, p = 0.025$) indicating that the seven categories of adopters differed significantly from each other. Following the Kruskal-Wallis test, follow-up pairwise comparisons were conducted and all possible pairs of cohort data (e.g., cohort 1 vs cohort 2~7, cohort 2 vs cohort 3~7...) were compared. Follow-up pairwise comparisons indicated that the perceptions of cohort 4 differed significantly from cohort 3 ($p = 0.002$) and cohort 7 ($p < .001$). Figure 7.18 reveals that teachers from cohort 4 (Median scale: 3, neutral) were least positive about their students'

engagement in out-of-class learning approaches compared with the other cohorts (Median scale: 4, high). The five teachers from cohort 4 who produced free text comments in the previous survey question Q9 all voiced their opinions in the comment box of Q10. Three of them responded that lack of motivation, excessive workload, and student ability affected their students' participation in out-of-class learning approaches. In addition, they all rated "neutral" (3 out of 5 points) in survey question Q10 and thus, their rating skewed the statistics of cohort 4 toward the "very low" end of the scale. It was likely that those five teachers might have met considerable challenges in relation to their students' engagement in in-class and out-of-class learning approaches.

Q11 explored teachers' perceptions of student ability to complete the *huoli* learning approaches. Figure 7.19 shows the overall responses (N=119).

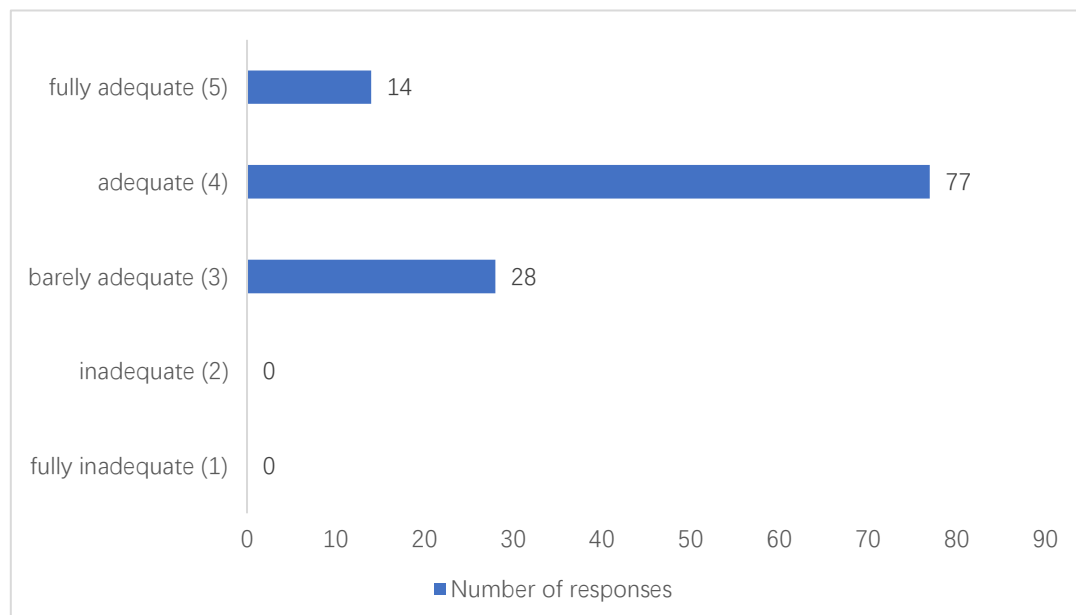


Figure 7.19 The overall responses to student ability

There is evidence from the qualitative data sets suggesting that student ability

posed a barrier to the implementation of student-centred pedagogies (see Section 6.3.2 of Chapter 6). However, Figure 7.19 reveals that on average, their students were capable of completing those student-centred learning approaches from programme participants' perspective (Median scale: 4, adequate). In addition, no respondents indicated in the survey that their students were inadequate or fully inadequate to complete those learning approaches. Figure 7.20 illustrates teachers' perceptions of student ability (N=119) indicated by each cohort.

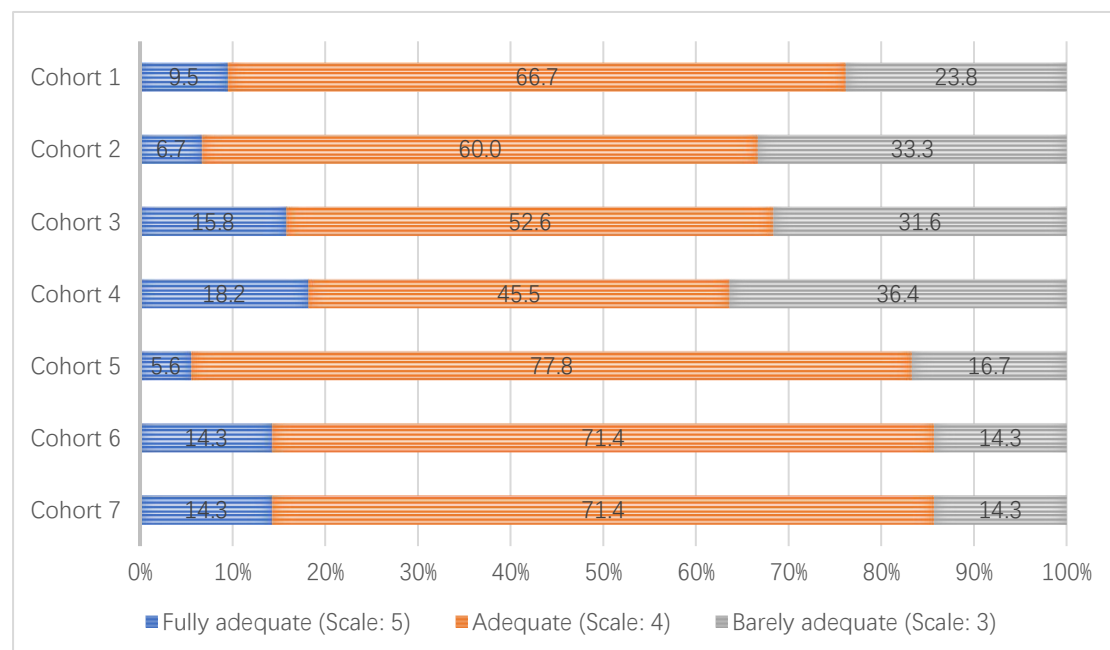


Figure 7.20 Responses to student ability indicated by each cohort

Note: No respondents indicated “inadequate” and “fully inadequate” in survey question Q11.

An independent-samples Kruskal-Wallis test was performed to compare teachers' perceptions of student ability among seven cohorts. No significant difference was found ($H(6) = 2.829, p = 0.830$), indicating that the perceptions

of the seven cohorts did not differ significantly from each other.

In summary, survey data on student engagement and ability highlighted that:

- Teachers were on average positive about student engagement and ability in the learning process.
- Some teachers might have met considerable challenges in the delivery of teaching and learning approaches due to variability in student engagement and ability.

In addition to heavy workload, student engagement, and student ability, it is likely that there are other challenges that might not have been identified in the initial qualitative strand. Consequently, the next two survey questions (Q12 and Q13) aimed to explore other challenges that teachers might have encountered in their implementation process.

3. Challenges

Q12 and Q13 explored challenges teachers (N=119) encountered in the delivery of in-class and out-of-class teaching and learning approaches. 87.4% of the respondents (n=104) replied that they encountered no challenges in the implementation of in-class teaching and learning approaches and 12.6% of them (n=15) commented that they met challenges. Ten respondents shared the challenges encountered in the free text comment box. Table 7.9 shows themes of the comments.

Table 7.9 Themes of free text comments on challenges in the delivery of in-class teaching and learning approaches

Theme	Indicative comments
Variability in student engagement and ability	<i>“There is great variability in student engagement across different classes. Some classes are passive in learning and challenging to motivate them.”</i> <i>“The student engagement, motivation, and academic ability vary considerably across different degree programmes.”</i>
Lack of infrastructure	<i>“The network connection of classrooms was poor. Some students could not participate in learning activities such as opinion polls.”</i>
Disaffection with institutional requirements	<i>“Some of the institutional requirements in relation to the delivery of online learning approaches disrupted my teaching.”</i>
Heavy workload	<i>“The grading rubrics are way too complicated. Excessive workload.”</i>
Lack of teaching time	<i>“Not enough teaching hours.”</i>

Although teachers were invited to comment on student engagement and ability in the previous survey questions (Q9~Q11), four teachers reiterated the barrier of student engagement and ability. This highlighted the fact that some students were so inactive in learning that it posed a major barrier to teachers’ implementation of those pedagogies. In addition to student engagement and ability, teachers also reported challenges such as lack of infrastructure, disaffection with the institutional requirements, heavy workload and lack of teaching time. The aforementioned challenges were all evidenced in the initial qualitative strand. Figure 7.21 illustrates the responses (N=119) indicated by each cohort.

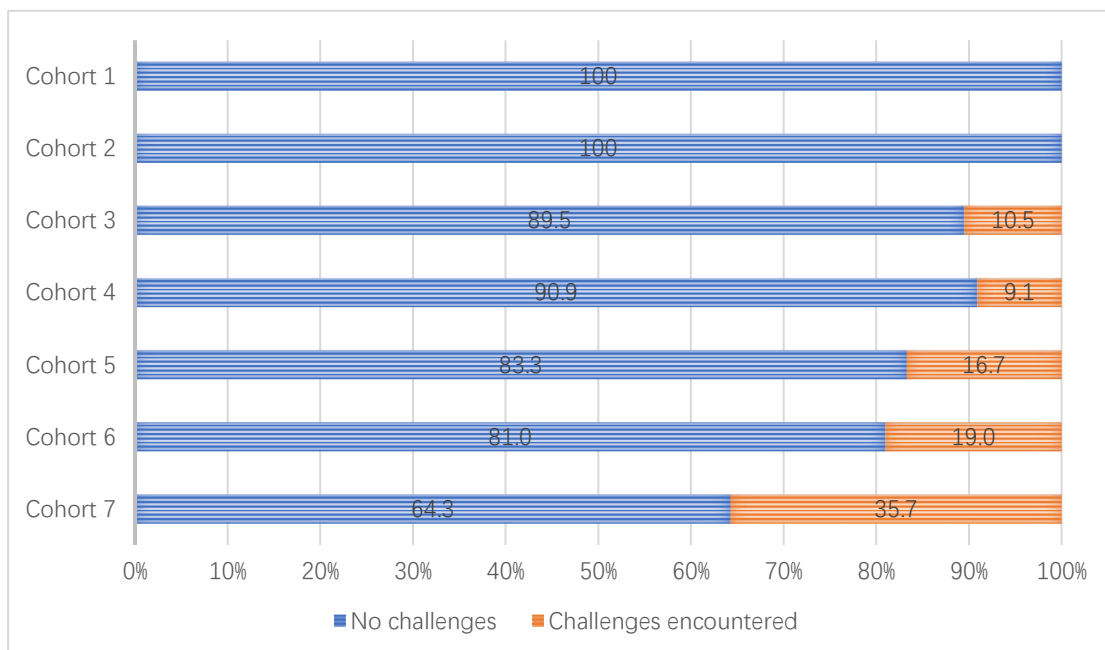


Figure 7.21 Responses to challenges in the delivery of in-class teaching and learning approaches indicated by each cohort

Figure 7.21 reveals that teachers' adoption experience greatly influenced their professional competence to address the challenges encountered in the implementation of in-class teaching and learning approaches. For example, cohort 1 and 2 all indicated that they met no challenges. On the contrary, 35.6% of the respondents from cohort 7 reported challenges and four of them indicated student engagement, heavy workload, and lack of infrastructure in the free text comment box. It could be assumed that early adopters were more prepared to address the barriers in the delivery of in-class student-centred pedagogies.

Compared to the delivery of in-class teaching practices (n=15, 12.6%), more teachers (n=26, 21.8%) reported they encountered challenges in the delivery of out-of-class student-centred teaching and learning approaches. Table 7.10

illustrates themes of the free text comments.

Table 7.10 Themes of free text comments on challenges in the delivery of out-of-class teaching and learning approaches

Theme	Indicative comments
Student engagement and ability	<i>"Some students completed those out-of-class learning tasks as compulsory duties without real interest." "It seems our students have other commitments after class."</i>
Disaffection with institutional requirements	<i>"Do we have to flip our class? Flipped learning is just one of the available pedagogical models. Can we have other alternatives?"</i>
Lack of infrastructure	<i>"Teaching facilities were temporarily shut down."</i>
Heavy workload	<i>"Marking students' online assignments was so time-consuming."</i>
Course design fit for purpose	<i>"Searching for teaching materials or practices that attract students' interest and suit their competence."</i>

Compared with the themes identified in survey question Q12 (Table 7.9), teachers reported similar themes of challenges encountered in the delivery of out-of-class teaching and learning approaches. However, among the 17 comments teachers provided in this survey question, 13 of them indicated the barrier of student engagement and ability. The comments in relation to student engagement and ability came from six of the seven cohorts (except cohort 6). Figure 7.22 shows the responses (N=119) indicted by each cohort.

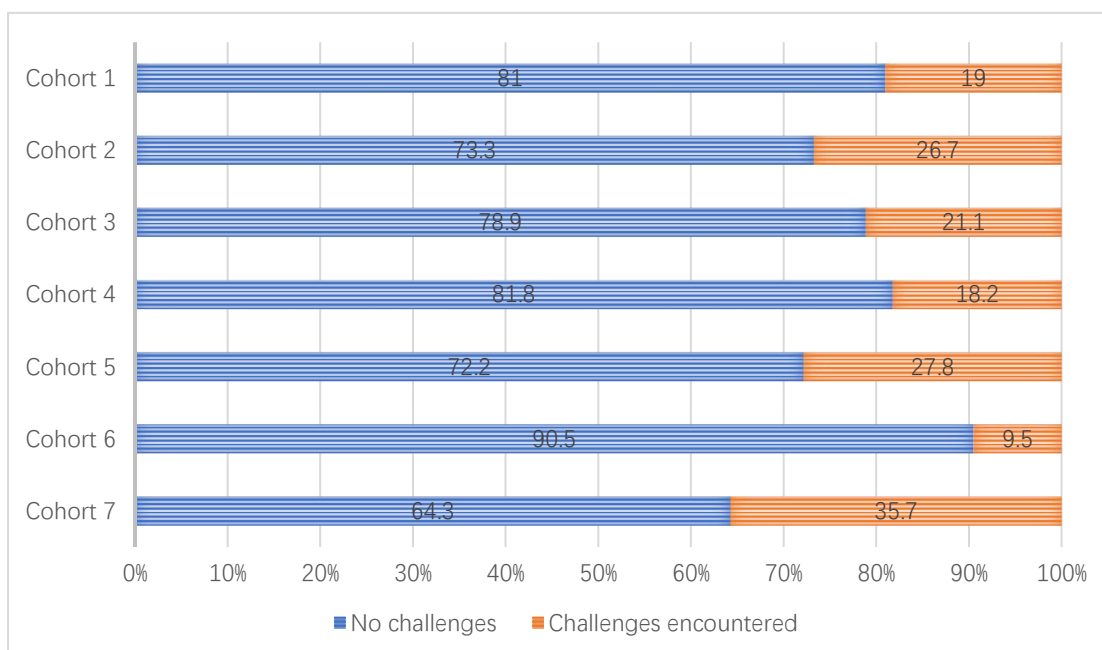


Figure 7.22 Responses to challenges in the delivery of out-of-class teaching and learning approaches indicated by each cohort

Figure 7.22 reveals that the latest adopters (cohort 7) were least prepared to address the challenges encountered in the delivery of out-of-class teaching and learning approaches. However, Figure 7.22 suggests that for programme participants from cohort 1~6, their adoption experience did not contribute much to their competence to address out-of-class challenges. As survey respondents frequently commented that their students were less engaged in out-of-class learning approaches, it could be argued that student engagement and ability posed a major barrier to the delivery of out-of-class student-centred pedagogies across most categories of adopters.

In addition, in the free text comments of survey question Q12 and Q13, respondents indicated their disaffection with the institutional requirements for

programme participation (Table 7.9 and Table 7.10). The institutional requirements are a set of online teaching and learning approaches entailed by programme participation. Programme participants shared that their teaching was constrained by the metrics-driven requirements. For example, they questioned whether it was appropriate to flip all their classes. The questioning indicated that some programme participants perceived that the institutional requirements exerted controls on their course design. Thus, they might perceive the experience of fulfilling the institutional requirements for programme participation as being controlled. In this regard, the requirements had a detrimental effect on some programme participants' perceptions of self-determination and spontaneity. The effect contributed to their disaffection with the institutional requirements. The disaffection might suggest that some programme participants did not perceive the completion of those requirements as excellence of performance. In such circumstances, the completion of those institutional requirements might undermine their intrinsic motivation. Further discussion about the institutional requirements will be presented in Section 7.5.1 of this chapter.

The data from Q12 and Q13 revealed that:

- Adoption experience boosted teachers' professional competence to address in-class teaching and learning challenges.
- Some teachers faced considerable challenges in the delivery of out-of-

class teaching and learning approaches across most categories of adopters predominantly due to student engagement and ability.

This section has presented programme participants' perceptions of the practical experience in their uptake of the university-guided innovation. The next section covers survey participants' responses to the summary of their adoption experience.

7.4.3 Adoption summary

This section discusses survey data relating to teachers' evaluation and adaptation of the piloted pedagogies and their understanding of *huoli*, or high-quality teaching and learning performance in the institutional context.

1. Evaluation of pedagogies

Survey question Q14 and Q15 explored teachers' perceptions of most and least beneficial student-centred teaching and learning approaches for student learning. Survey respondents were invited to select no more than 3 of the most or least beneficial approaches from the survey items. Figure 7.23 presents the results (N=120).

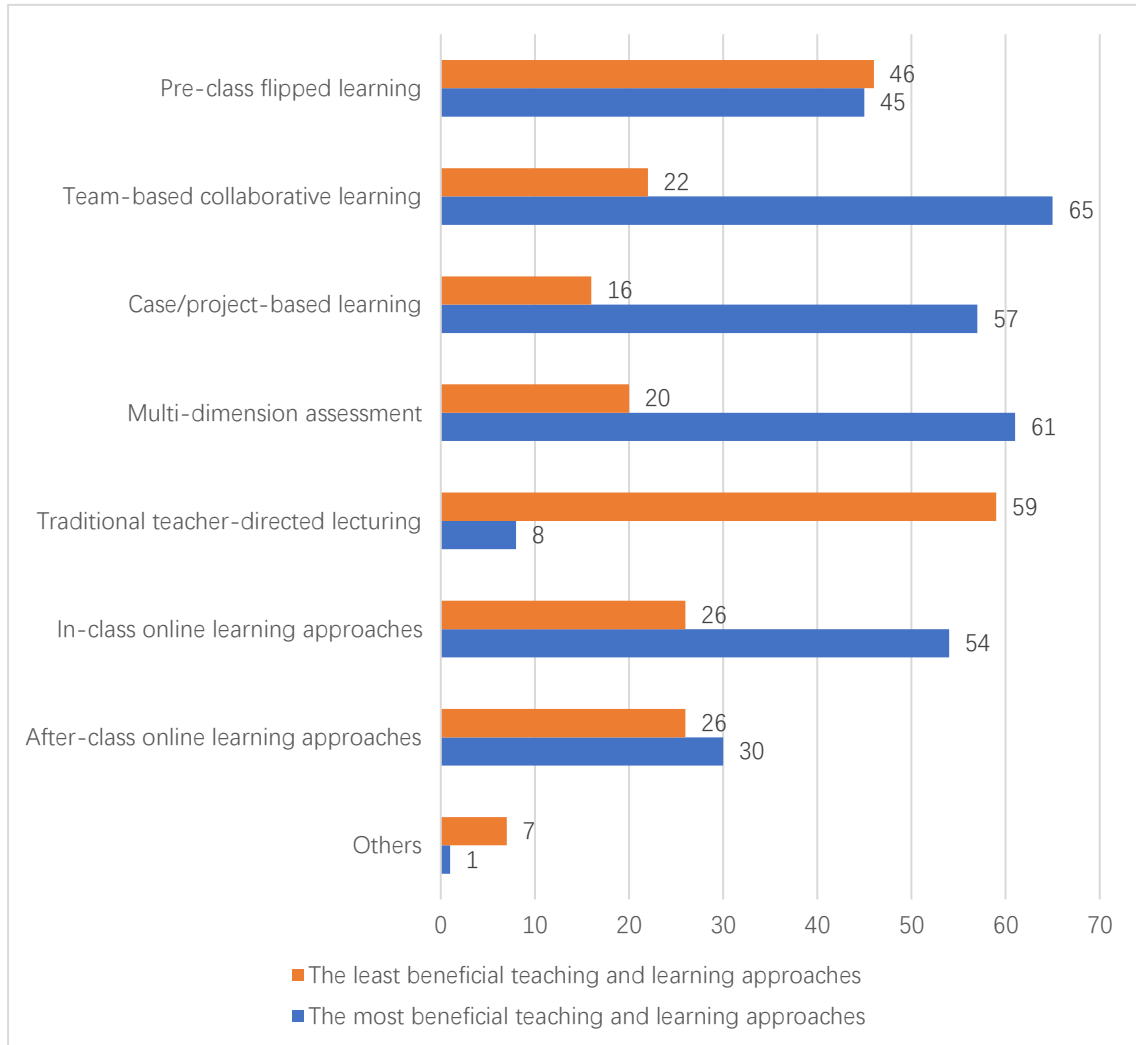


Figure 7.23 The most and least beneficial teaching and learning approaches

Figure 7.23 shows that three of the most beneficial student-centred teaching and learning approaches are team-based collaborative learning (n=65, 54.6%), multi-dimension assessment (n=61, 51.3%), and case/project-based learning (n=57, 47.9%). 19 teachers commented why the teaching and learning approaches they indicated benefited their students' learning. Table 7.11 illustrates themes of comments on the most beneficial teaching and learning approaches.

Table 7.11 Themes of free text comments on the most beneficial teaching and learning approaches

Theme	Indicative comments
Sparking interest and freshness	<i>"The students can review the comments from their peers and teachers and thus, they felt refreshed."</i> <i>"The students were motivated because activities such as opinion polls livened lectures up and attracted the interest of the students."</i>
Enhanced interaction	<i>"All the students can participate in learning activities."</i> <i>"The students cooperated with each other."</i>
Pressure from final mark	<i>"The students are very concerned about their mark."</i>
Improved learning outcomes	<i>"Case-based learning improved students' skills and ability."</i> <i>"Learn by doing."</i>

Teachers shared in the comment box that the introduction of technology in learning sparked interest and freshness among students. In addition, student-centred pedagogies were conducive to students' participation and thus, those pedagogies improved learning outcomes. Moreover, they made positive comments on multi-dimension assessment, i.e., the practice of continuously delivering a variety of assignments or mini-tests throughout the course and including those activities into the final mark of the course. Teachers shared that the practice was effective because the pressure of final course mark engaged their students in day-to-day learning activities.

On the other hand, two of the least beneficial teaching and learning approaches are lecture-based learning (n=59, 49.6%) and pre-class flipped learning (n=46, 38.7%). The data revealed that teachers' perceptions about the effectiveness

of pre-class flipped learning in improving student learning were widely divided. Approximately one third of teachers (n=45, 37.8%) responded that the teaching practice of pre-class flipped learning benefited their students while one third of them (n=46, 38.7%) shared that their students did not benefit from the practice. Teachers' mixed perceptions of pre-class flipped learning provided evidence that there was considerable variability in student engagement across different degree programmes or classes. In addition, variability in learning materials might also have affected student engagement and in turn, contributed to teachers' mixed perceptions of particular pedagogies.

Approximately one-sixth of the respondents indicated that student-centred pedagogies such as in-class online learning approaches (n=26, 21.8%), after-class online learning approaches (n=26, 21.8%), team-based collaborative learning (n=22, 18.5%), multi-dimension assessment (n=20, 16.8%) and case/project-based learning (n=16, 13.4%) did not benefit their students' learning.

Figure 7.23 also reveals that fewer respondents (n=30, 25.0%) indicated that after-class online learning was beneficial for student learning compared with other student-centred pedagogies due in part to low student engagement in out-of-class learning approaches as evidenced in survey question Q10 (out-of-class student engagement) and Q13 (challenges encountered in the delivery of

out-of-class teaching and learning approaches).

Table 7.12 shows themes of comments on the least beneficial teaching and learning approaches.

Table 7.12 Themes of free text comments on the least beneficial teaching and learning approaches

Theme	Indicative comments
Low student engagement	<i>"They were just not interested at all."</i> <i>"They were too busy to engage in pre-class flipped learning."</i>
Pedagogies unfit for course	<i>"It was inconvenient to deliver learning activities on mobile phones in practice-based courses."</i>
Lack of infrastructure	<i>"The class size was very large and it was impractical to administer mobile or cooperative learning."</i>
No reward for students' participation	<i>"No rewarding mechanisms."</i>

Among the 17 free text comments, 11 of them indicated the barrier of low student engagement. To further understand teachers' perceptions of student engagement, I reviewed all the free text comments collected by the survey and identified a total of 33 comments referring to the challenge of student engagement. They came from survey question Q9, Q10, Q12, Q13, and Q15 and accounted for 8.4% of total comments. The comments in the survey suggested that student engagement was a contributing factor to some programme participants' disapproval of the pedagogies advocated by the institution.

Survey data from Q14 and Q15 revealed that teachers overwhelmingly perceived that lecture-based learning was not the most beneficial pedagogy for student learning. For example, only 8 teachers (n=8, 6.7%) responded that traditional teacher-directed lecturing benefited their students and approximately half of them (n=59, 49.6%) considered the practice the least beneficial. However, teachers continued to employ lecture-based teaching as evidenced in survey data from Q6 (Figure 7.9). The probable explanation is that the practice of student-centred pedagogies did not fit well into all courses. In addition, it is likely that teachers perceived that the practice of student-centred pedagogies entailed extra time and effort as evidenced in the data from Q7 (Figure 7.11) and Q8 (Figure 7.13). Consequently, they did not plan to employ student-centred pedagogies to teach all the subject content.

Figure 7.24 and Figure 7.25 show the most and least beneficial pedagogies (N=120) indicated by each cohort respectively.

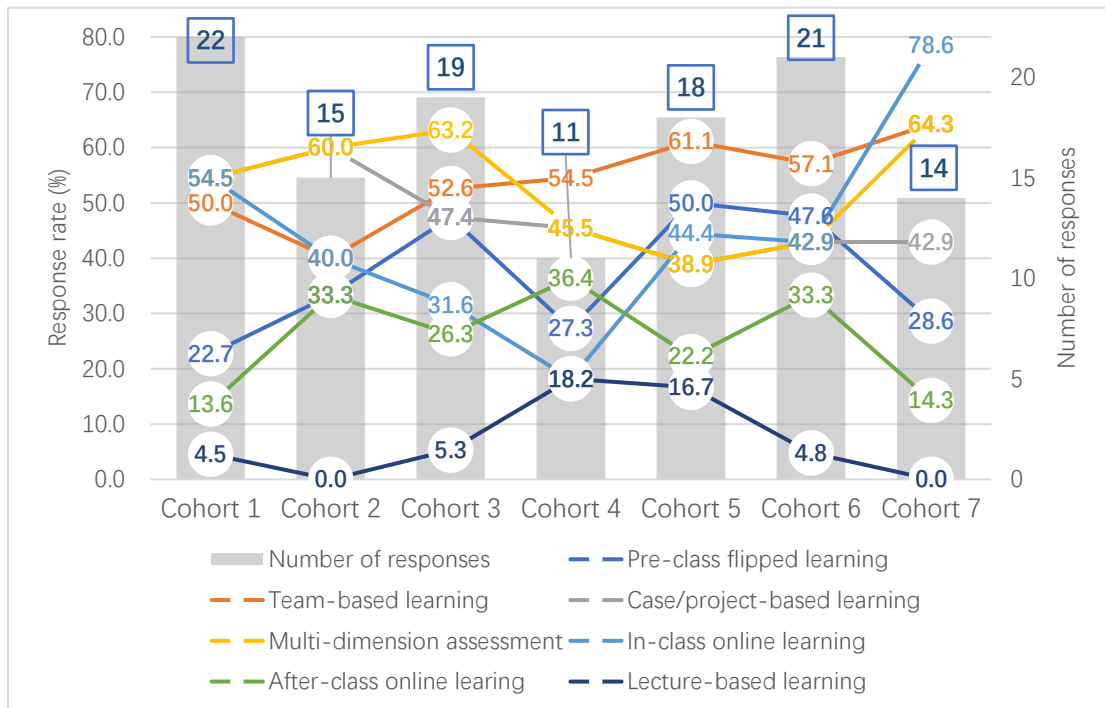


Figure 7.24 Most beneficial pedagogies indicated by each cohort

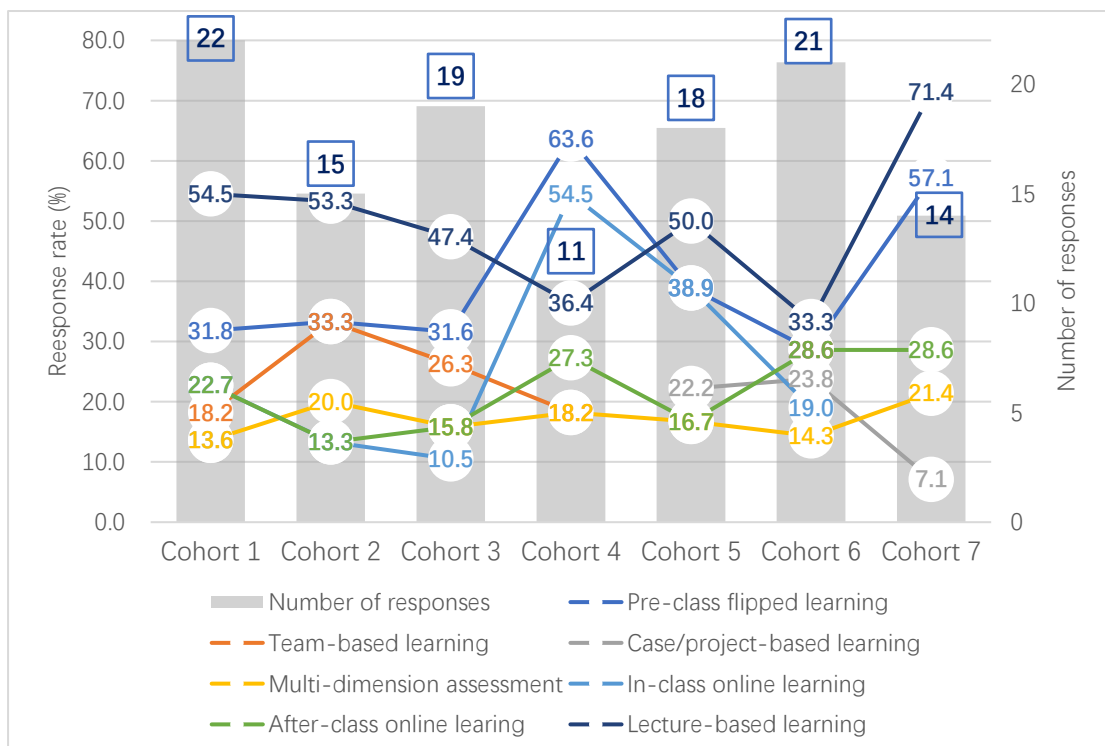


Figure 7.25 Least beneficial pedagogies indicated by each cohort

Notes for Figure 7.24 and Figure 7.25:

(1) The grey bar represents the number of responses in each cohort, shown in the box on the top of each bar.

(2) The coloured lines with numeric numbers show the rate of responses indicating different survey items in each cohort.

Figure 7.24 suggests that the latest adopters (cohort 7) were more positive about team-based learning (64.3%), multi-dimension assessment (64.3%), and in-class online learning (78.6%) than other cohorts. On the other hand, Figure 7.25 reveals that cohort 4 was more negative about pre-class flipped learning (63.6%) and in-class online learning (54.5%) than other cohorts. Survey data on student engagement (Figure 7.16 and Figure 7.18) revealed that cohort 4 was least positive about student engagement. It could be assumed that teachers from cohort 4 experienced considerable challenges of low student engagement in the implementation process. Thus, the practical experience contributed to their negative perceptions of specific pedagogies. In this regard, it could be argued that without extra interventions, teachers from cohort 4 might discontinue the adoption of those pedagogies. However, those pedagogies were part of the institutional requirements for programme participation and survey respondents from cohort 4 chose to continue their adoption and complete those requirements as evidenced in the attrition rate of their programme participation (see Section 7.2 in this chapter).

In addition, cohort 7 was more negative (71.4%) about lecture-based learning than other cohorts. As the vision of the university-led programme was to replace lecture-based learning with student-centred pedagogies, it seemed that the

institutional vision greatly influenced the latest adopters' understanding of excellent teaching and learning.

In summary, survey respondents' rating of the pedagogies reveals that the programming vision of replacing lecture-based teaching with student-centred pedagogies was generally accepted by programme participants. In general, teachers perceived that the innovative teaching and learning approaches advocated by the institution signified excellence of teaching performance compared with lecture-based teaching. However, due to challenges such as low student engagement, various student-centred pedagogies did not always produce expected learning outcomes. As a result, some programme participants chose to adapt the piloting pedagogies. Survey participants' responses to their adaptation of pedagogies are covered in the next section.

2. Adaptation of pedagogies

Q16 explored teachers' practice of teaching and learning approaches after the piloting stage. Figure 7.26 illustrates the overall responses (N=119) to the adaptation of their practices.

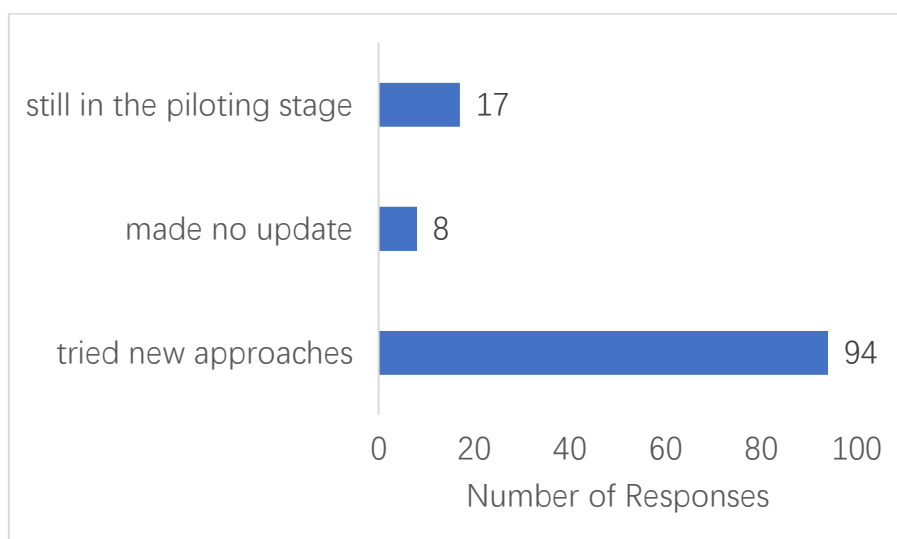


Figure 7.26 Teachers' adaptation of their practices after the piloting stage

Figure 7.26 shows that only 6.7% of them (n=8) made no update or refinement and 14.3% of them (n=17) indicated that they were still in the piloting stage. On the other hand, 79.0% of the teachers (n=94) reported that they refined their teaching and learning approaches after the piloting stage. Table 7.13 shows themes of free text comments.

Table 7.13 Themes of free text comments on the adaptation of pedagogies

Theme	Indicative comments
Introducing new pedagogies	<i>"Field trip."</i> <i>"Portfolio assessment."</i>
Refining existing pedagogies	<i>"Introducing warm-up activities before class."</i> <i>"Be selective in course content."</i>
Updating subject knowledge	<i>"Constantly updating teaching cases and introducing the latest developments in subject areas in teaching."</i>

The free text comments suggest that programme participants tried new

approaches (e.g., portfolio assessment), refined existing approaches (e.g., introducing warm-up activities) and updated subject knowledge in teaching after the piloting stage. Qualitative evidence in Section 6.2.2 and Section 6.3.3 suggested that monetary reward enhanced teachers' motivation for refining their pedagogies and boosted their performance in teaching activities. In this regard, monetary reward might have been a contributory factor to the widespread refinement of pedagogies as indicated by survey respondents in this section. The free text comments derived from the survey suggested teachers' extra investment and effort such as *"introducing the latest developments in subject areas in teaching"* as shown in Table 7.13.

Figure 7.27 illustrates the responses (N=119) indicated by each cohort.

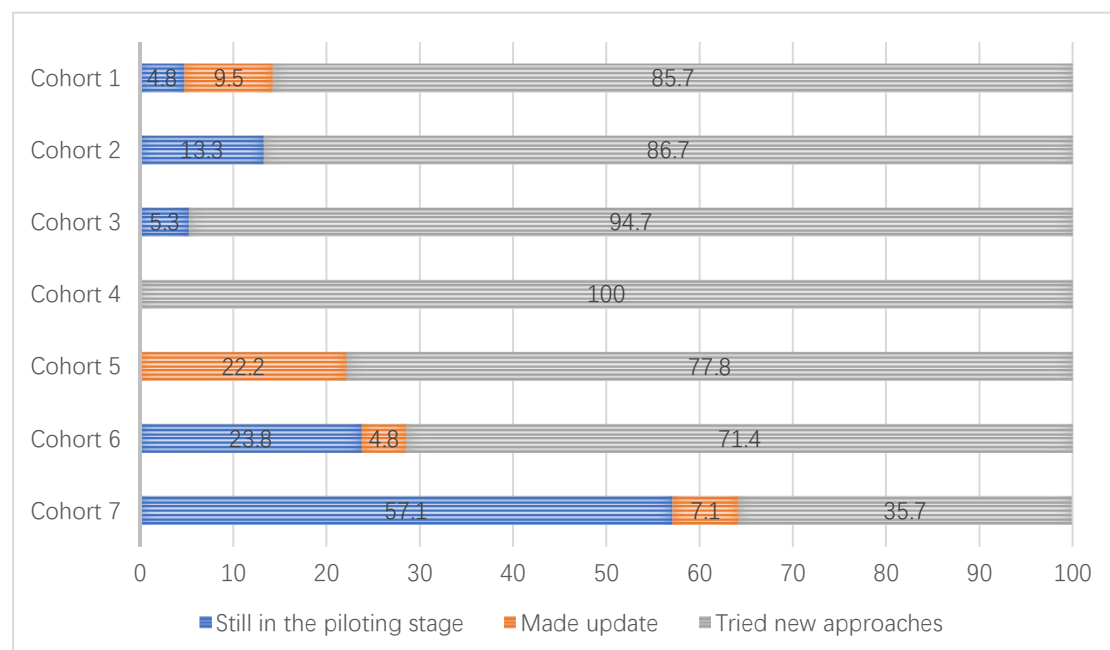


Figure 7.27 Responses to the adaptation of teaching and learning approaches indicated by each cohort

Figure 7.27 shows that only 35.7% of the latest adopters (cohort 7) tried new teaching and learning approaches. This was in line with the fact that they had less adoption experience than other cohorts.

All the survey respondents from cohort 4 shared that they tried new approaches. As evidenced in the previous survey questions (Q9, Q10 and Q15), they were least positive about student engagement (Figure 7.16 and Figure 7.18) and the effectiveness of pre-class flipped learning (Figure 7.25) in improving student learning. Thus, the challenges might have encouraged more teachers from cohort 4 to refine their pedagogies. Moreover, it seemed that the intrinsic motivation for improving student learning contributed to their decisions to adapt existing pedagogies because the adaptation of pedagogies was not required by programme participation.

As programme participants adapted their pedagogies to achieve *huoli* in teaching and learning, the next section explores their understanding of *huoli* on a wider population.

3. Understanding of *huoli*

Q17 explored teachers' understanding of *huoli*, or high-quality teaching and learning performance after the piloting stage (N=119). 85.7% of the teachers (n=102) reported that their understanding of *huoli* was changed after the piloting

stage while 14.3% of them (n=17) indicated that their understanding underwent no change. Figure 7.28 illustrates the responses (N=119) indicated by each cohort.

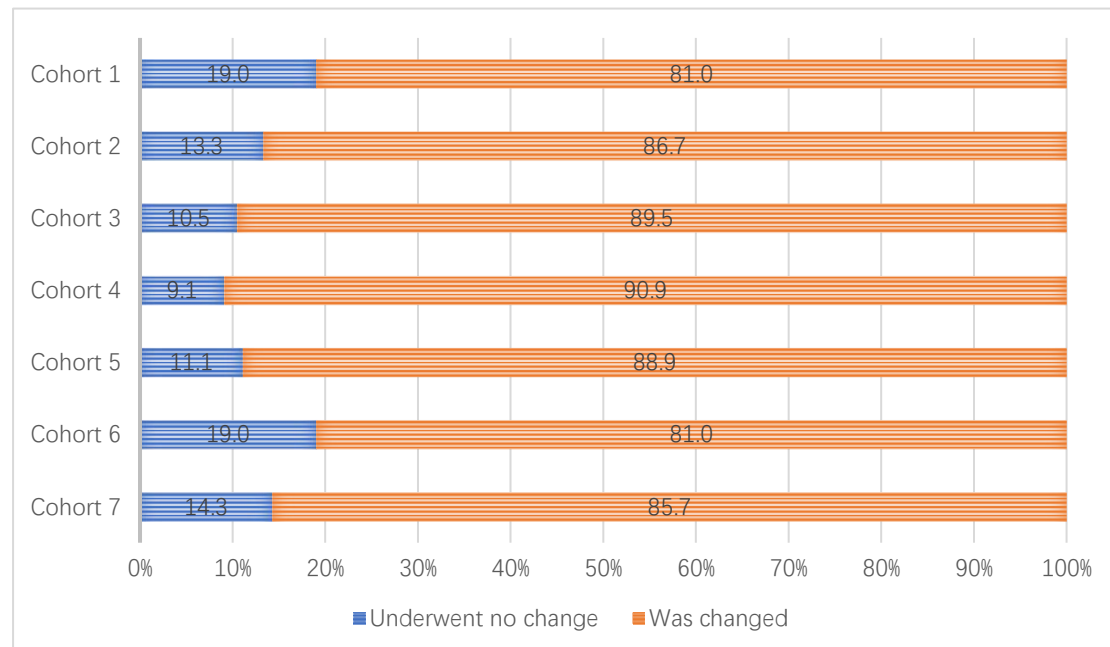


Figure 7.28 Responses to the understanding of *huoli* indicated by each cohort

Figure 7.28 reveals that at least 81.0% of all categories of adopters indicated their refined understanding of *huoli* in the survey. This was probably attributable to their critical reflection of the practical experience gained in the piloting stage.

Table 7.14 illustrates themes of free text comments on teachers' understanding of *huoli*.

Table 7.14 Themes of free text comments on teachers' understanding of *huoli*

Themes	Indicative comments
Student-centredness	<i>"The students changed from passive learning to active participation."</i> <i>"Enhanced interactions in the classrooms. But do not EXAGGERATE!"</i>
Student empowerment	<i>"'Huoli' is about the collision of thinking between teachers and students."</i> <i>"'Huoli' is not about the extrinsic performance in the classrooms. It is the intrinsic power that nurtures students' sustainable development."</i>
Teacher empowerment	<i>"Teachers also need to maintain 'huoli'."</i> <i>"Teachers and students complement each other in teaching and learning."</i> <i>"The students can learn the latest developments in subject areas from teachers."</i>
Fit for students	<i>"The pedagogies should fit with students' ability."</i> <i>"The student population is changing."</i>

Table 7.14 illustrates that the institutional definition of *huoli* as student-centredness was still popular among programme participants. However, one respondent advised not to "exaggerate" the performance of student-centred pedagogies in the classrooms. Thus, the use of the impactful word "exaggerate" might highlight the fact that teachers enhanced their understanding of *huoli* and thus, they perceived that excellence of teaching and learning performance was more than students' active participation in various learning approaches. Therefore, they recommended not to overemphasise enhanced interactions between teachers and students. Another explanation for the word "exaggerate" is that teachers perceived that the practice of teacher-student interactions was no performance or showcase for their colleagues or the institution, but rather a

naturally occurred practice between teachers and their students.

In addition to student-centredness, the respondents also highlighted the empowerment of both students and teachers. For example, they argued that *huoli* was not the extrinsic delivery of various student-centred pedagogies, but rather student empowerment in thinking and development as shown in Table 7.14. It seemed that survey respondents were alluding to the completion of the institutional requirements for programme participation. Moreover, survey respondents reiterated that the designed pedagogies should fit well with student ability.

The above-mentioned critical comments were also evidenced in the initial qualitative strand. For example, teachers argued that *huoli* was not about the extrinsic performance in class sessions on the part of teachers, but rather the cognitive development of students. The survey data further confirmed that teachers developed and expanded their understanding of high-quality teaching and learning performance after the piloting stage. They perceived that high-quality teaching and learning performance was more than the institutionally defined student-centredness. In this regard, the practice of student-centred teaching and learning approaches was neither intended for the institution, nor “joining the bandwagons”, but rather what students could gain from the learning process.

Teachers' enhanced understanding of *huoli* revealed that a gap between the institution and programme participants in their conceptualisation of excellent teaching and learning performance started to appear. The gap contributed to teachers' disaffection with the institutional requirements which advocated the extrinsic performance of innovative teaching and learning approaches. Consequently, the gap reduced programme participants' perceptions of the level of competence that the institutional requirements for programme participation signified.

In summary, data from Q14~Q17 refined the propositions derived from the initial qualitative strand in the following aspects:

- Teachers held mixed perceptions about the effectiveness of various student-centred pedagogies in improving student learning mainly due to the variability in student engagement across different degree programmes or classes. In general, they agreed that student-centred pedagogies were superior to lecture-based teaching in relation to improving student learning experience and thus, most programme participants perceived that the uptake of the guided innovation signified excellence of performance.
- The negative perceptions about specific pedagogies did not lead to the discontinuation of those pedagogies on a large scale. On the contrary, programme participants adapted their teaching and learning approaches after the piloting stage. Although programme participants did not have to

demonstrate the refinement of those piloted pedagogies to the institution, evidence gathered from the initial qualitative strand (see Section 6.2.2 and Section 6.3.3 in Chapter 6) suggested that the provision of career progression and monetary reward could have motivated them to continuously refine their pedagogies.

- Most teachers refined and enhanced their understanding of *huoli* after the piloting stage.

7.4.4 Section summary

This section has measured the scale of various challenges teachers encountered in the delivery of student-centred pedagogies. The survey data revealed that the major challenges were heavy workload on the part of teachers and low student engagement in out-of-class learning approaches. In addition, the diversity of teachers' perceptions of various student-centred pedagogies was measured. The survey data revealed that teachers' perceptions of pre-class flipped learning were widely divided due to variability in student engagement across different degree programmes or classes.

This section identified the differences in the perception of teachers at different adoption stages. The survey data has revealed that later adopters had a higher tendency to apply the institutional guidelines in course design. On the contrary, earlier adopters tended to be more critical in the institutionally advocated

student-centred pedagogies. In addition, programme participants increased their professional competence and enhanced their understanding of *huoli* over time.

The analysis of the perceptions of different categories of adopters described a pattern of adoption experience in the diffusion of pedagogical innovations featuring a top-down approach. In the piloting stage, institutional guidelines were effective in reducing uncertainty about innovation adoption. However, after cycles of experiments, teachers increased their professional competence relating to the delivery of those institutionally advocated pedagogies. In addition, they developed their criticality upon revisiting those guidelines after the piloting stage. Accordingly, a gap in the understanding of excellence of performance emerged between the institution and the programme participants. The gap fuelled teachers' disaffection with the institutional requirements for programme participation. The disaffection reduced their perceptions of those requirements as a sign of teaching competence. For example, teachers used an emotionally impactful word "chicken ribs (meaningless practices)" to describe the institutional requirements as evidenced in Section 6.3.2 in the previous chapter. The next section presents how the reduction in perceived competence in the delivery of the institutional requirements negatively affected teachers' intrinsic motivation.

7.5 Future plans and suggestions

The last section of the survey, Q18~Q20 invited teachers to comment on their future plans and suggestions for the *huoli* programme.

7.5.1 Institutional requirements

Q18 surveyed teachers' responses (N=120) to a question regarding the adjustment of the institutional requirements for programme participation. The institution mandated quantities of online teaching and learning approaches for programme participants. In survey question Q12 and Q13 (i.e., challenges encountered in the delivery of teaching and learning approaches), teachers commented that the institutional requirements did not fit in with their teaching.

Data from Q18 reveals that two thirds of the respondents (n=80, 66.7%) preferred not to make changes to the institutional requirements for programme participation. However, institutional data reveals that more than 80% of them chose to re-adopt the innovation and continued their programme participation (see Figure 6.6 in Chapter 6).

On the other hand, one third of the respondents (n=40, 33.3%) were in favour of adjusting the institutional requirements regarding the design of the *huoli* course. They were supportive of replacing the metrics-driven institutional requirements with better solutions. The survey question on the institutional

requirements elicited more free text comments than any other questions. 41 teachers commented on the rationale for their responses. Table 7.15 shows themes of the free text comments.

Table 7.15 Themes of free text comments on institutional requirements

Theme	Indicative comments
Concern for change and extra workload	<i>“Accustomed to the current accountability system in relation to the completion of the institutional requirements.”</i> <i>“Stop zheteng (flip-flopping) on policies. Teachers’ intrinsic motivation is more sustainable.”</i> <i>“We are all devoted to our ‘huoli’ course. Accountability in relation to fulfilling the institutional requirements is unnecessary.”</i> <i>“We are already tasked with many activities and please alleviate the workload in relation to programme participation.”</i> <i>“Make sure fair evaluation.”</i>
Box-ticking exercise	<i>“Stop the practice of xing shi zhu yi [box-ticking].”</i> <i>“Please do not set too many restrictions. Some teachers completed the institutional requirements without considering the actual merits of those practices.”</i>
No sign of excellence of performance	<i>“Online learning statistics are only for teachers’ reference. For example, the students’ completion of those online learning tasks cannot confirm their actual engagement in those tasks. Our students’ submission of online assignments does not mean that those assignments were completed by them independently.”</i> <i>“The authenticity of online learning statistics is questionable. Students’ online participation is hardly relevant to their actual engagement in learning.”</i> <i>“Current metrics-driven institutional requirements spoiled teachers’ spontaneity. Actually, they are meaningless.”</i>

The theme “concern for change and extra workload” shown in Table 7.15 highlighted teachers’ objection to adjusting the institutional requirements. The theme suggested that there was strong resistance to the adjustment of the institutional requirements among programme participants because of

considerable uncertainty about the possible change in existing practices. For example, they were concerned that policy changes might incur extra workload on them. As programme participants were required to submit accountability paperwork documenting the evidence of the completion of the institutional requirements, they worried that new policies might entail new duties of accountability. Teachers' concern for extra workload further confirmed that workload was one of their prioritised concerns in relation to innovation adoption. In addition, change of institutional policies induced evaluation apprehensions among programme participants. For example, they demanded "fair evaluation" of their programme participation as shown in Table 7.15. As change of policies might bring uncertainties for practitioners, they just wanted to keep their professional practice unchanged. Therefore, they used an emotionally impactful Chinese word "zheteng (折腾)" referring to flip-flopping on policies or practices. The respondent used the word to advise institutional administrators not to sway back and forth on institutional policies of programme participation.

In addition, the theme "box-ticking exercise" suggested that teachers' intrinsic motivation was bought off by extrinsic rewards (Deci, 1971). Teachers again used an impactful Chinese word "xing shi zhu yi (形式主义)" referring to the practice of "box-ticking". They responded in the free text comment box that their colleagues completed the institutional requirements without assessing the actual merits of those practices. Similar comments were also evidenced in the

qualitative data sets (Section 6.3.3 in Chapter 6). Although the institutional requirements mandated quantities of online teaching and learning approaches for programme participants, the completion of those approaches did not require a standard of quality. In such circumstances, programme participants varied their performance during their uptake of the guided innovation. Some of them chose to complete the institutional requirements for the expected monetary reward without considering the quality of their performed tasks. In this regard, the reward arrangement, or the way the reward was promised undermined teachers' intrinsic motivation. In addition, survey respondents shared in the comment box that they had become accustomed to the fulfilment of the institutional requirements. The comment suggested that teachers intended to obtain the expected rewards by the completion of routine tasks because it was effective and efficient to obtain the rewards by completing the metrics-driven institutional requirements for programme participation. Therefore, they lost their intrinsic motivation for creative performance.

Moreover, the theme “no sign of excellence of performance” confirmed that some programme participants no longer perceived the completion of these metrics-driven institutional requirements as excellent teaching and learning performance. For example, they argued that the completion of those online learning tasks could not “*confirm their [the students'] actual engagement*”. In this regard, some teachers considered those institutional requirements as

“meaningless” routine tasks instead of innovations aiming for improving student learning outcomes. Thus, the completion of the institutional requirements reduced those teachers’ perceptions of the level of teaching competence that the requirements signified. Moreover, some survey respondents argued in the comment box that the institutional requirements spoiled their “*spontaneity*” and creativity in relation to course design. The comment further underlined that some programme participants perceived their adoption experience as being controlled. In this regard, the institutional requirements also reduced programme participants’ perceptions of self-determination. Therefore, teachers’ perceptions of competence and self-determination affected their intrinsic motivation for the uptake of the guided innovation.

In summary, teachers voiced both support and opposition to the adjustment of the institutional requirements for programme participation in the free text comment box. Figure 7.29 shows the responses (N=120) indicated by each cohort.

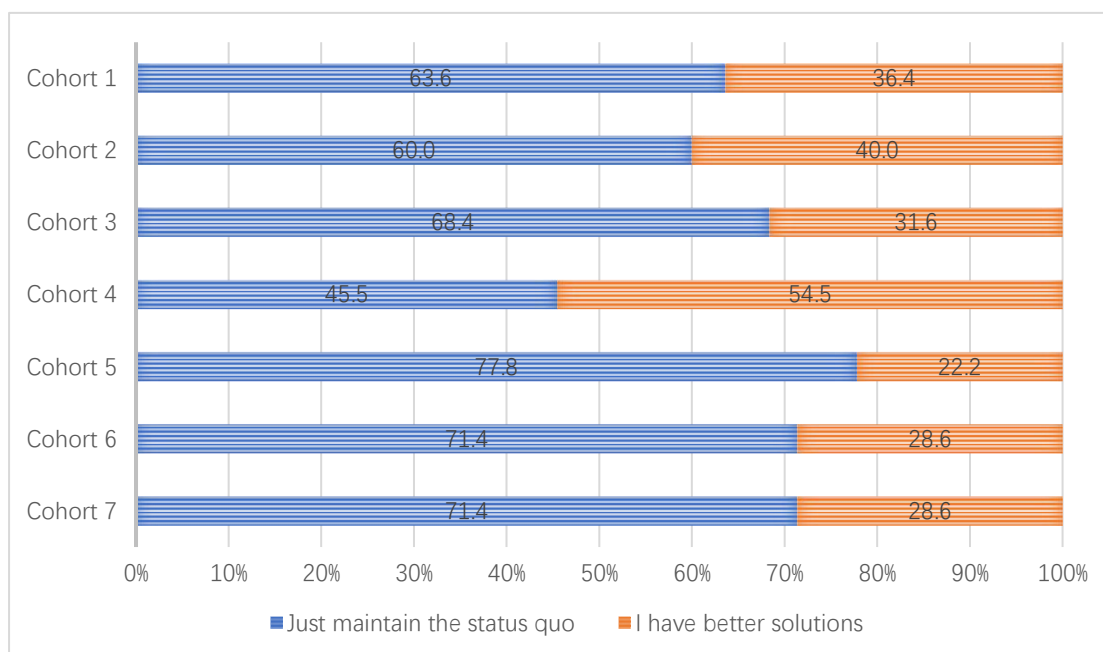


Figure 7.29 Responses to the adjustment of the institutional requirements indicated by each cohort

Figure 7.29 suggests that teachers from cohort 4 were more in favour of lifting the institutional requirements. This was probably related to their practical experience of implementing those institutionally required teaching and learning approaches. Data from survey question Q9 and Q10 (Figure 7.16 and Figure 7.18 in Section 7.4.2) revealed that teachers from cohort 4 met considerable challenges such as low student engagement. Thus, they might have perceived that lifting the institutional requirements would offer them the academic autonomy in course design. Accordingly, they were more motivated to design their *huoli* courses better to the specific needs of their students so that student learning in the classrooms could be improved. Therefore, it was a manifestation of academics' intrinsic motivation for becoming better teachers in this university-led programme.

The next section presents survey participants' responses to the future plans in relation to their participation in the *huoli* programme.

7.5.2 Future plans

In relation to their future plans of programme participation (N=120), 75.8% of the respondents (n=91) commented that they would like to develop another *huoli* course in the future. On the other hand, 24.2% of the respondents (n=29) indicated that they did not intend to adopt new *huoli* courses in the future. Table 7.16 shows themes of the free text comments on the rationale behind their responses.

Table 7.16 Themes of free text comments on the willingness to develop another *huoli* course

Theme	Indicative comments
Excessive workload	<i>"There is so much paperwork to submit in programme participation!"</i> <i>"Excessive workload. No time to develop a new course."</i>
Developing professional competence	<i>"The intrinsic motivation combined with the accountability for programme participation encourages me to improve my teaching."</i> <i>"To foster creativity in my pedagogies and challenge myself."</i>
Improving student learning	<i>"To nurture students' self-directed learning ability."</i> <i>"Technology is advancing fast. I have to adjust my course content and pedagogies."</i>
Pay rise	<i>"To obtain pay rise."</i> <i>"Subsidies"</i> <i>"Supplementary payment"</i>

Among the respondents who did not intend to develop a new *huoli* course, they overwhelmingly indicated the barrier of excessive workload entailed by

programme participation. On the other hand, survey respondents highlighted the motivation for developing professional competence, improving student learning, and obtaining pay rise in the comment box. The themes of teachers' rationale for developing another course related to both extrinsic and intrinsic motivation. In addition, the comments highlighted the fact that a combination of extrinsic and intrinsic drivers motivated academics' devotion in teaching activities. For example, one respondent shared that the combination of "*intrinsic motivation*" and "*accountability for programme participation*" encouraged them to adopt innovations in the classrooms. In this regard, the intrinsic and extrinsic motivation worked in an additive fashion to serve as combined drivers to academics' innovation adoption.

The themes "developing professional competence" and "improving student learning" shown in Table 7.16 suggested that the vision of the university-led programme, i.e., improving student learning by introducing innovation and change in teaching and learning, had an incremental effect on teachers' intrinsic motivation. The comment "*accountability for programme participation*" underlined teachers' intention of aligning their programme participation with the vision of the *huoli* programme. Therefore, the incremental effect arose out of the informational aspect that the university-led programme created. In general, teachers perceived their programme participation as excellence of teaching competence. For example, two survey respondents stated in the comment box

that all their other courses were modelled on the *huoli* programme. The incremental effect of the vision of the university-led programme on academics' intrinsic motivation was in deep contrast with the decremental effect of extrinsic rewards on their intrinsic motivation as shown in the previous sections (Section 6.3.3 in Chapter 6 and programme participants' responses to the institutional requirements in this section). Chapter 8 will present a discussion of why programme participants' intrinsic motivation was enhanced or undermined in this university-led programme.

Figure 7.30 shows the responses (N=120) indicated by each cohort.

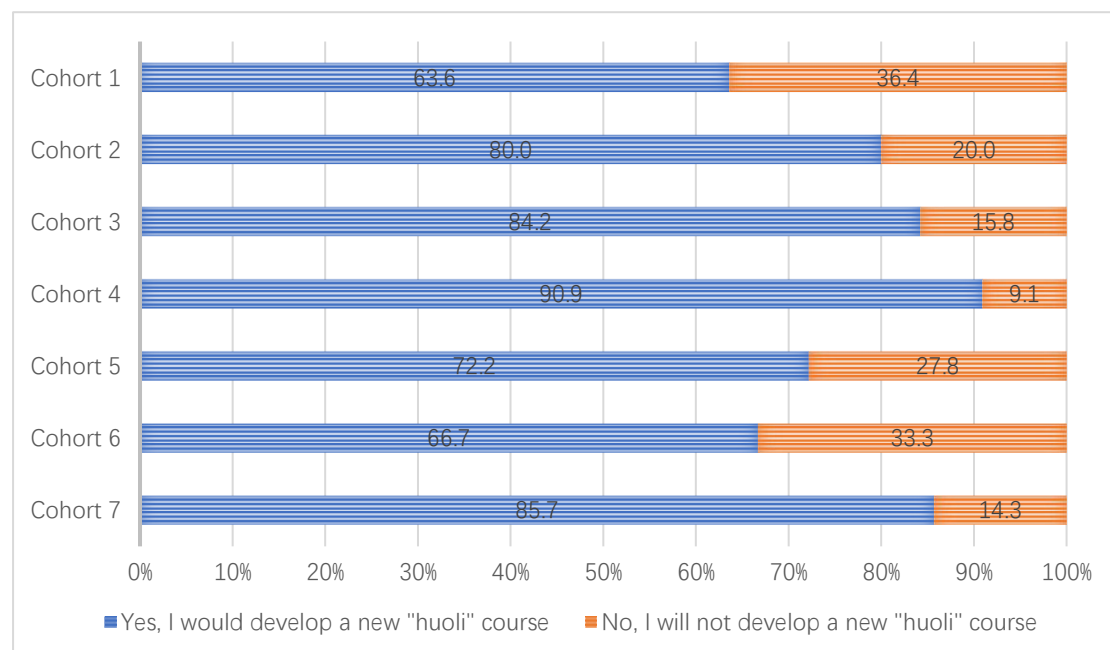


Figure 7.30 Responses to future plans indicated by each cohort

Among the seven categories of adopters, teachers from cohort 4 were more motivated to develop new *huoli* courses in the future. Five of them indicated

their extrinsic or intrinsic motivation in the free comment box. Therefore, more teachers from cohort 4 were inspired to continue their programme participation to advance their career progression or attain excellent teaching performance although considerable challenges abounded.

Next, I present teachers' responses to the last survey question, their rating of the *huoli* programme.

7.5.3 Rating of the university-led programme

The last survey question measured teachers' rating of the *huoli* programme on a five-point Likert scale (5= most satisfied). Figure 7.31 shows the overall survey results (N=120).

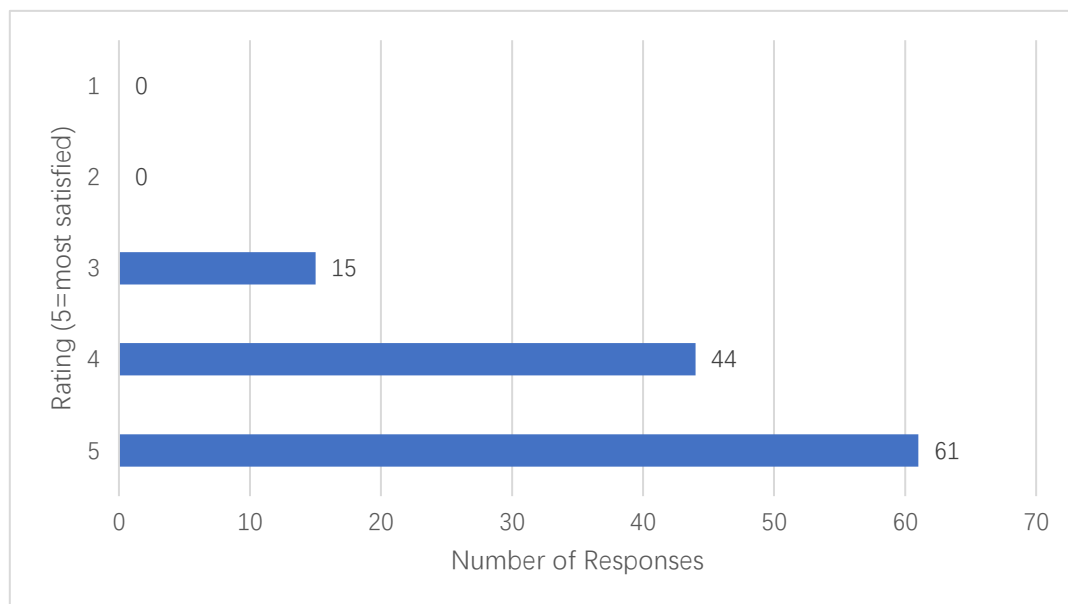


Figure 7.31 Teachers' rating of the *huoli* programme

Overall, teachers rated the *huoli* programme highly as a university-led practice

(Median scale: 5, most satisfied). Table 7.17 shows themes of their comments arguing for fewer bureaucratic procedures and more space for their practice of the guided innovation.

Table 7.17 Themes of free text comments on suggestions for the university-led programme

Theme	Indicative comments
Fit for course	<i>“Huoli pedagogies should be diversified. One-size-fits-all requirements do not apply to all courses and will only degrade the attraction of huoli.”</i>
	<i>“Allowing teachers more room for course design. Do not set one standard.”</i>
	<i>“Accountability specific to the needs of different disciplines.”</i>
Professional training	<i>“Provide more training for teachers.”</i> <i>“Arrange workshops on developing huoli courses.”</i>
No extra workload	<i>“Less box-ticking and extra workload for no purpose.”</i>

In the free text comment box of the last survey question, teachers overwhelmingly expressed their disaffection with the institutional requirements for programme participation. They critiqued the one-size-fits-all institutional requirements and demanded that the requirements of programme participation should fit for courses of different disciplines. The comments highlighted the fact that the one-size-fits-all institutional requirements undermined teachers’ perceptions of self-determination and the level of teaching competence that those institutional requirements signified.

In addition, one respondent stated that *“huoli was not about the showcasing of particular pedagogies but rather actual effects”*. The aforementioned comment

resonates with the comment in the previous survey question Q17 in which one respondent recommended not to “*exaggerate*” the performance of teacher-student interactions in the classrooms. The comments were indicative of teachers’ critical understanding of excellent teaching performance after the piloting stage. In such circumstances, academics’ perceptions of excellence of performance shifted over time and the shift created an undermining effect on some teachers’ intrinsic motivation. For example, they did not perceive that the guided innovation signified excellence of performance as evidenced in the following comment.

“Now there are so many huoli courses, there is nothing special about them”
(Survey respondent).

The above comment illustrates that the survey respondent did not perceive the *huoli* course as a pedagogical innovation after cycles of piloting. Therefore, the university-guided innovation, namely the *huoli* course carried less competence information from some programme participants’ perspectives.

In addition to the suggestions for adjusting the institutional requirements, the respondents also requested more training sessions and less extra workload. Figure 7.32 illustrates the responses (N=120) indicated by each cohort.

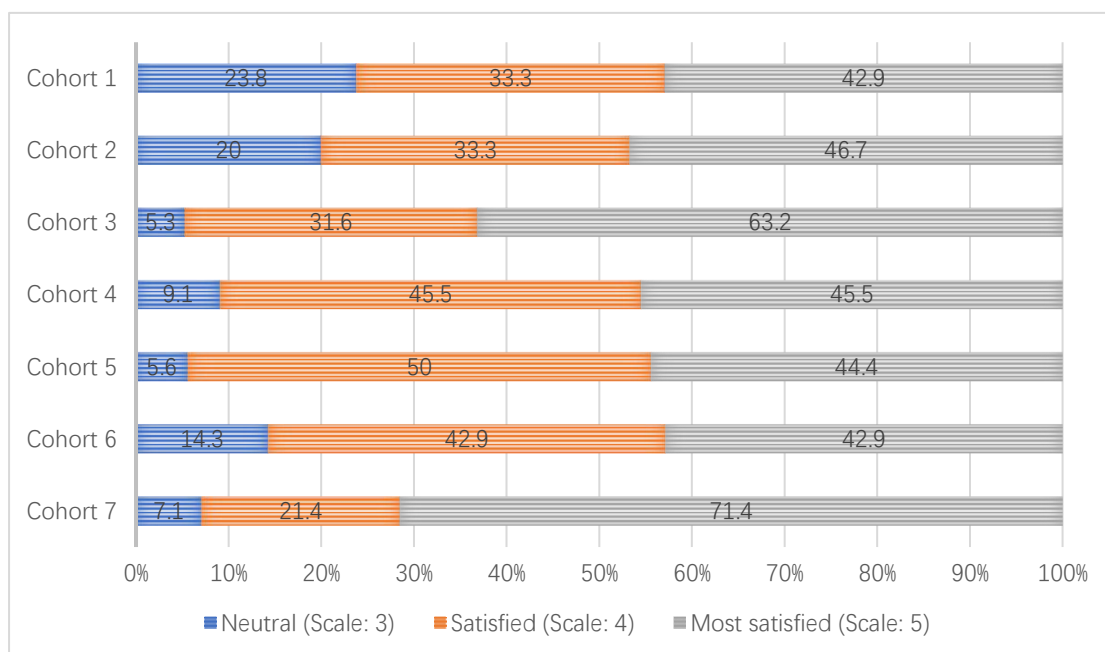


Figure 7.32 Rating of the *huoli* programme indicated by each cohort

A Kruskal-Wallis test was performed to compare the results of rating among the seven cohorts. No significant difference was found ($H(6) = 5.622$, $p = 0.467$), indicating that the seven categories of adopters did not differ significantly from each other. In addition, I reviewed all the five free text comments provided by the respondents who rated “neutral (scale: 3)” in the survey and identified that two of them indicated their disaffection with the institutional requirements.

The data highlighted the fact that the majority of the teachers thought highly of the university-led educational reform due in part to the drivers of career progression and financial incentive accorded to them. Therefore, the drivers encouraged them to continue their programme participation. On the other hand, they requested refining the institutional policies in relation to their programme

participation so that they could better improve student learning.

In summary, data from survey question Q18~Q20 informed the understanding of the research phenomenon in the following aspects:

- Concern for change and extra workload posed a major barrier to teachers' uptake of pedagogical innovations in this institution.
- Teachers' disaffection with the one-size-fits-all institutional requirements were attributable to (1) the misalignment between those requirements and the specific needs of their courses and (2) their critical understanding of high-quality teaching and learning performance.
- Teachers' objection to lifting the institutional requirements was due in part to the fact that their intrinsic motivation was bought off by extrinsic rewards. There was evidence reporting box-ticking exercises in programme participation, i.e., some teachers completed the bureaucratic requirements without considering the actual merits of those practices.

7.5.4 Section summary

The last section of the survey revealed that the university-led programme created an information aspect about the uptake of the university-guided innovation. Overall, teachers perceived that the guided innovation signified excellence of teaching performance. For example, survey respondents shared that all their other courses had adopted the pedagogies advocated by the *huoli*

programme. In addition, survey respondents indicated that developing professional competence and improving student learning were their motivation for the development of another *huoli* course. The data further confirmed that the level of teaching competence that the university-led programme signified enhanced academics' intrinsic motivation for introducing innovation and change in undergraduate teaching.

However, the metrics-driven institutional requirements for programme participation undermined some academics' intrinsic motivation and led to unintended consequences such as programme participants' box-ticking exercises for monetary reward. Data from the last section of the survey suggested that some teachers did not perceive the completion of the institutional requirements for programme participation as excellence of performance in relation to improving learning outcomes. In addition, academics' perception of self-determination in relation to course design was reduced by the institutional requirements. The contributing factor behind the undermining effect of the institutional requirements on academics' intrinsic motivation was their perceptions of the level of teaching competence that those requirements signified. Moreover, this section has provided some evidence suggesting that some programme participants did not perceive the innovation as new or innovative practices when the adoption of the innovation had turned into a widespread and routinised practice within the institution. Thus, it appeared that

there was a shift in academics' perceived competence during their programme participation. The shift might also have affected their intrinsic motivation for innovation adoption.

Data from the last section of the survey confirmed that academics' concern for uncertainties posed a major hindrance to their decisions to pilot another innovative teaching practice. For example, approximately two-thirds of them preferred not to lift the institutional requirements although there was disaffection with the requirements among some programme participants. The free text comments underlined their concern for change and extra workload. In this regard, the practice of lifting the institutional requirements placed the university-led programme at a new starting line for programme participants. This is because of the upfront cost of innovation adoption and the considerable amount of uncertainties (e.g., evaluation apprehension) facing practitioners of the *huoli* programme. Programme participants' widespread objection to lifting the institutional requirements informed policy makers that the diffusion of pedagogical innovations in higher education is a gradual process which requires huge amount of investment on the part of both institutions and academics. In this regard, motivational carrots from the institution are required to jump-start academics' uptake of guided innovations and initiate a new round of institutional change.

On the other hand, this section also suggested that expected motivational carrots (e.g., supplementary payment) could have undermined some academics' intrinsic motivation. Unintended consequences such as box-ticking exercise as evidenced in the free text comments in this section revealed that teachers varied their performance of delivering the institutional requirements as the collection of those rewards did not require any level of competence. In a similar vein, when teachers were told in the survey that they could lift the institutional requirements and submit other performance evidence for the collection of the monetary reward from the institution, it appeared that some of them chose the most effective way to obtain those rewards.

Section 7.1~7.5 has presented the analysis of teachers' responses to survey questions. In the next section, I present a validity check of the survey data.

7.6 Internal consistency check

In Chapter 5 "Research design", I identified two clusters of survey questions (Table 5.8) and intended to check the internal consistency of survey responses among those survey clusters. The purpose of internal consistency check is to test whether the survey respondents answered truthfully or randomly.

The first survey cluster relates to the relationship between workload barrier and teachers' intention of adopting another *huoli* course in the future. Data from

survey question Q7 (workload in the piloting stage) and Q8 (workload in the current stage) revealed that extra time commitment still posed a major barrier (median scale: 4, more workload than other courses) to their implementation of student-centred pedagogies after the piloting stage. Accordingly, 24.2% of the respondents indicated that they did not intend to adopt another *huoli* course in the future in survey question Q19 and nine programme participants indicated the challenge of excessive workload in free text comment box. The data in survey question Q19 is consistent with their responses to workload issue in survey question Q7 and Q8.

The second survey cluster speaks to the consistency between the challenges programme participants encountered in the delivery of pedagogies and their rating of those pedagogies. As evidenced in the data from survey question Q9 and Q10 (in-class and out-of-class student engagement), programme participants perceived that their students were significantly less engaged in out-of-class (i.e., pre-class and after-class) learning approaches than in in-class learning approaches. In addition, teachers reiterated the issue of low student engagement in out-of-class learning approaches when they were invited in survey question Q13 to indicate other challenges encountered. Accordingly, their rating of pre-class flipped learning in survey question Q14 and Q15 was widely divided. For example, 37.8% of the respondents perceived pre-class flipped learning as a beneficial learning approach while 38.7% of them regarded

the pedagogy as the least beneficial approach. In addition, only 25.0% of the survey respondents indicated that after-class online learning was beneficial for student learning. Thus, survey respondents' rating of out-of-class pedagogies was consistent with their indication of student engagement in out-of-class learning approaches.

Moreover, statistical tests revealed that respondents from cohort 4 were least positive about student engagement than other cohorts (survey question Q9 and Q10 in Section 7.4.2). It seemed that they encountered considerable challenges in the delivery of teaching and learning approaches. On the other hand, in the rating of the least beneficial teaching and learning approaches (survey question Q15 in Section 7.4.3), many more teachers from cohort 4 indicated that pre-class flipped learning (63.6%) and in-class online learning (54.5%) did not benefit their students. By contrast, the average rating indicated by other cohorts is 35.8% for pre-class flipped learning and 18.3% for in-class online learning. One respondent from cohort 4 commented that their students were not interested in the learning approaches. The indication of the least beneficial teaching and learning approaches among cohort 4 was partly attributable to low student engagement as evidenced in the previous survey questions (Q9 and Q10).

A check of the survey data revealed no inconsistencies among responses from

different survey questions and thus, it could be deduced that the survey data was reliable.

In the last section of this chapter, I outline a synthesis of the findings derived from the two strands of my research.

7.7 Synthesis of the qualitative and quantitative strand

In this section, I synthesise the results of the two strands of my research to enhance the understanding of the research phenomenon. The results are categorised in accordance with the two research sub-questions:

Sub-question one (adoption decision):

What factors are impacting teachers' decisions to participate in this university-led educational reform?

Sub-question two (Implementation process):

How are teachers implementing their teaching and learning approaches in this university-led reform?

7.7.1 Adoption decision

1. Weight of various extrinsic and intrinsic drivers

The initial qualitative strand identified a set of extrinsic and intrinsic drivers to

teachers' uptake of the university-guided innovation in this case institution. The follow-up quantitative strand measured their perceptions of the weight of those drivers. Regarding the weight of extrinsic drivers, the frequency of indicating rank promotion (n=89, 74.2%) and monetary reward (n=84, 70.0%) in the survey was approximately twice the frequency of indicating other extrinsic drivers such as institutional climate (n=41, 34.2%) and peer pressure (n=39, 32.5%). Therefore, teachers assigned more weight to rank promotion and monetary reward than any other extrinsic drivers. On the other hand, improving teaching expertise (n=103, 85.8%) and advancing teaching research (n=92, 76.7%) were the dominant intrinsic drivers to teachers' innovation adoption.

2.The rationale behind the enhancement of academics' intrinsic motivation

The two strands of my research revealed that the university-led programme had created an informational aspect of the guided innovation. Overall, the guided innovation signified excellence of teaching performance compared with original lecture-based teaching from programme participants' perspectives. There is evidence suggesting that academics perceived the development of their professional competence by programme participation (Section 6.2.1 in Chapter 6). The follow-up survey revealed that improving teaching expertise was their most critical intrinsic motivation for the uptake of the guided innovation (Section 7.3.2 in Chapter 7). In addition, programme participants intended to adopt

another *huoli* course for developing their teaching competence and improving student learning as evidenced in the open-ended survey responses (Section 7.5.2 in Chapter 7). All the above evidence suggested that academics' perception of excellence of teaching and learning performance was critical to enhance their intrinsic motivation for introducing innovation and change in teaching practices.

3. The controlling effect of extrinsic rewards on academics' behaviour

This research revealed that extrinsic rewards such as rank promotion and monetary reward exerted a controlling effect on academics' behaviour. For example, the new promotion criteria geared teachers towards meeting those criteria and encouraged them to achieve a balance between the institutional requirements and their own pedagogical beliefs (Section 6.2.1 and Section 6.3.3 in Chapter 6). The high frequency indicating rank promotion and monetary reward in the follow-up survey suggested that this controlling effect was widespread among programme participants.

7.7.2 Implementation process

1. Rationale behind teachers' continuous uptake of the university-guided innovation

The follow-up quantitative strand identified that the major challenges teachers

encountered in the implementation process were extra workload, student engagement, and academics' disaffection with the institutional requirements. Both the qualitative and quantitative strand suggested that the extrinsic rewards of career progression and monetary reward were critical to mitigate teachers' perceptions of the challenges in the implementation process. The mitigating effect was partly attributable to teachers' cognitive re-evaluation of the cause of their programme participation. For example, evidence in Section 6.2.1 and Section 6.3.3 of the qualitative strand highlighted the fact that some teachers continued their programme participation with the intention of getting promoted or obtaining pay rise. Therefore, career progression and monetary reward played a critical role in encouraging their continuous adoption of the guided innovation.

2. Teachers' perceptions at different adoption stages

The research suggested that as teachers improved their professional competence following practical experiences, they developed their criticality over the institutionally advocated teaching and learning approaches. In this regard, their perceptions of excellence of teaching and learning performance changed over time due to the practical experience that they gained in the piloting stage. For example, they re-evaluated the conceptualisation of *huoli* as evidenced both in the qualitative and quantitative strand (Section 6.3.2 in Chapter 6 and Section 7.4.3 in Chapter 7). In addition, teachers' perceived

innovativeness that the university-guided innovation imparted decreased over time and thus, the guided innovation turned into routine practices as practitioners continuously gained adoption experience. As teachers' perceptions of excellence of teaching and learning performance played a critical role in enhancing their intrinsic motivation, the shift in their perceptions might incur their disaffection with original teaching practices and the disaffection was a contributing factor to the undermining of academics' intrinsic motivation.

3. The undermining effect of extrinsic rewards on academics' intrinsic motivation

The two strands of my research revealed that some academics' intrinsic motivation for introducing innovation and change in undergraduate teaching was undermined by the provision of extrinsic rewards. For example, they conducted box-ticking exercises for obtaining monetary reward from the institution (Section 6.3.3 in Chapter 6 and Section 7.5.1 in Chapter 7). The emergence of the undermining effect was partly traced to the metrics-driven institutional requirements for programme participation, i.e., a set of online teaching and learning approaches. Programme participants could repeatedly collect monetary reward from the completion of the institutional requirements. However, the institutional requirements did not require a performance standard. As a result, teachers varied their performance in relation to the completion of those approaches. In this regard, the completion of those metrics became a

task-oriented practice for expected rewards. In addition, some teachers did not perceive that the institutional requirements could actually improve student learning. Thus, the level of teaching competence that those institutional requirements signified to programme participants affected their intrinsic motivation for completing those online teaching and learning approaches required by programme participation. Moreover, some academics attributed part of the cause of their adoption from intrinsic motivation to the attainment of extrinsic rewards. Thus, they re-evaluated their justification of innovation adoption.

However, evidence in Section 6.2.2 and Section 6.3.3 of Chapter 6 revealed that extrinsic rewards boosted some teachers' performance in the delivery of the institutionally required teaching and learning approaches. In addition, 79.0% of the survey respondents (n=94) shared that they refined their pedagogies. In this regard, the incremental effect of extrinsic rewards on academics' motivation for improving their teaching practices suggested that extrinsic rewards had a complex and multifaceted role in affecting academics' motivation and performance.

In the next chapter, I present a discussion of the research findings and further explore why the controlling effect of extrinsic rewards emerged and how those rewards affected academics' intrinsic motivation.

Chapter 8 Discussion of the research findings

Chapter 6 and Chapter 7 presented a description and a preliminary discussion of teachers' experiences of participation in this university-led programme. My research has identified three major findings:

- Extrinsic rewards are critical to jump-start academics' uptake of pedagogical innovations in the context of this Chinese private university.
- Continuous support from an institution is indispensable to sustain the momentum of academics' adoption of guided innovations over time.
- Extrinsic rewards for teaching activities could have an undermining effect on academics' intrinsic motivation if these rewards are not properly administered.

In this chapter, I connect the research findings with existing literature and present an in-depth discussion of the findings.

8.1 “I have a family to feed”: The impact of extrinsic rewards on teachers' orientation of their professional activities

My research supports researchers' arguments for enhancing academics' engagement in teaching by rewarding and recognising their teaching activities

(Ramsden, 2003; Bohle Carbonell et al., 2013; Børte et al., 2023). In addition, this research adds to existing work by exploring academics' practical responses to a reward and recognition system for teaching activities at a Chinese private university. The previous two chapters underlined two critical extrinsic drivers to teachers' adoption decisions, i.e., (1) monetary reward and (2) career progression. The phenomenon was in line with Hall's (1979) argument that teachers' personal concerns (e.g., their roles with the innovation and potential gains from adoption) play a critical role in their adoption decisions. The phenomenon is underpinned by the institutional context that academics at private universities earn less than their counterparts at public universities and some of them are facing the high cost of living in large cities (Fan and Qi, 2021; Yang, 2021). In this regard, academics' vision of increasing their income enhanced their motivation for innovation adoption in this institution because they received expected extrinsic rewards for their uptake of the guided innovation. Academics' motivation for obtaining a pay rise by adopting a university-guided innovation in this particular context resonates with Reiss' (2012) theory of 16 basic desires that motivation for performing particular activities can arise from a person's various life strivings.

In addition, academics' motivation for obtaining extrinsic rewards at this Chinese private university is also underpinned by the social context in which this research was carried out. Firstly, the pursuit of individual well-being is being

championed in contemporary China (Tang, 2012). Secondly, some academics in the case institution could have prioritised their professional activities with a pro-materialistic bias, which underlies the life values of some working professionals in China (Li and Fan, 2016; Tong and Liu, 2019).

Drawing on Rogers' (2003) DoI theory, the impact of extrinsic rewards on teachers' prioritisation of their professional practices is primarily attributed to the following two factors.

Firstly, the adoption of the university-guided innovation accorded programme participants relative advantage in terms of career progression and monetary reward. As relative advantage constitutes the primary attribute of an innovation (Rogers, 2003), the attribute influentially affected academics' adoption decisions at this Chinese private university.

Secondly, the observability of the relative advantage gained from innovation adoption was enhanced through activated communication channels because teachers were closely watching their successful near peers. As a result, the information of career progression and monetary reward trickled from promoted programme participants to other teachers through their interpersonal communication channels. Accordingly, when approximately 23% of the teachers in this institution had participated in the programme in 2018,

innovation adoption gained momentum due in part to activated communication channels among academics. This supports Rogers' (2003) proposition that when a critical mass of social members (5-20%) adopts the innovation, the adoption process within the social system becomes self-sustainable.

This section has discussed the role of extrinsic rewards in jump-starting academics' uptake of innovations. The next section explores the impact of these rewards over a wider time span.

8.2 “The programme provided a career track for us”: The critical importance of sustainable incentivisation for teachers' continuous uptake of guided innovations

When the *huoli* programme was initiated, programme participants were rewarded with a one-off supplementary payment. Incentive support for their programme participation did not become sustainable until two years after the launch of the programme (Shen University, 2022). To understand the impact of sustainable incentivisation on teachers' decisions to adopt the guided innovation, I compared the over-time curve of the number of adopters in my research (Figure 6.3) and the curve proposed in Rogers' (2003) Diffusion of Innovations theory (Figure 4.2). Figure 8.1 illustrates a comparison of the two curves.

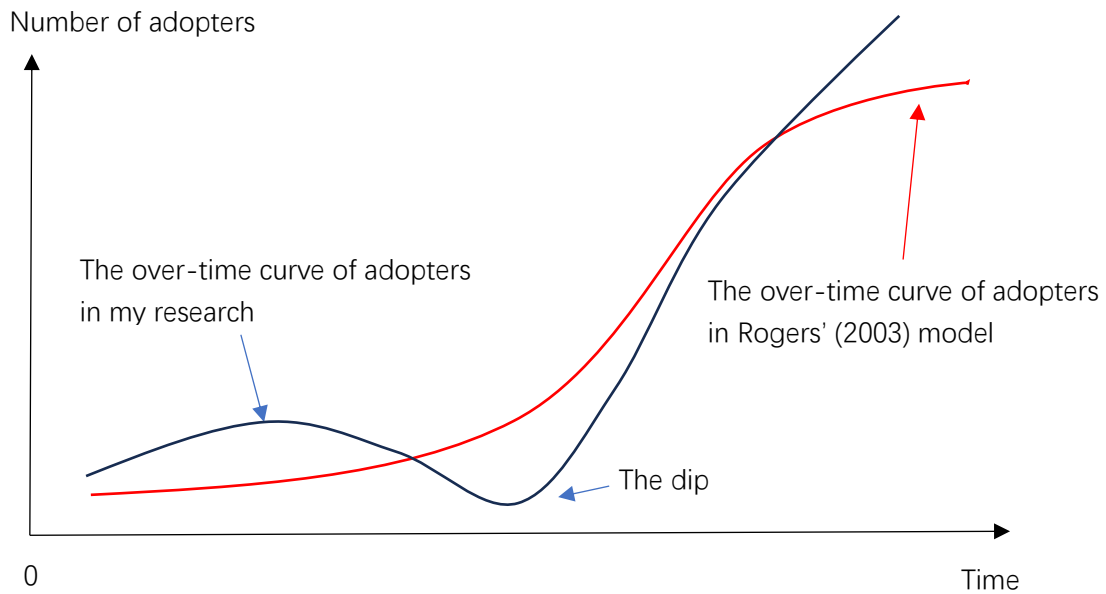


Figure 8.1 The comparison of over-time curves of adopters

In Rogers' (2003) model, the number of adopters steadily increases and follows an S-shaped curve before the adoption rate saturates. In contrast, the diffusion of the university-guided innovation in my research did not show a smooth curve. On the contrary, the curve had been climbing and dropping alternately in the initial stage until a dip emerged. After the institutionalisation of incentive policies, the curve had been climbing steadily and finally the momentum of innovation adoption was gained.

The dip in the curve shown in Figure 8.1 is an illustration of the impact of sustainable incentivisation on the diffusion of pedagogical innovations. While Rogers' (2003) model is idealistic because it assumes that the gains outweigh costs from potential adopters' perspectives. Thus, the number of adopters in a social system steadily accumulates until the momentum of innovation adoption

is gained and the diffusion process takes off. However, there is one limitation to the S-shaped curve described in Rogers' (2003) theory. Adopters might also perceive that the costs outweigh the gains. In such circumstances, the adoption curve might fluctuate or even continuously drop until the adoption is discontinued from the system. However, the introduction of sustainable incentivisation increased academics' interest in the uptake of the guided innovation and encouraged their programme participation while the withdrawal of incentivisation pertaining to the programme would stall the momentum of innovation adoption.

Therefore, my research provided a picture of the diffusion of a guided pedagogical innovation at a Chinese private university over a wider time span. The finding contradicts Rogers' (2003) theoretical prediction that the withdrawal of initial rewards will not affect the momentum of innovation adoption once the diffusion process becomes self-sustainable. The contradiction arises from the difference between the institutional context of this research and the DoI theory regarding the assumed relative advantage that can be gained from innovation adoption. The DoI theory's prediction about the sustainable diffusion of innovation is based on the assumption that innovations always outperform traditional practices even if initial rewards for the adoption of these innovations are withdrawn. However, the reward and recognition policies were of critical importance for academics in this particular context and the withdrawal of these

polices will affect academics' decisions to continue their innovation adoption.

However, when teachers were rewarded for their uptake of the guided innovation, unintended consequences occurred. I discuss the rationale behind these unintended consequences of innovation adoption in the next section.

8.3. “Little relevance to the course objectives”: The undermining effect of rewards on intrinsic motivation

The box-ticking exercises identified in my research underlined the undermining effect of extrinsic rewards on teachers' intrinsic motivation. The finding supports Deci et al.'s (2001) argument that tangible rewards could have an undermining effect on people's intrinsic motivation. However, a detailed investigation of the undermining effect in my research suggested that the effect could be restricted to certain conditions.

Firstly, the undermining effect arose out of teachers' attribution of the cause of their uptake of the guided innovation. The phenomenon could be explained by the overjustification effect (Lepper et al., 1973). The overjustification effect posits that the salience of rewards accords reward recipients a substantial justification for performing top-down tasks. Therefore, the recipients tend to draw their attention away from the tasks and thus, their intrinsic motivation is discounted (Eisenberger and Selbst, 1994; Eisenberger and Cameron, 1996).

In this regard, financial incentives act as a stimulus for adopters' re-evaluation of their intrinsic motivation for performed tasks. Consequently, some teachers in the case institution shifted their justification for innovation adoption from improving professional practice to obtaining extrinsic rewards. Accordingly, the shift in justification for innovation adoption undermined their intrinsic motivation.

Secondly, the insensitivity of the reward system to practitioners' performance contributed to the undermining effect of rewards on academics' intrinsic motivation. As the reward system is insensitive to the quality of the completion of these institutional requirements, some teachers varied greatly in their devotion to the completion of the institutional requirements. This is because programme participants' performance did not affect the amount of monetary reward they could obtain from the institution. In such circumstances, some academics lost the intrinsic motivation for the improvement of their performance. As a result, they chose the easy way to obtain the rewards. Deci et al. (2001) explained that expected rewards for routine tasks undermine peoples' intrinsic motivation because they might lose the motivation for achieving excellent performance.

Lastly, programme participants' perception of competence conveyed by the metrics-driven institutional requirements affected their intrinsic motivation. The perception is attributable to the fact that these requirements did not require a

standard of performance. Therefore, the rewards for the institutional requirements imparted less information of excellent performance. In addition, the uptake of the guided innovation was perceived as routine tasks over time because teachers developed their professional competence in the delivery of these *huoli* approaches. In this regard, the uptake of the guided innovation was trivialised. Eisenberger and Cameron (1998) argued that rewards promised upon routine tasks instead of quality performance have an undermining effect on people's creativity. The probable explanation for the undermining effect is that these routine tasks conveyed less competence affirmation from programme participants' perspectives. Moreover, teachers' perception of self-determination was also reduced by the completion of these institutional requirements. In this regard, teachers experienced the completion of the institutional requirements as controlling rather than competence (Deci et al., 2001). According to Deci and Ryan's (1985) cognitive evaluation theory, reward recipients' perceived competence conveyed by performed tasks affects their intrinsic motivation. In this case institution, some academics perceived that the institutional requirements did not imply excellence of teaching competence and thus, their intrinsic motivation for adopting the guided innovation was undermined.

A discussion of the causes of the unintended consequences in my research supports Cameron and Pierce's (1994) argument that tangible rewards that do

not symbolise excellent performance would undermine reward recipients' intrinsic motivation. In this regard, the undermining effect of rewards on intrinsic motivation occurred due in part to academics' psychological needs for competence and autonomy in performing professional activities. The improper administration of those rewards rather than the rewards per se contributed to the undermining effect.

In addition, teachers' disaffection with the metrics-driven institutional requirements in the case institution resonates with Ashwin's (2022) argument that quantitative-oriented metrics are no good measures of monitoring the excellence of teaching activities. This is underlined by the fact that excellence of teaching and learning performance is challenging to quantify or measure (Wolcott, 1997; Harlow et al., 2022) and teachers have diversified understanding of excellence of teaching and learning performance. However, the institutional requirements reduced high-quality teaching and learning performance to a set of quantitative-oriented metrics. Teachers' comments from the follow-up survey suggested that they doubted whether these metrics conveyed excellence of teaching and learning performance. The body of literature on teaching excellence could shed more light on the challenge of defining the quality of teaching. As the notion of teaching excellence arose out of the context of quality improvement in relation to teaching activities (Cooper, 2019), Behari-Leak and McKenna (2017) argued that there is no generic

understanding of excellent teaching. In this regard, some programme participants did not perceive that the institutional requirements for programme participation signified high levels of teaching excellence.

8.4 Summary of the chapter

This chapter has presented the discussion of the research findings and the discussion informed the understanding of my research in the following aspects:

The impact of university reward and promotion systems on academics' uptake of innovations is an indication of their personal concerns prior to innovation adoption. Although teachers' uptake of pedagogical innovations is part of their professional activities, teaching-oriented activities are in competition with research activities for teachers' time commitment in their professional lives (Brown, 2016) due to the high pressure from publications and heavy workload perceived by academics (Tian and Lu, 2016; Huang and Ge, 2017). Therefore, because of the contextual factors in higher education, sustainable support from institutions is critical to continuously reinforce institutional values for particular professional practices and keep the momentum of innovation adoption among academics.

On the other hand, the extrinsic rewards in terms of career progression and monetary reward exerted a controlling effect on academics' behaviour. The

reason behind the controlling effect is that in the context of higher education, there are limited career pathways for academics. In such circumstances, teachers have limited choice in orienting their professional practices. Therefore, the controlling effect geared teachers towards meeting the promotion criteria. In addition, academics' interpersonal communication channels amplified the controlling effect of extrinsic rewards due to the influence of peer pressure. Therefore, the controlling effect of extrinsic rewards kept up the momentum of innovation adoption in the institution.

In addition, this research has revealed that extrinsic rewards could have an undermining effect on academics' intrinsic motivation. Moreover, reward arrangement is another contributing factor to the undermining effect of extrinsic rewards on academics' intrinsic motivation because the reward system was insensitive to quality performance. The solution to avoiding the undermining effect of extrinsic rewards on intrinsic motivation is careful administration of these extrinsic rewards (Ryan et al., 1983; Eisenberger and Cameron, 1996).

In the next chapter, I present the conclusions of my research and recommendations for policy and practice, and future research.

Chapter 9 Conclusions and future work

In this chapter, I seek to answer the research questions, outline the knowledge contributions of my research. An action plan to inform other similar institutions on how to initiate teaching and learning change programmes is provided. Next, the limitations of the research and suggestions for future research are considered. Finally, I close the thesis by presenting my reflections of the research.

9.1 Answer to research question

My research set out to explore teachers' experiences of participation in an institution-led educational reform in a Chinese private university. The research aimed to inform policy and practice in enabling institution-wide pedagogical change. My research identified the drivers and barriers to teachers' uptake of a university-guided innovation by adopting a qualitative-dominant mixed methods approach. In particular, the mixed methods approach produced rich qualitative and quantitative data on academics' experiences of programme participation in the case institution. The qualitative data offered a deeper insight into their engagement in the institution-led programme while the quantitative data added further weight to the research findings. First, I revisit my research question:

What can be learned from teachers' experiences of participation in a university-led educational reform in a private university in China?

Based on the discussion of research findings, I draw the conclusion to my research question:

A reward and recognition career pathway is the critical catalyst for jump-starting academics' uptake of pedagogical innovations and fuelling their continuous adoption and refinement of these innovations. However, extrinsic rewards must be linked to high levels of performance to avoid undermining academics' intrinsic motivation.

In the next section, I present knowledge contributions of my research.

9.2 Knowledge contributions

My research has contributed to the development of existing literature in two major areas.

Firstly, this research has examined the diffusion of pedagogical innovations at a Chinese private university over a wider time span by (1) measuring academics' perceptions of the weight of different diffusion elements and (2) exploring the interplay of these elements. This research has revealed that the diffusion element of innovation attributes exerted far greater influence than communication channels and social system at this Chinese private university. In addition, different diffusion elements interacted with each other in the

diffusion of pedagogical innovations. Moreover, this research has argued that academics' adoption of university-guided innovations is unsustainable without the provision of continuous support from the case institution in this particular context.

This research has investigated the effect of extrinsic rewards on academics' intrinsic motivation in real-life environment by exploring their actual responses to a teaching-oriented reward and recognition system. This research has demonstrated the critical role of extrinsic rewards in encouraging academics' uptake of pedagogical innovations at all stages of their innovation adoption. However, this research has highlighted the undermining effect of extrinsic rewards on academics' intrinsic motivation. The undermining effect underpinned the role of academics' psychological needs for competence and autonomy in sustaining their intrinsic motivation for performing professional activities.

In the next section, I outline the implications of my research for the practice of initiating institutional change programmes for teaching and learning.

9.3 Action plan to inform other similar institutions on implementing institutional change programmes for teaching and learning

My research explored teachers' experiences of participation in the *huoli* programme and identified the drivers and barriers to teachers' innovation adoption. I synthesised three key lessons for the implementation of institutional change programmes for teaching and learning in other similar institutions.

Firstly, reward and recognition for teaching activities are critical to win academics' buy-in as they are sometimes tasked with substantial requirements regarding research outputs. The provision of extrinsic rewards is influential for enabling institution-wide pedagogic change among educational practitioners at this Chinese private university because staff are paid less than in the public sector. However, extrinsic rewards for teaching activities must be promised upon performance to avoid the undermining effect of these rewards on reward recipients' intrinsic motivation.

Secondly, academics should be allowed more freedom in their choices of course design. This research has revealed that the metrics-driven institutional requirements for course design alienated some academics in this case institution and these metrics may not be suitable for measuring the quality of teaching. Although metrics-driven approaches are easy for institutions to

quantify, a combination of qualitative and quantitative measures for defining the quality of teaching might balance institutional oversight and teachers' vision for academic autonomy.

Lastly, developmental evaluations should be enabled so that teachers can share their suggestions to systematically inform the future practice of institutional change programmes. During the research process, I identified unexpected findings such as teachers' box-ticking exercises and their disaffection with the metrics-driven institutional requirements. Therefore, timely feedback from programme participants can serve to improve the implementation of institutional change programmes.

In addition to these three lessons, there are many more valuable insights gained from my research. I present an action plan to inform other similar institutions on the implementation of institutional change programmes for teaching and learning (see Appendix D). The action plan consists of action steps, potential risks, and required resources ranging from academics' adoption decisions to their implementation process. At the stage of adoption decisions, institutional strategies for (1) raising academics' awareness of innovations and (2) winning their buy-in are provided. At the stage of implementation process, the action plan offers recommendations on how to (1) assist academics in conducting pilot projects and (2) keep up academics' momentum of innovation

adoption over time.

In the next section, I present the limitations of my research.

9.4 Limitations of the research

This section outlines the limitations of my research. I start the section by discussing the impact of my insider role on the research. Next, I explain how the methodology of my research put limitations to the research findings.

I realised that my role as an insider researcher brought me both benefits and limitations to the research. A key benefit is that I gained access to all the institutional policy documents so that a rich description about this institutional change programme and its implementation strategies could be provided in this thesis. Perhaps being an insider researcher also brought challenges to my research. As a senior staff member of the institution, my institutional positioning might have impacted programme participants' responses in the interviews and survey. However, I am surprised that some of my participants were less guarded on sensitive topics (e.g., reward and promotion) and their sharing on those topics contributed to a broader understanding of teachers' programme participation in the case institution. Although I used strategies such as conducting online interviews, distributing a follow-up survey and practising reflexivity to neutralise the power imbalance and bias arising from the nature of

an insider-research, the influence could not be eliminated. An alternative approach might have been to invite co-researchers outside my institution to design interview and survey questions, conduct semi-structured interviews and analyse the research data. Although outsider researchers might not have the insider knowledge, a combination of insider and outsider researchers in a research project might counterbalance their respective limitations.

I am aware that the latest adopters from cohort 7 produced lower response rate in the follow-up survey than other adopter groups. In addition, respondents from cohort 7 provided fewer free text comments in the survey. Follow-up interviews with teachers from cohort 7 might produce a fuller understanding of the perceptions of their adoption experience. By exploring the perceptions of late adopters, institutions could provide them with scaffolding support so that the momentum of innovation adoption will not be lost.

Therefore, due to the design of my research, the survey response rates varied among adopters at different adoption stages. Consequently, there is a limitation in relation to the impact of time on adopters' development of their professional practice. As a result, I outline the suggestions for future research in the next section.

9.5 Suggestions for future research

Although the research has illustrated the differences in the perceptions of teachers at different adoption stages, their perceptions did not vary in a linear fashion with the increase of their adoption experience. For example, late adopters were most concerned about improving teaching expertise, while the perception did not drop steadily with the increase of their teaching experiences as evidenced in other adopter groups. It is likely that some other factors might have contributed to the disturbance. Thus, it is worthwhile to explore the possible moderating factors influencing teachers' perceptions of various drivers and barriers over different categories of adopters. In addition, I can continuously track the perceptions of the same group of adopters over time to conduct a longitudinal study on academics' uptake of innovations.

I am aware that although the *huoli* programme has been gaining momentum since the institutionalisation of the promotion system and incentive policies, there are a large group of teachers who have never applied for programme participation since the university-led programme was initiated in the case institution. In this sense, follow-up research on this group of teachers' perceptions might further assist policy makers, educational practitioners, and researchers in the exploration of a broader spectrum of academics' perceptions of university-guided innovations and their resistance to these guided innovations. In addition, as my research was carried out in the context of a

Chinese private university, investigation into how pedagogical innovation is spread among academics in the Chinese public universities might inform the practice of institution-led teaching and learning change programme in the public sector.

9.6 Close of the thesis

By conducting this doctoral research, I gained practical experience of undertaking practice-based social science research. I learned the knowledge and skills which are essential for me to undertake future institutional research to inform policy and practice in my institution. Furthermore, my research reveals the process of an institution-wide pedagogical shift over time in a Chinese private university. In particular, the implications of rewarding academics' teaching activities were explored in this research. Recently, the Chinese higher education sector and my institution have encouraged the adoption of AI (Artificial Intelligence) to improve teaching and learning. As the findings of my research contribute to the understanding of the take-up of pedagogical innovations in higher education settings, the lessons learned in my research could inform how my institution, other private universities and the wider higher education sector enable a new round of institutional change in teaching and learning.

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Appendix A

Details of the articles included in the scoping review

References	Methods	Analytical approaches	How the DoI theory is used	Innovation / Context
(Davin et al., 2026)	Quantitative	Innovation attributes	Explain data	AI/ USA, Colombia, Germany, and Macau
(Mekheimer, 2026)	Mixed	Innovation attributes	Hypothesis development/ Frame questions	ChatGPT/Egypt
(Jiang et al., 2025)	Quantitative	Innovation attributes	Hypothesis development	ChatGPT/China
(Dos Santos et al., 2025)	Qualitative	Adoption stages/ Innovation attributes	Explain data	STEAM/ Portugal
(Yang, 2025)	Quantitative	Innovation attributes	Frame questions	AI/China
(Ali and Georgiou, 2025)	Mixed	Adoption stages	Organise and explain data/ Frame questions	Blended learning/ Maldives
(Singh and Strzelecki, 2025)	Quantitative	Innovation attributes	Hypothesis development	AI/Poland
(Abildinova et al., 2024)	Mixed	Innovation attributes	Explain data	Active learning/ Kazakhstan
(Blumenschein and Hannisdal, 2024)	Quantitative	Adoption stages	Frame questions	Educational change /Norway
(Cain et al., 2024)	Qualitative	Adoption stages	Organise and explain data	Innovative pedagogies/18 countries
(Spiliotopoulos et al., 2023)	Qualitative	Innovation attributes	Explain data	Assessment strategies /Canada
(Ntsiful et al., 2023)	Quantitative	Innovation attributes	Hypothesis development /Explain data	Online learning/Ghana
(Leatemia et al., 2023)	Quantitative	Adoption stages	Organise and explain data	PBL/Indonesia
(Frei-Landau et al., 2022)	Mixed	Adoption stages	Organise and explain data	Mobile learning/ Israel

References	Methods	Analytical approaches	How the DoI theory is used	Innovation / Context
(Stasewitsch et al., 2022)	Quantitative	Communication channels	Hypothesis development	Pedagogical innovations/ Germany
(Çakıroğlu et al., 2022)	Quantitative	Adoption stages	Organise and explain data	Online teaching /Turkey
(Peramunugamage et al., 2022)	Quantitative	Adoption stages	Organise and explain data	Technology-enhanced learning/ Sri Lanka
(Lozano et al., 2022)	Quantitative	Adoption stages	Explain data	Pedagogical innovations/ 13 countries
(Oluyinka and Cusipag, 2021)	Quantitative	Innovation attributes	Hypothesis development	VLE/ Philippines
(Richardson et al., 2020)	Mixed	Innovation attributes	Organise and explain data/ Frame questions	Blended learning /USA
(Stefaniak and Carey, 2019)	Mixed	Innovation attributes	Organise and explain data	Digital badges/USA
(Liu, 2018)	Quantitative	Innovation attributes /Communication channels	Hypothesis development	Blended learning /China
(Chizwina and Mhakure, 2018)	Qualitative	Innovation attributes/Communication channels	Explain data/ Frame questions	Technology-enhanced learning /South Africa
(Scott and McGuire, 2017)	Qualitative	Adoption stages /Social system/Communication channels	Explain data	Instructional strategies /USA
(Pereira and Wahi, 2017)	Quantitative	Innovation attributes	Frame questions	VLE/ USA
(He and Han, 2017)	Quantitative	Innovation attributes /communication channels	Hypothesis development	MOOC/ China
(Porter and Graham, 2016)	Mixed	Adoption stages	Organise and explain data	Blended learning /USA
(Porter et al., 2016)	Mixed	Adoption stages	Organise and explain data	Blended learning /USA
(Blumberg, 2016)	Qualitative	Innovation attributes	Organise and explain data	Learning-centred approach /USA

Note: Porter and Graham (2016) and Porter et al.'s (2016) studies were carried out in a

mixed-methods research project and the authors reported their quantitative and qualitative findings in two articles respectively. These two articles are considered as using mixed-methods approach in the scoping review.

Appendix B

Survey on teachers' adoption experience of huoli courses

Dear teachers,

The huoli programme is the university-led pedagogical reform to encourage our teachers to adopt student-centred pedagogies to improve undergraduate education. Since 2016, 237 huoli courses have been piloted in seven cohorts. The piloting encouraged the innovation of teaching and learning in the classroom.

To understand the adoption experience of huoli programme participants, improve the practice of the huoli programme, enhance undergraduate education, and provide more support for teachers' career development, a survey has been designed following initial interviews with programme participants.

The survey is anonymous and approved by Social Sciences, Arts & Humanities ECDA (Protocol number: EDU/PGR/UH/05189), the University of Hertfordshire, UK. The survey data will only be used for my doctoral research "understanding

teachers' perception of the adoption of blended learning" in the University of Hertfordshire, UK and improving the practice of the huoli programme. If you continue with the survey and complete it, you imply your consent to participate in the investigation. If you have any queries about the survey, please contact me (zx20aad@herts.ac.uk).

Please can you kindly complete the survey by 30 November (Thursday). Our teachers' voices decide the quality of the huoli programme and the career development of all teachers in this institution. It would be of great honour to hear from you. Thank you for your patience and support!

Section 1 Demographic information

1.I piloted my first huoli course in _____.

A.Autumn 2016 B.Spring 2017 C.Autumn 2017 D.Autumn 2018 E.Spring 2019
F. Spring 2021 G.Autumn 2022

Note: The institution approved the construction of seven groups of huoli courses since 2016.

2.I have been continuously implementing my huoli course since it was approved by the institution.

A. Yes

B. No, the reason why I have not been continuously implementing my huoli

course is because_____

Section 2 Decisions to participate in the huoli programme

3.The extrinsic drivers which encouraged me to participate in the huoli programme are _____. (Please select no more than 3 of the most significant drivers from the following items)

- A. Supplementary payment
- B. The eligibility of being promoted to huoli champion or institutional teaching fellow
- C. The influence of my colleagues' adoption
- D. The eligibility of applying for provincial-level premium undergraduate course
- E. Project funding
- F. The institutional climate of encouraging pedagogical reforms
- G. Others/please indicate other extrinsic drivers: _____

(Optional input) These extrinsic drivers are critical to my decision to participate in the huoli programme because [please explain]: _____

4. The intrinsic drivers which encouraged me to participate in the huoli programme are _____. (Please select no more than 3 of the most significant drivers from the following items)

- A. Advancing teaching research
- B. Attaining teaching excellence

- C. Achieving my professional goals
- D. Bringing freshness to my teaching
- E. Improving teacher-student relationship
- F. Others/please indicate other external drivers: _____

(Optional input) These intrinsic drivers are critical to my decision to participate in the huoli programme because [please explain]: _____

Section 3 Implementation of huoli course

3.1 Course Design

5. Which of the following factors assisted the design of my huoli course. (Please select no more than 3 of the most significant factors from the following items)

- A. The institutional vision promoting student-centred pedagogies
- B. The pedagogical model of huoli course
- C. The professional training programme provided by the institution
- D. Informal mentoring from my colleagues
- E. Others/please indicate other influencing factors: _____

(Optional input) These factors assisted the design of my huoli course by [please explain]: _____

6. The pedagogies used in my huoli course are:

- A. Pre-class flipped learning
- B. Team-based collaborative learning
- C. Case/project-based learning
- D. Multi-dimension assessment
- E. Traditional

teacher-directed lecturing F. In-class VLE-based interactive learning activities
G. After-class VLE-based learning assignments H. Others/ please indicate
other teaching and learning approaches: _____

3.2 Implementation process

7. In the piloting stage, the amount of time I spent in the delivery of my designed huoli teaching and learning approaches is _____ that of other courses.

A. way less than B. less than C. the same D. more than E. way more than

(Optional input) I spent most of my time on the following teaching and learning approaches during the implementation of my huoli course in the piloting stage [please indicate]: _____

8. Currently, the amount of time I spend in the delivery of my designed huoli teaching and learning approaches is _____ that of other courses.

A. way less than B. less than C. the same D. more than E. way more than

(Optional input) I spend most of my time on the following teaching and learning approaches during the implementation of my huoli course currently [please indicate]: _____

9. The students' engagement in in-class huoli learning approaches is:

A. very high B. high C. neutral D. low E. very low

(Optional input) The factors that impacted the students' engagement in in-class

huoli learning approaches were [please explain]: _____

10. The students' engagement in out-of-class (i.e., pre-class and after class) assignments is:

A. very high B. high C. neutral D. low E. very low

(Optional input) The factors that impacted the students' engagement in out-of-class assignments were [please indicate]: _____

11. To complete the huoli learning approaches, the students' competencies are

A. fully adequate B. adequate C. barely adequate D. inadequate F. fully inadequate

If survey respondents tick "inadequate" or "fully inadequate", an optional input box will pop up to invite them to explain the reason.

(Optional input) The factors that impacted their competencies in completing the huoli learning approaches are [please indicate]: _____

12. During the delivery of in-class huoli teaching and learning approaches, I encountered:

A. no challenges

B. challenges/The challenges I encountered are [please indicate]:

13. During the delivery of out-of-class huoli teaching and learning approaches,

I encountered:

A. no challenges

B. challenges/ The challenges I encountered are [please indicate]:

3.3 Adoption summary

14. Please indicate the type of huoli teaching and learning approaches from which the students benefited the most: (Please select no more than 3 of the most beneficial huoli teaching and learning approaches from the following items)

A. Pre-class flipped learning

B. Team-based collaborative learning

C. Case/project-based learning

D. Multi-dimension assessment

E. Traditional teacher-directed lecturing

F. In-class VLE-based interactive learning activities

G. After-class VLE-based learning assignments

H. Others/ please indicate which teaching practices: _____

(Optional) I feel my students benefited from the teaching and learning approaches because [please explain]: _____

15. Please indicate the type of huoli teaching and learning approaches from which the students least benefited: (Please select no more than 3 of the least beneficial huoli teaching and learning approaches from the following items)

- A. Pre-class flipped learning
- B. Team-based collaborative learning
- C. Case/project-based learning
- D. Multi-dimension assessment
- E. Traditional teacher-directed lecturing
- F. In-class VLE-based interactive learning activities
- G. After-class VLE-based learning assignments
- H. Others/ please indicate which teaching practices: _____

(Optional) I feel my students did not benefit from the teaching and learning approaches because [please explain]: _____

16. After the piloting stage, with regard to the design of new huoli teaching and learning approaches, I:

- A. am still in the piloting stage
- B. made no update
- C. tried new approaches/please indicate the type of new teaching and learning approaches: _____

17. After the piloting stage, my understanding of huoli:

A. underwent no change

B. was changed/ Please provide an overview of my refreshed understanding of huoli here: _____

Section 4 Future plans and suggestions for the huoli programme

18. In relation to the quantity of online teaching and learning approaches teachers are required to deliver in their huoli courses, I:

A. have no suggestions, just maintain the status quo. /Please explain why the quantity of online teaching and learning approaches the institution currently mandates are fine.

B. have the following suggestions: _____

Note: The institution mandates the quantity of online teaching and learning approaches for teachers. Once teachers complete the delivery of online teaching and learning approaches, they are awarded supplementary payment from the institution.

19. Would you like to apply for new huoli course in the future?

A. Yes/ please indicate the reason why you would like to apply for new huoli course _____

B. No/ please indicate the reason why you do not want to apply for new huoli course: _____

20. Please rate your satisfaction in relation to the huoli programme. (5 points represent most satisfied)

1-5

(Optional input) In relation to the huoli programme, I have the following suggestions: _____.

Final page

Thank you for your participation!

Appendix C

Interview guide

1. How do you understand *huoli* course?
2. How did your perception of *huoli* course change after the piloting?
3. Are there any challenges that you encountered in your adoption process?
How did you address those challenges?
4. How did your colleagues influence your adoption of *huoli* course?
5. Are there any suggestions that you can offer to new adopters of *huoli* course?
6. How did the promotion system of *huoli* champion impact teachers' adoption decisions?
7. In addition to the promotion system of *huoli* champion, what institutional policies do you think are significant in supporting teachers' uptake of *huoli* course?
8. What other institutional supports do you think are necessary to facilitate the uptake of *huoli* course?
9. How does the *huoli* programme impacted the institution after years of implementation?
10. What are your future plans in relation to the construction of *huoli* course?

Appendix D

An action plan on how to implement institutional teaching and learning change programmes

Stage	Objective	Action step	Potential risks	Resources required
Adoption decision	Raising academics' awareness of innovations	● Publish institutional purpose for reforms ● Approve pedagogical reforms routinely ● Hold workshops, seminars, or forums on practical demonstrations of pedagogical innovations	● Lack of routinised advocacy or approval of reforms from institutions or departments ● Lack of an institutional climate for pedagogical change	● Strategic plans for initiating institution-wide pedagogical change ● A task group responsible for approving reforms ● Advocacy from institutional and departmental leaders
	Winning academics' buy-in	● Provide academics with funding for piloting pedagogical innovations ● Promote and reward academics for their engagement in pedagogical innovations	● Vision misalignment between institutions and academics	● Well-established incentive system for promoting and rewarding academics

Stage	Objective	Action step	Potential risks	Resources
Implementation process	Assisting academics in conducting pilot projects	● Outline a pedagogical model for course development ● Conduct training for piloting participants ● Distribute handouts on practice of innovations	● Staff lacking pedagogical skills ● Students' resistance	● Pedagogical and technical support for piloting academics ● Technical infrastructure
	Keeping up the momentum of continuous adoption	● Balance institutional oversight with academic autonomy for course design ● Link rewards to performance ● Implement ongoing evaluation ● Review the implementation process based on evaluation data and adjust institutional requirements accordingly	● Excessive institutional oversight leading to academics' disaffection ● Metrics-driven institutional requirements leading to box-ticking exercises	● A task group designated by institutions to continuously oversee and evaluate the implementation process