

GAOMING ZHENG

# Quality and Quality Assurance of Europe-China Joint Doctoral Education

An Institutional Logics Perspective



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Quality and Quality Assurance of  
Europe-China joint Doctoral Education  
*An Institutional Logics Perspective*

ACADEMIC DISSERTATION

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Gaoming

Tampere, May 2020





# Abstract

The purpose of this research is to use the theoretical lens of institutional logics to examine the quality and quality assurance of doctoral education within its situated research environment. This work specifically focuses on the empirical setting of an international collaboration between European countries and China for the provision of joint doctoral education. The central research questions that guide the present research are 1) How can the association between the quality of doctoral education and its situated research environment be interpreted theoretically from an institutional logics perspective? 2) How has the research environment contributed to the quality and quality assurance of international joint doctoral education provided through the collaboration between European and Chinese stakeholders? By answering the first research question, the study addresses the absence of a holistic theoretical framework that can explore the transformation process of doctoral education, which in turn contributes to the quality of doctoral education in its situated research environment. The second research question tackles the need for more empirical evidence about the quality and quality assurance mechanisms of the international joint doctoral education provided through Europe-China cooperation. The research questions are answered in the study via both theoretical development and empirical analysis.

In terms of theoretical output, the study constructs a robust framework for understanding the transformation process of doctoral education in its situated research environment from an institutional logics perspective. The framework is based on the premise that the quality of doctoral education is transformative and that doctoral education is a transformation process in which multiple institutional-logics inputs, derived from the situated research environment and from stakeholders' previous experiences and backgrounds, reconcile and interact with each other until stable interactive dynamics are achieved in terms of outputs and possible outcomes. The study also captures and defines five types of ideal institutional logics in the research environment of a doctoral education system: state logic, profession logic, family logic, market logic, and corporation logic. It

also identifies the institutional logics (including logics of profession, state, market, and corporation) embedded in different conceptions of quality of higher education (including exception, perfection, value for money, and fitness for purpose).

In empirical terms, the provision of international joint doctoral education by Europe and China occurs in a multi-actor, multi-level collaborative context. This study finds evidence of the impacts of all five ideal types of institutional logics of doctoral education on the doctoral education systems in Finland and China. However, the extent of impact of a specific logic varies across the Finnish and Chinese doctoral education systems. Differences are evident not only in the impacts of a specific logic but also in how the multiple logics relate to one another and which variant of an underlying logic is dominant. These logic dynamics constitute the institutional environment in which international joint doctoral education is provided by China and Finland. By investigating a sample of doctoral students in Finland who are funded by the Chinese Scholarship Council (CSC), this study shows that the dynamics among the multiple logics enable the transformation process of CSC doctoral students and affect the formation of CSC doctoral students' professional identity, their academic work and relation with doctoral supervisors. Further, through another case study of a Portugal-China joint doctoral program, this study finds that the multiple logics in the research environment of Europe-China joint doctoral education exert an influence on the development of quality assurance mechanisms in doctoral education.

The study employs a qualitative research design consisting of six sub-studies. Across the six sub-studies, copious data from ninety interviews conducted in China and Finland involving 156 participants, three site observations in China, and documented material are collected and analyzed. The analysis results of the six sub-studies are reported in this dissertation and in five published peer-reviewed academic articles.

**Keywords:** doctoral education, quality, quality assurance, international joint doctoral education, Europe, China, institutional logics

## Tiivistelmä

Tämän tutkimuksen tavoitteena on tarkastella tohtorinkoulutuksen laatua ja laadunvarmistusmekanismeja tohtorinkoulutuksen tutkimusympäristössä institutionaalisen logiikan teoreettisessa viitekehyksessä. Tutkimus keskittyy erityisesti Euroopan maiden ja Kiinan kansainväliseen yhteistyöhön tohtorinkoulutuksen järjestämisessä. Keskeiset tutkimuskysymykset ovat 1) Kuinka tohtorinkoulutuksen laadun ja sen tutkimusympäristön välinen suhde voidaan tulkita teoreettisesti institutionaalisen logiikan näkökulmasta? 2) Kuinka tutkimusympäristö on vaikuttanut kansainväliseen eurooppalaisten ja kiinalaisten toimijoiden yhteistyössä tarjoaman tohtorinkoulutuksen laatuun. Ensimmäinen tutkimuskysymys osoittaa tutkimuksellisen tarpeen kokonaisvaltaiselle teoreettiselle viitekehykselle, joka mahdollistaa tohtorinkoulutuksen muutosprosessin tarkastelun, joka puolestaan myötävaikuttaa tohtorinkoulutuksen laatuun tutkimusympäristössään. Toinen tutkimuskysymys vastaa tarpeeseen saada lisää empiiristä evidenssiä Eurooppa-Kiina yhteistyössä toteutetun kansainvälisen, yhteisen tohtorinkoulutuksen laadusta ja laadunvarmistusmekanismeista. Tutkimuskysymyksiin vastataan sekä teorian kehittämisen että empiirisen analyysin kautta.

Teoreettisena tuotoksena tutkimus rakentaa viitekehyksen, jonka avulla voidaan ymmärtää tohtorinkoulutuksen muutosprosessia tohtorinkoulutuksen tutkimusympäristöissä institutionaalisen logiikan näkökulmasta. Viitekehyksen lähtökohtana on, että tohtorinkoulutuksen laatua tarkastellaan muutoksena ja tohtorinkoulutus on muutosprosessi, johon moninaiset institutionaaliset logiikat tuovat panoksensa. Institutionaaliset logiikat perustuvat tohtorinkoulutuksen tutkimusympäristöön, toimijoiden aikaisempiin kokemuksiin ja taustoihin, jotka sovittuvat yhteen ja ovat vuorovaikutuksessa keskenään, kunnes vakaa vuorovaikutteinen dynamiikka on saavutettu tuotosten ja mahdollisten tulosten suhteen. Tutkimus rajaa ja määrittelee viisi tohtorinkoulutuksen tutkimusympäristössä vaikuttavaa ideaalisen institutionaalisen logiikan tyyppiä: valtion logiikka, profession logiikka, perhelogiikka, markkinalogiikka ja yritysmaailman logiikka. Tutkimus tunnistaa myös institutionaalisia logiikoita (sisältäen profession, valtion, markkinoiden ja

yrittäjämaailman logiikat), jotka ovat juurtuneita korkeakoulutuksen laadun eri käsityksiin (sisältäen laatu poikkeuksellisuutena, erinomaisuutena, vastineena rahalle ja tarkoituksenmukaisuutena).

Empiirisestä näkökulmasta, kansainvälinen Euroopan maiden ja Kiinan yhteinen tohtorinkoulutus tapahtuu monitoimijaisen ja monitasoisen yhteistyön kontekstissa. Tutkimus tuottaa evidenssiä siitä, että tohtorinkoulutuksen kaikkien viiden institutionaalisen logiikan ideaalityypin vaikutus on löydettävissä Suomen ja Kiinan tohtorinkoulutusjärjestelmistä. Tietyn logiikan vaikutuksen laajuus on kuitenkin erilainen maiden tohtorinkoulutusjärjestelmissä. Suomen ja Kiinan tohtorinkoulutusjärjestelmät ovat samanlaisia profession ja markkinoiden logiikoiden vaikutusten suhteen, mutta ne eroavat toisistaan perheen ja yrittäjämaailman logiikoiden osalta. Valtion logiikan vaikutus on samanlainen ainoastaan joillakin näiden kahden maan tohtorinkoulutusjärjestelmän ulottuvuuksilla. Mikä tärkeintä erot ovat ilmeisiä paitsi tietyn logiikan vaikutusten suhteen, niin myös siinä, miten moninaiset logiikat ovat suhteessa toisiinsa ja mikä logiikan variantti on vallitseva. Logiikoiden dynamiikat muodostavat institutionaalisen ympäristön Kiinan ja Suomen kansainvälisen yhteisen tohtorinkoulutuksen tarjonnalle. Suomessa Chinese Scholarship Council (CSC) -rahoituksella opiskelevia kiinalaisia tohtoriopiskelijoita koskeva alatutkimus osoitti, että moninaisten logiikoiden dynamiikat mahdollistivat tohtoriopiskelijoiden muutosprosessit ja vaikuttivat heidän ammatillisen identiteetin muodostumiseensa, käsityksiinsä akateemisesta työstä ja suhteesta väitöskirjan ohjaajiin. Toisessa Kiinan ja Portugalin tohtorinkoulutusyhteistyötä käsittelevässä tapaustutkimuksessa havaittiin, että Euroopan ja Kiinan yhteinen tohtorinkoulutus vaikuttaa tohtorinkoulutuksen laadunvarmistusmekanismien rakentamiseen.

Tutkimuksessa sovellettiin laadullista tutkimusasetelmaa, joka muodostui kuudesta alatutkimuksesta. Näitä alatutkimuksia varten on kerätty ja analysoitu runsaasti aineistoa: 90 haastattelua Kiinassa ja Suomessa, joihin osallistui yhteensä 156 henkilöä, kolme tutkimuskohteissa toteutettua havainnointia Kiinassa sekä dokumenttiaineistoa. Kuuden alatutkimuksen tulokset raportoidaan tässä väitöskirjassa ja viidessä vertaisarvioidussa tieteellisessä artikkelissa.

**Avainsanat:** tohtorinkoulutus, laatu, laadunvarmistus, kansainvälinen yhteinen tohtorinkoulutus, Eurooppa, Kiina, institutionaalinen logiikka

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## Original publications

- Publication I Zheng, G., Shen, W., & Cai, Y. (2018). Institutional logics of Chinese doctoral education system. *Higher Education*, 76(5), 753-770. doi:10.1007/s10734-018-0236-3
- Publication II Zheng, G., Cai, Y., & Ma, S. (2017). Towards an analytical framework for understanding the development of a quality assurance system in an international joint programme. *European Journal of Higher Education*, 7(3), 243-260. doi:10.1080/21568235.2017.1290877
- Publication III Zheng, G., & Cai, Y. (2018). Collaboration between Europe and China in doctoral education: historical development and future challenges. In A. V. Oleksiyenko, Q. Zha, I. Chirikov, & J. Li (Eds.), *International Status Anxiety and Higher Education: Soviet Legacy in China and Russia* (1st ed., Vol. 35, pp. 335-361). Hong Kong: Springer & Comparative Education Research Centre (CERC).
- Publication IV Zheng, G., Kivistö, J., Shen, W., & Cai, Y. (2019). Comparing doctoral education in China and Finland: an institutional logics perspective. In H. Liu, F. Dervin, & X. Du (Eds.), *Nordic Chinese Intersections Within Education* (pp. 197-231). Helsinki: Palgrave MacMillan.
- Publication V Zheng, G. (2019). Deconstructing Doctoral Students' Socialization from an Institutional Logics Perspective: A Qualitative Study of the Socialization of Chinese Doctoral Students in Finland. *Frontiers of Education in China*, 14(2), 206-233. doi:10.1007/s11516-019-0011-y

# Abbreviations

ARDE	Accountable Research Environments for Doctoral Education
CQAGDE	China's Quality Assessment Group for Doctoral Education
CSC	China Scholarship Council
DMH	Doctoral Program of Management in Healthcare
EC	European Commission
EHEA	European Higher Education Area
ERA	European Research Area
EU	European Union
EUA	European University Association
Guidelines of RCR	Responsible Conduct of Research and Procedures for Handling Allegations of Misconduct in Finland
HEIs	Higher education institutions
MoE	Ministry of Education in China
OBOR	One Belt, One Road
SDC	Sino-Danish Center for Education and Research
UASR	University Alliance of the New Silk Road
UK	United Kingdom
US	United States

# 1 Introduction

This chapter presents the topic of this doctoral research. In the recent decade, international collaboration for doctoral education<sup>1</sup> between European countries and China has grown steadily and deepened. However, ensuring the quality of the doctoral education provided through such collaborative efforts remains a major challenge that hinders further cooperation among stakeholders (e.g., governments, universities, supervisors, and program coordinators). While addressing quality concerns plaguing the Europe-China joint doctoral education is vital, empirical evidence on it is limited. Moreover, a theoretical framework for exploring the issue is also unavailable in the extant literature. To address these research gaps, this study theoretically elucidates and empirically examines the quality and quality assurance of doctoral education, which is enabled/constrained by its situated research environment, by specifically focusing on the empirical site of Europe-China joint doctoral education. In so doing, a qualitative study, which consists of six sub-studies, is designed and carried out. The collected data are interpreted through the theoretical lens of institutional logics.

This chapter is structured as follows. The first section describes the research problem and reviews past studies that have addressed it. The section that follows identifies deficiencies in the past literature and articulates the significance (need) of the current study. Next, the purpose of the research is defined and proposed. Accordingly, the research objectives and central research questions, as well as sub-questions, that guide the study are drafted. The chapter then describes the theoretical and methodological approaches chosen to answer these research questions. Finally, the structure of the dissertation is presented.

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<sup>1</sup> In this dissertation, unless otherwise mentioned, doctoral education refers to research-based doctoral education. As the goals of professional doctoral education and research-based doctoral education differ considerably, this dissertation focuses only on research-based doctoral education.

## 1.1 Research problem

In 2013, the European Commission (EC) funded a three-year Erasmus + Project called “EU-China-DOC Project” to strengthen dialogue and cooperation between European and Chinese stakeholders in the field of doctoral education (EU-China-DOC, 2013). As a participant in the project, I witnessed high levels of interest and expectations from this collaborative effort among its hundreds of project participants. Mainly, the participants or key stakeholders in this doctoral education development project across Europe and China consisted of university leaders, deans of faculties, heads of graduate/doctoral schools, university management and administrators, doctoral supervisors, and doctoral students. The EU-China-DOC Project surveys found that the participants’ most liked or favored aspect of the cooperation was the international mobility of students and staff and joint provision of education, such as supervision and courses for doctoral students (EU-China-DOC, 2016).

These aspects of the cooperation draw my attention to the development of Europe-China joint ventures and non-venture collaborative arrangements that support individual mobility of doctoral students and staff from China to Europe and vice versa. As of 2019, there are eight Europe-China joint institutes providing doctoral education (e.g., Xi’an Jiaotong Liverpool University). Eleven Europe-China joint doctoral programs have been established in China (Ministry-of-Education-in-China, 2019a), and 74 European universities have entered into bilateral agreements with China Scholarship Council (CSC) to jointly support Chinese doctoral students in Europe (CSC, 2019). Thus, the development of international joint doctoral education between Europe and China is a promising collaboration for stakeholders from both Europe and China.

However, despite its prospects, stakeholders in doctoral education in both regions have struggled with ensuring the quality of international joint doctoral education. Their concerns are related to the unsustainability of Europe-China joint programs and institutes, which, in reality, reflects deeper concerns about the quality of joint doctoral education. In 2018, the Ministry of Education in China (MoE) announced the termination of five Sino-foreign joint universities/colleges along with the closure of 229 Sino-foreign joint academic programs after a governmental evaluation of education quality and a self-assessment report presented by the participating institutions. These included one Chinese-European joint institute (the Sino-German Institute at Shanxi Agriculture University) and 78 Europe-China joint academic programs (Ministry-of-Education-in-China, 2018b). This was not the first time that MoE had shut down Sino-foreign joint ventures owing to quality concerns. In 2014, 252 Sino-foreign joint programs were canceled (Ministry-of-Education-in-China, 2016). Other MoE statistics shows that by 2018, about a half (5 out of 11) of the established Europe-China joint doctoral programs had gradually shut down (Ministry-of-Education-in-China, 2019a), either because they failed to obtain an extension approval from the government to continue operations or because they did not have enough students. Furthermore, studies suggest that ensuring the quality of international joint education at

the doctoral level could be more difficult than that at the bachelor's or master's levels for several reasons, such as varied interpretations of doctoral supervision between China and European countries, different understanding of doctoral student identities, and different legislative systems for certifications of learning outcomes (Cai, 2013; Solem, Lee, & Schlemper, 2009; van den Hoven & Connell, 2016; Wu, 2017). It is important to address these quality concerns among the stakeholders of doctoral education in Europe and China to deepen their cooperation. To this end, it is first necessary to study how the quality of doctoral education can be ensured in Europe-China collaboration.

## 1.2 Past literature addressing the problem

Previous studies on the quality of joint doctoral education in the collaborative context of Europe-China have explored the issue within following three larger themes: quality of higher education at the doctoral level, doctoral education process, international doctoral education, specifically in the Europe-China collaborative context. First, a relatively small set of studies has focused on the quality of higher education at the doctoral level. Two small sub-categories can be identified within this group of studies. One group of researchers have focused on quality assessment or the evaluation of doctoral education (e.g., McKenna, Keeney, Kim, & Park, 2014; Nagata et al., 2012). Although their studies do not explain the reasons for the results of the quality assessment, they discuss how the concept of quality of doctoral education can be approached—from the aspect of inputs, process, and outputs of doctoral education or from the impacts of its research environment (Herrmann, Bager-Elsborg, & Wichmann-Hansen, 2014; McKenna et al., 2014). The second group of researchers have explored the implementation of quality assurance in doctoral education in different contexts, such as in Europe (Byrne, Jørgensen, & Loukkola, 2013), Europe along with Mexico and South Africa (Fortes, Kehm, & Mayekiso, 2014), Australia (Pearson, 1999), America (Nerad, 2014a), and China (CQAGDE, 2010). Their studies also suggest that the concept of quality of doctoral education should be considered as transformative and that doctoral education is a transformation process in which the inputs of doctoral education transform into the outputs of doctoral education in its situated research environment.

The idea of viewing doctoral education as a transformation process leads us to the second theme of relevant studies, which have examined the experiences of doctoral students in the process of doctoral education (e.g., Austin & McDaniels, 2006; Mars, Bresonis, & Szelényi, 2014; Weidman, Twale, & Stein, 2001). From the standpoint of doctoral students, the majority of these studies consider doctoral education as a process of doctoral students' socializing into qualified academic novices (Boden, Borrego, & Newswander, 2011; Gardner, 2010; Gardner & Mendoza, 2010; Weidman et al., 2001). In other words, they associate the quality of doctoral education with successful doctoral socialization. Past literature further suggests that the success of the socialization process is affected by several elements in its situated research environment, such as disciplinary cultures, market forces, department

climate, and national policies (e.g., Boden et al., 2011; Mars et al., 2014; Mendoza, 2007; Solem et al., 2009). Moreover, an institutional logics perspective can be used to interpret the impacts of the research environment on the process of doctoral socialization (Gu & Luo, 2016; Mars et al., 2014).

Finally, studies exploring the third theme relevant to the research problem draw our attention to the internationalization of higher education, particularly at doctoral level. Past literature on international doctoral education has highlighted the *international* characteristic of doctoral education (Bernstein et al., 2014) and the importance of its quality (Nerad & Evans, 2014). Some of those studies have also called for more research on cross-cultural elements in the research environment and their impact on the quality of doctoral education (Ryan, 2012; Xu, 2017; Xu & Hu, 2019). Among these studies on international doctoral education, only a few have either investigated the phenomenon of international joint doctoral education provided through a collaboration between Europe and China (Hong, 2014; Shen, Liu, & Chen, 2017; Wu, 2017) or used the Europe-China context for comparative purposes (Bao, Kehm, & Ma, 2018; Zhu, Cai, & François, 2017). These researchers have highlighted the importance of quality management for doctoral education in Europe and China (Bao et al., 2018; Zhu et al., 2017) and outlined the benefits of joint doctoral education for multiple stakeholders (doctoral students, cooperation practitioners, etc.) in the Europe-China engagement (Hong, 2014; Shen et al., 2017). However, they have also noted that the realization of these benefits is contingent on several factors in the research environment, such as academic involvement from the host institutions, support and engagement from host supervisors, and the cultural background that shapes the perceptions of the doctoral students (Shen et al., 2017; Wu, 2017).

### 1.3 Deficiencies in past literature

The above three themes or perspectives have been used to explore the issue of quality in a broad array of research, with or without a focus on Europe-China joint doctoral education. The evidence is almost consistent in indicating that doctoral education, in general and at the site of Europe-China joint doctoral education, can be understood as a transformation process of the inputs of doctoral education into the outputs within the research environment that can be interpreted through the lens of institutional logics (e.g., Byrne et al., 2013; Mars et al., 2014; Nerad, 2014a; Pearson, 1999; Weidman et al., 2001). In line with this thinking, the quality of doctoral education can be defined through a transformative view by qualitative change it brings to participants (mainly doctoral students) inside the system and to knowledge advancement as a whole. What remains to be explored, however, is how the research environment enables or constrains the transformation process of doctoral education and supports the quality of doctoral education in empirical settings, such as at the research site of Europe-China joint doctoral education.



Further, despite growing interest in the cooperation between China and Europe in the area of doctoral education, it is surprising that such little literature is available on the topic. Only a handful of studies (e.g., Hong, 2014; Shen et al., 2017; Wu, 2017) have specifically examined the phenomenon of Europe-China joint doctoral education. More importantly, scant empirical evidence is found on the quality and quality assurance of doctoral education in the Europe-China collaborative context.

## 1.4 Significance of the study for relevant audience

As a study on the quality and quality assurance of doctoral education, specifically focused on Europe-China joint doctoral education, first of all, this work intends to contribute to the limited literature on the topic. Second, beyond its geographical focus, the study is also relevant to the scholarly discussion on a range of on-going issues in the field of higher education, including internationalization of higher education (at doctoral level), doctoral education studies, the quality of higher education, and the relevance of sociological theories (particularly institutional theory) to higher education research. Finally, the findings of the study can also inform decisions and practices toward improving the quality of doctoral education in the international context.

Thus, this study is relevant to multiple audiences, such as researchers in the field of higher education, policy-makers within doctoral education systems in China and Europe, and practitioners of international doctoral education both inside and outside the Europe-China collaboration context. Policy-makers here refer to decision-makers spread across multiple levels of a doctoral education system, which includes the government, university leadership, deans of faculties, and heads of doctoral schools<sup>2</sup>. Practitioners include actors that are interested or already involved in the provision of international doctoral education. They are, for instance, doctoral program coordinators and administrators, doctoral supervisors, and doctoral students (Zhu et al., 2017).

## 1.5 Purpose statement of the study

The purpose of this study is to understand the elements in the research environment that may contribute to the quality of doctoral education in the international cooperation between Chinese and European actors. Using the theoretical lens of institutional logics, the study seeks to understand the situated research environment of doctoral education and its association with the quality of doctoral education. Methods of inquiry such as

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<sup>2</sup> To some extent, policy-makers at the system level or strategic decision-makers in universities may also be actors or practitioners in international cooperation (Zhu et al., 2017), but here I group them together with other policy-makers in terms of doctoral education development, as their role in international cooperation is more related to decision-making than to the implementation of practices.

case study and desk research are used to investigate the perceptions of doctoral education quality among doctoral supervisors, doctoral students, and other key actors at the research site of Europe-China joint doctoral education.

To be more specific, this study attempts to bridge the identified research gaps by pursuing the following two research objectives:

**Research Objective 1:** To use institutional logics theory to understand the association between quality of doctoral education and the research environment in which the doctoral education is situated.

**Research Objective 2:** To explore the impacts of research environment on the quality and quality assurance of Europe-China joint doctoral education inside the environment.

## 1.6 Research questions and sub-questions

In line with the two research objectives, the study poses two central research questions.

**Research Question 1**, which is aligned with **Research Objective 1**, is as follows:

1. **How can the association between the quality of doctoral education and its situated research environment be interpreted theoretically from an institutional logics perspective?**

Following Research Question 1, I ask three sub-questions to realize Research Objective 1 step by step:

- 1.1 How can the transformation process of doctoral education, which is enabled or constrained by its situated research environment, be interpreted theoretically from an institutional logics perspective?
- 1.2 What are the institutional logics that may underlie the research environment of a doctoral education system?
- 1.3 What are the institutional logics guiding on actors' conceptions of quality of higher education that affect their behaviors toward ensuring quality?

Sub-question 1.1 is aimed at developing a theoretical framework that can be used to explore the transformation process of doctoral education, specifically within its situated research environment. The core element of such a theoretical framework is the institutional logics in the research environment that enable or constrain the development of the transformation process. Accordingly, Sub-question 1.2 seeks to identify this core element. Subsequently, Sub-question 1.3 seeks to understand the association between different institutional logics and actors' conceptions of quality—that is the logics that guide actors' perceptions and actions of developing mechanisms, procedures, and processes for ensuring quality in doctoral education.

To achieve **Research Objective 2**, **Research Question 2** is formulated as follows:

**2. How has the research environment contributed to the quality and quality assurance of international joint doctoral education provided through the collaboration between European and Chinese stakeholders?**

Research Question 2, which is a follow-up to Research Question 1, examines the theoretical and interpretive frameworks developed and explores the quality and quality assurance of doctoral education in the empirical setting of Europe-China joint doctoral education. Guided by the theoretical and interpretive frameworks developed, the second central research question is broken down into four associated sub-questions:

- 2.1 How and why has the doctoral education collaboration between Europe and China developed since the 1980s?
- 2.2 With Finland as an example of a European country, what are the possible institutional logics that underlie the research environment for international joint doctoral education between China and Europe?
- 2.3 Taking China-Scholarship-Council (CSC)-funded doctoral students in Finland as an example, how has the research environment contributed to the quality of international doctoral students in Europe-China joint doctoral education?
- 2.4 Using the example of a Portugal-China joint doctoral program, how can an internal quality assurance system for Europe-China joint doctoral program be established and developed in its situated research environment?

Sub-question 2.1 provides a historical perspective on the empirical context of Europe-China collaboration for joint doctoral education. After defining the research site, Sub-question 2.2 seeks to understand the possible multiple logics operating in the research environment of Europe-China joint doctoral education that may influence the quality of doctoral education. Given that Europe is a large region with many countries and it is impossible for this dissertation to cover them all, Finland is chosen as an example to answer Sub-question 2.2. Nevertheless, I am aware of the diversity among European countries, and I acknowledge that Finland is not entirely representative of all European countries. The same consideration should be applied to the selection of examples in the following two sub-questions. Sub-question 2.3 explores how qualitative changes took place to doctoral students through the doctoral education process given the research environment under the Europe-China joint doctoral education. To make the sub-question more specific, I focus on international doctoral students based in Finnish universities who have been funded by the CSC as an example of doctoral students participating in Europe-China joint doctoral education. Finally, Sub-question 2.4 examines the procedure of setting up quality assurance mechanisms in Europe-China joint doctoral education. It employs a Portugal-China joint doctoral program as an example to explore answers to this sub-question.

### *Classification of key concepts*

For better understanding the research questions and sub-questions, here, I list and classify several key terms that have been used in the questions. At the end of the dissertation, an annotated glossary of key terms is presented (Appendix 1.1).

**Doctoral education**, which is a key concept in the study, is understood as a transformation process whereby inputs of doctoral education are converted into outputs.

**Quality of doctoral education** is understood from a transformative viewpoint and is related to the qualitative changes witnessed through the transformation process, such as value additions to the doctoral students and the advancement of domain knowledge by doctoral students' original research.

**Quality assurance** refers to the practices and mechanisms used to ensure the quality of doctoral education in Europe-China joint doctoral education. It refers to "ensuring that there are mechanisms, procedures and processes in place to ensure that the desired quality, however defined and measured, is delivered" (Harvey & Green, 1993, p. 19).

**Research environment** is the research context for research-based doctoral education. In this study, it refers to the environment where the transformation process of doctoral education occurs. It is also seen as the institutional environment constituted by a set of institutional logics (Thornton & Ocasio, 1999).

**Institutional logics** are a concept used to study the research environment for doctoral education. Institutional logics refer to "the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton & Ocasio, 1999, p. 804).

**International joint doctoral education** refers to doctoral education jointly provided by cooperation among the stakeholders in doctoral educational systems from more than one country.

**Europe-China joint doctoral education** refers to doctoral education that is jointly provided by cooperation among stakeholders in doctoral education in China and in European countries.

**Stakeholders in doctoral education** are the relevant actors in the area of doctoral education. They can be from multiple levels (supranational and national, institutional, faculty, program, or individual) (Clark, 1983). They can consist of international organizations, governments, higher education institutions (HEIs), research institutes, funding organizations, doctoral supervisors, doctoral students, university management and administrators, researchers, and so on (Evans, 2014; Pearson, 2005; Zhu et al., 2017).

**Europe** geographically refers to all European countries (including the UK, regardless of Brexit).

**China** refers to mainland China. Since doctoral education systems in Hong Kong, Macau, and Taiwan and those in mainland China have been developed independently, the cooperation between these regions and Europe for doctoral education has also been forged

through different channels. Hence, in the present research, “China” mainly refers to the situation in mainland China.

## 1.7 Theoretical approach

In formulating a theoretical framework for understanding the transformation process of doctoral education in its research environment, I use the context-input-process-output model (Niedermeier, 2017; Sahney, Banwet, & Karunes, 2004) as the base and then modify it by re-interpreting it from an institutional logics perspective. The original model posits that the quality of education can be interpreted through understanding the transformation process of education whereby inputs are converted into outputs and possibly outcomes, under the impacts of its context. In the case of my study, the context is the situated research environment for doctoral education. Although the four components (research environment, inputs, process, and outputs and outcomes) of doctoral education have been discussed in earlier studies (e.g., Nerad, 2014a), the link between the components, especially between research environment and the transformation process, is missing. To develop this linkage, I use the institutional logics theory as a lens in my study. It is a new strand of neo-institutional theory that has been used to study the institutional environment and understand how it enables or constrains actors’ behaviors and institutional change (Cai & Mehari, 2015; Micelotta, Lounsbury, & Greenwood, 2017). As applied to my study, this theory implies that the situated research environment for doctoral education can be seen as an institutional environment, where the transformation process of doctoral education is enabled or constrained by the logics of the institutions in the environment. Enabled or constrained by the multiple logics in the situated research environment, qualitative changes of doctoral students and the advancement of domain knowledge are realized through the transformation process of doctoral education, and they determine the quality of doctoral education. Thus, by interpreting the components of the transformation process of doctoral education from an institutional logics perspective, a robust theoretical framework will be constructed for understanding the transformation process in its situated research environment. This step will address Sub-question 1.1.

Further, to respond to Sub-questions 1.2 and 1.3, the theoretical development section will also define, from an institutional logics perspective, the content of the research environment for doctoral education and the material provided by the environment to guide actors’ perceptions and actions to ensure quality. By applying this theoretical development to empirical exploration, I construct three analytical frameworks that can respectively be used to examine the research environment of a doctoral education system, to understand the transformation process of doctoral students from a socialization perspective (Weidman et al., 2001), and to understand the setting up of an internal quality assurance system for international joint doctoral programs as an organizational innovation (Levine, 1980).

## 1.8 Methodological approach

I rely on qualitative research methods as they are appropriate for exploratory aims, such as when researchers want to “understand the contexts or settings in which participants in a study address a problem or issue” (Creswell & Poth, 2018, pp. 45-46). Because Research Questions 1 and 2 are exploratory in nature—in that they are related to “understanding the context” or the research environment for quality doctoral education—a qualitative research approach seems appropriate for answering the research questions.

In practice, I designed and conducted a qualitative study from 2015 to 2019, in line with the guidelines proposed by Creswell and Poth (2018). The study is composed of six sub-studies. In each sub-study, depending on the sub-question that guides it, desk research or case study is used as the research strategy. Overall, across the six sub-studies, data from multiple sources, including 90 interviews involving 156 participants, three site observations, and abundant documentary evidence, have been collected and analyzed. Table 1.1 shows how the sub-studies have been designed to meet the research objectives and answer the research questions.

Table 1.1 Association between research objectives, research questions, and sub-studies

Research Objective	Research question	Sub-question	Sub-study	Research strategies used to answer the sub-question
Research Objective 1	Research Question 1	Sub-question 1.1	Sub-study I	Desk research
		Sub-question 1.2	Sub-study II	Case study
		Sub-question 1.3	Sub-study III	Desk research
Research Objective 2	Research Question 2	Sub-question 2.1	Sub-study IV	Desk research
		Sub-question 2.2	Sub-study V	Case study
		Sub-question 2.3	Sub-study VI	Case study
		Sub-question 2.4	Sub-study III	Case study

The findings of the study are presented in this dissertation and in five published peer-reviewed academic articles. The outcome of the first sub-study (Sub-study I) is presented in Chapter 4 of this dissertation, while that of the other five sub-studies are first reported in five academic articles and later discussed in Chapter 4 and Chapter 6. Table 1.2 lists the titles of the published academic articles. The full text of these published articles is presented in Chapter of “Original publications” of this dissertation.

Table 1.2 List of published articles

Article	Title	Related sub-studies
Publication I	Institutional logics of Chinese doctoral education system (Zheng, Shen, & Cai, 2018)	Sub-study II
Publication II	Towards an analytical framework for understanding the development of a quality assurance system in an international joint programme (Zheng, Cai, & Ma, 2017)	Sub-study III
Publication III	Collaboration between Europe and China in doctoral education: historical development and future challenges (Zheng & Cai, 2018)	Sub-study IV
Publication IV	Comparing doctoral education in China and Finland: an institutional logics perspective (Zheng, Kivistö, Shen, & Cai, 2019)	Sub-study V
Publication V	Deconstructing doctoral student socialization from an Institutional logics perspective: A qualitative study of socialization of Chinese doctoral students in Finland (Zheng, 2019)	Sub-study VI

Ethical principles have been adhered to across all stages of planning and conducting this study. As a social science researcher in Finland, when conducting the study, I strictly complied with the Responsible Conduct of Research and Procedures for Handling Allegations of Misconduct in Finland (Guidelines of RCR) (TENK, 2013) and acted in accordance with three core ethical principles: voluntary participation and informed consent; avoiding harm; and protecting privacy (National-Advisory-Board-on-Research-Ethics, 2009).

## 1.9 Thesis structure

This dissertation comprises eight chapters (See Figure 1.1). This introductory chapter is followed by the second chapter that presents the backdrop of Europe-China joint doctoral education and highlights the need for examining issues of quality and quality assurance at the research site.

Chapter 3 identifies research gaps from a literature review.

Chapter 4 maps the theoretical development of the study. It shows how Research Question 1 and the related sub-questions (1.1 to 1.3) are answered through the theoretical lens of institutional logics.

In Chapter 5, the methodological approaches to doctoral research are outlined. It also discusses the ethical principles and validation strategies that have been considered in the study.

Chapter 6 elucidates the key findings of the empirical analysis in order to answer Research Question 2 and the related sub-questions (2.1 to 2.4).

Chapter 7 summarizes the research results and discusses how they contribute to addressing the knowledge gaps in the past literature. The chapter also reflects on the limitations in this study. Practical implications of the research findings and implications for future research avenues are enumerated at the end of the chapter.

Lastly, the dissertation presents the re-prints of the five published articles as outcomes of Sub-studies II to VI, with consent from the publishers.

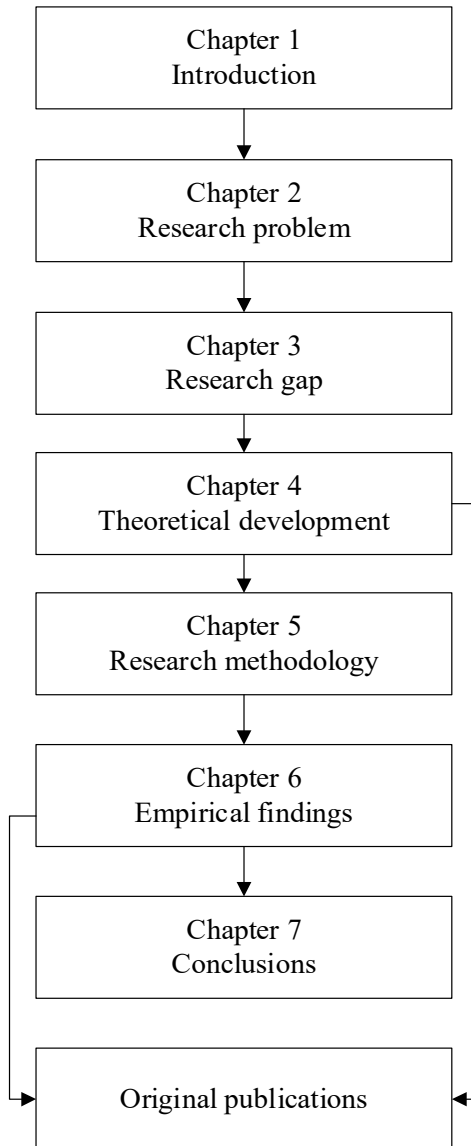


Figure 1.1 Thesis structure



## 2 Research problem

This chapter explains why the issue of quality in Europe-China joint doctoral education needs to be studied. It first describes the phenomenon of international joint doctoral education between Europe and China as it emerged in the 2010s. Despite its promising prospects, however, the quality of the joint doctoral education provision has been difficult to maintain. Mainly, the quality problems can be explained by the complex research environment, which is composed of both compatible and incompatible elements from more than one doctoral education system. This situation justifies the need to investigate the quality issues in Europe-China joint doctoral education by specifically focusing on the research environment.

### 2.1 The phenomenon of Europe-China joint doctoral education

Over the recent decade, Europe and China have displayed growing interest in providing international joint doctoral education through various kinds of collaborative arrangements. International joint doctoral education here refers to practices of doctoral education that are jointly provided via cooperation between stakeholders from more than one country. To date, the cooperation between Europe and China in doctoral education has manifested in three formats: Europe-China joint institutes, Europe-China joint doctoral programs, and individual mobility of doctoral students based on non-venture collaboration.

First, a growing number of Europe-China institutions have begun to offer doctoral education jointly. As of 2019, China has eight Europe-China joint institutes that recruit and educate doctoral students (Ministry-of-Education-in-China, 2019b). For example, the Sino-Danish Center for Education and Research (SDC) has been established through cooperation between eight Danish universities, the Chinese Academy of Sciences, and the University of Chinese Academy of Sciences to promote collaborative partnership in research and education between Denmark and China (SDC, 2019b). In SDC, doctoral students are jointly supervised by a Chinese supervisor and a Danish supervisor, and they

can pursue double degrees, one from a Chinese University and one from a Danish university (SDC, 2019a). Since 2011, SDC has co-funded over 100 doctoral students from Denmark for a short-term study at a Chinese university during their doctoral degree (SDC, 2019b).

Establishing an international joint doctoral program is the second most popular and successful approach to realizing Europe-China joint doctoral education. In Europe, Chinese universities have been presenting themselves as associates initially in the Erasmus Mundus Joint Doctoral Program (by 2014) and later in the Marie Skłodowska-Curie Actions (Zhu et al., 2017). In China, similarly, European universities have been increasingly acting as partner universities in the Sino-foreign joint programs. In 2019, China had 11 such Europe-China joint doctoral programs (Ministry-of-Education-in-China, 2019b).

Third, individual mobility of doctoral students via collaborative arrangements between European and Chinese actors, which does not involve establishing joint ventures (called “non-venture collaborative arrangement” for short) such as bilateral institutional agreements, joint research projects, or cross-border funding, has also become an important component of Europe-China joint doctoral education (Zhu & Cai, 2014; Zhu et al., 2017). For instance, until 2019, CSC had entered into bilateral agreements with 74 European HEIs to educate doctoral students jointly with financial support from CSC (CSC, 2019). From 2010 to 2014, about 10,960 doctoral students studying in Europe had been funded by CSC (CSC, 2014). Similarly, European doctoral students have been funded by Chinese government scholarship (EU Window) to study or work temporarily in China.

## 2.2 Concerns over quality and quality assurance in Europe-China joint doctoral education

Despite the growth of Europe-China joint doctoral education, concerns have been expressed about the quality of doctoral education delivered via the cooperation. As mentioned earlier, by 2018, five out of the 11 established Europe-China joint doctoral programs had closed down. The number is much higher for other Sino-foreign joint ventures in higher education. According to the MoE, the reasons for termination include shortage of advanced educational resources, low quality of education, shortage of disciplinary development, low student satisfaction with quality, inability to attract new students, and unsustainable management of programs (Ministry-of-Education-in-China, 2018a). These reasons point to deep concerns among the public and the government over the quality of international joint education, even if they are not specific to Europe-China joint doctoral programs.

Moreover, evidence suggests a lack of support from the local scholarly community for cross-cultural doctoral students participating in joint doctoral education provided by Europe and China. A study of the socialization of Chinese doctoral students (mostly funded by CSC) in Germany found that most Chinese doctoral students felt they were only external members of the faculty and that they had been isolated by the local academic

community (Wu, 2017). Studies have also underlined that support from the scholarly community plays an important role in individual doctoral students' development (Pyhältö, Stubb, & Lonka, 2009). In fact, it would not be wrong to say that in the absence of adequate support from the scholarly community, it is difficult to guarantee the quality of doctoral training provided to the students participating in Europe-China joint doctoral education, and thereby fail to ensure the quality of the outputs of the joint doctoral education.

Quality concerns aside, the practices designed to ensure the desired quality of Europe-China joint doctoral education are also not easy to realize. These practices include reconciling legislative differences on academic degrees within different doctoral education systems, satisfying varied graduation requirements of partner institutions, developing consensus on the procedure for doctoral supervision of theses, and so on. In an attempt to develop a case study on the quality of doctoral education in Europe-China joint institutions, I visited SDC in Beijing in 2015 and a partner institution of SDC, Copenhagen University, in Copenhagen, in 2016. During the two visits, I interviewed two doctoral students and four university administrators who were involved with SDC. The administrators mentioned that initially SDC wanted to provide high-quality joint supervision for doctoral students, with one Danish supervisor and one Chinese supervisor, through a joint research project coordinated by the two supervisors. However, this could not be executed as it was difficult to find doctoral students and Chinese and Danish supervisors with overlapping research interests, which is a requirement to initiate such joint research projects. The interviewed doctoral students also shared that although double doctoral degrees were attractive, meeting the differing graduation requirements of the Danish and Chinese partner institutions seemed difficult and that many had given up the idea and settled for a single degree.

## 2.3 Complexities in the research environment adding to difficulties in quality assurance

Extant literature identifies several reasons for the difficulties in ensuring the quality of Europe-China joint doctoral education. Firstly, it could be attributed to the differences in the structures of the systems. The roles of states, universities, and supervisors in doctoral education systems differ between European countries and China (Zheng et al., 2019). This poses problems in arriving at a consensus on the desired quality of doctoral education, identifying the bodies responsible for ensuring quality, and developing procedures or mechanisms to ensure quality that are recognized by all the countries.

Another likely reason for unsatisfactory quality is the gaps in mutual understanding about the systemic and cultural differences. For example, in Wu's (2017) study, he indicated that in keeping with Chinese culture and educational traditions, international doctoral students from China show high self-efficacy in their doctoral research but seldom express their ideas openly or challenge their German supervisors. While this is interpreted as

“humility” in China, supervisors in Germany view it as “lack of independent thinking.” Wu (2017) concludes that a lack of mutual understanding of cultural differences can lead to misunderstanding between supervisors and students and thus affect the quality of doctoral supervision.

The conceptualizations of doctoral supervision may also differ between China and Europe. For example, while doctoral supervision in China is mainly for academic purposes and may extend to life guidance, in Europe, say in Finland, it is more formal, professional, and only at the academic level (Zheng et al., 2019). Additionally, while doctoral supervision in China is considered a part of teaching, in the Netherlands, it is usually considered a part of research (van den Hoven & Connell, 2016). Within the context of Europe-China cooperation for doctoral education, if supervisors or supervisory teams from different doctoral education systems do not recognize these differences, it may be difficult for them to adapt their supervision styles such that they function well for both sides and the students.

Thus, different system structures and stakeholders’ dissimilar interpretations and cultural perceptions characterize the incompatibilities between different doctoral education systems in the research environment of Europe-China joint doctoral education. When doctoral education systems from China and Europe unite to provide doctoral education jointly, elements from both systems are incorporated into the research environment. These elements may be compatible, incompatible, or even conflicting and may affect the quality of doctoral education in the environment. Because the research environment underpins the notion of quality in doctoral education (Byrne et al., 2013), complexities (including compatible and incompatible elements) in the environment pose challenges to delivering high-quality joint doctoral education.

## 2.4 The need to study quality and quality assurance of Europe-China joint doctoral education in its research environment

It is apparent that concerns around quality and quality assurance in Europe-China joint doctoral education need to be addressed in order to further the cooperation between the two parties. To this end, it is not only important to understand how quality is determined but also the means (procedure, processes, mechanisms) by which it is ensured (i.e., quality assurance mechanisms) within joint doctoral education provided by Europe-China collaboration.

Firstly, developing an understanding of quality and quality assurance mechanisms can help Chinese and European stakeholders engaged in the cooperation to evaluate and improve their practices. Their efforts can help strengthen the long-term development of the joint doctoral education provision. Second, addressing this problem can provide insights into the research environment of Europe-China joint doctoral education, which can benefit many actors, especially those interested in international collaborations for doctoral

education. Unpacking the black box of transformation process of doctoral education that contributes to the quality of doctoral education, specifically within an international or cross-cultural environment, can ease the public concerns about the quality issue and offer much needed confidence to the stakeholders to realize their cooperation interests. Third, beyond doctoral education, addressing this problem can promote cooperation between different regions in the field of higher education. A fundamental strategic decision confronting all higher education systems is internationalization as a means to enhance the quality of education. Insights and evidence from the Europe-China collaboration for provision of high-quality joint doctoral education can be useful for actors operating at multiple levels in higher education systems across regions and cultures. Thus, addressing the problem of quality and quality assurance in Europe-China joint doctoral education has significant implications, which extend beyond the immediate context, for the improvement for higher education at large.

### 3 Research gap

This chapter justifies the need for the study and attempts to differentiate between studies conducted in the past and the current one. In the sections that follow, the chapter reviews previous studies that have addressed the problem and identifies gaps or deficiencies. The current study on quality and quality assurance of Europe-China joint doctoral education mainly addresses quality issues pertaining to higher education at the doctoral level examined in the empirical setting of the international collaboration between Europe and China. Thus, the following three areas may provide relevant information on how the issue has been covered in the literature: (1) studies on quality-related issues in higher education at the doctoral level; 2) studies on doctoral education, and 3) studies related to international doctoral education with a specific focus on the collaboration between Europe and China. Figure 3.1 depicts how the present study is located within the ongoing discourse in academic literature.

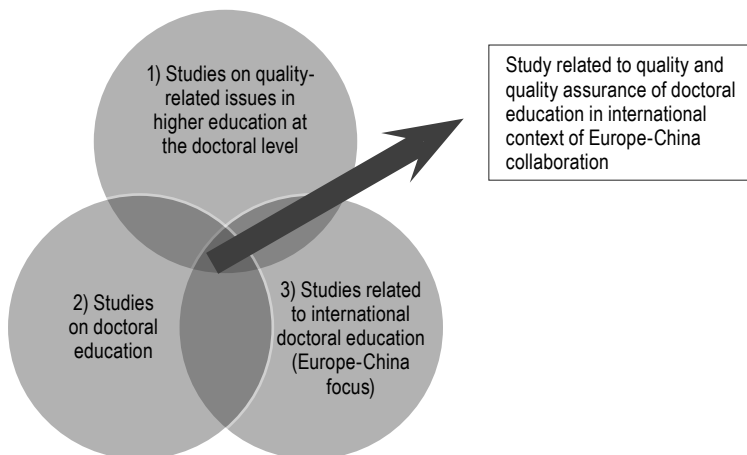


Figure 3.1 Setting the research problem within the ongoing research discourse

### 3.1 Studies related to quality of higher education at the doctoral level

While there is abundant literature on the quality of higher education in general (e.g., Cheng, 2016; Elken & Stensaker, 2018; Ewell, 2010; Westerheijden, Stensaker, & Rosa, 2007b), the bulk of it has focused on the quality of teaching and learning in higher education (e.g., Seyfried & Pohlenz, 2018; Westerheijden, Hulpiau, & Waeytens, 2007). Few studies have investigated the issue at the doctoral level, and fewer still have focused specifically on quality assurance in doctoral education (e.g., Byrne et al., 2013; Nerad & Evans, 2014; Pearson, 1999). Comparatively, more studies have focused on the *quality assessment* of doctoral education (e.g., Herrmann et al., 2014; McKenna et al., 2014). The first two sub-sections below summarize the key findings of the studies on quality assurance and quality assessment of higher education at the doctoral level, which can be useful for addressing the current research problem. The section then proceeds to identify the limitations in the past literature.

#### 3.1.1 Studies on quality assurance of doctoral education

Despite the limited number of studies on quality assurance in doctoral education, continued research efforts have been made to understand the conceptions of quality and the practices of quality assurance in doctoral education within different geographic contexts. Byrne et al. (2013) have presented findings from a European context, Fortes et al. (2014) compared European, Mexican, and South African experiences, Pearson (1999, 2005) focused on Australian experiences, Nerad (2014a) mainly covered the situation in the United States (US), and China's Quality Assessment Group for Doctoral Education (CQAGDE) (CQAGDE, 2010) focused on the realities in China. Both empirically and theoretically oriented studies are available, covering a wide range of perspectives and using quantitative, qualitative, or mixed methods. These studies have highlighted the following four significant factors to be considered for understanding the issue of quality of doctoral education.

First, the quality of doctoral education should be considered within its research environment (Byrne et al., 2013; Pearson, 1999). As concluded by Pearson (1999) in a qualitative study on the changes in the research environment for doctoral education in Australia, the attributes of quality of doctoral education are related to its situated research environment. More recently, the Accountable Research Environments for Doctoral Education (ARDE) Project, supported by European University Association (EUA), echoed the same argument (Byrne et al., 2013). Through a survey and several focus group meetings, the ARDE Project collected evidence to describe the development status of quality assurance in doctoral education in Europe. The results showed that the key to ensuring high-quality doctoral education is a high-quality research environment, wherein doctoral students are integrated and empowered to work independently in order to produce original knowledge (Byrne et al., 2013).

Second, a couple of previous studies (Nerad, 2014a; Pearson, 1999) have reported that doctoral education should be considered a transformation process consisting of inputs, throughputs, and outputs and outcomes. Pearson (1999) reviewed several key conceptual frameworks for investigating the quality of doctoral education (Holdaway, 1996, 1997; Laske & Zuber-Skerritt, 1996; Phillips, 1993) and argued for a research-based holistic framework that included the above three components for investigating the issue of quality of doctoral education.

Evidence from the US reported by Nerad (2014a) also highlights the significance and possibilities of conceptualizing quality and quality assurance of doctoral education via an input-throughput-output model. As explained by Nerad (2014a), the inputs of doctoral education can include applicants and professors; throughputs pertain to advising, supervision, coursework, etc.; outputs and outcomes refer to doctoral graduates, their knowledge production, and its possible impacts. In her work, Nerad (2014a) discusses not only the components to be considered for the transformation process of doctoral education but also the procedures, processes and structures in place to ensure the quality of each component in the transformation process.

A national-level investigation on the quality of doctoral education conducted in China by CQAGDE identified four approaches to view quality based on process, profession, effectiveness, and employability (CQAGDE, 2010). The study group explained that the last three perspectives pertain to the results or outputs of doctoral education and are connected more strongly to the focus on quality assessment. The process perspective emphasizes the successful implementation of the training process for doctoral students, which implies that doctoral education is a transformation process for doctoral students (CQAGDE, 2010). In their investigation of process and professional perspectives, they used mixed methods to analyze the process of doctoral education in China—from admission to doctoral supervision, academic training, scholarly community development, and funding support (CQAGDE, 2010). Further, there are studies to suggest that process-oriented approaches to ensure the quality of doctoral education are favored globally, in Europe, China, the US, Mexico, and South Africa (Fortes et al., 2014; Nerad, 2014a).

The third finding from past literature indicates that the notion of quality of doctoral education cannot neglect the peculiar nature of doctoral education, which refers to the research base of the doctoral education and the related individual developmental path of doctoral students (Byrne et al., 2013). Owing to the emphasis on individual paths, doctoral education for each doctoral student is an individualistic process. Traditionally, a doctoral student was expected to be cultivated as the discipline's steward (Laiho, 1997). However, modern modes of knowledge production have, to a certain extent, shifted our expectations of doctoral graduates—from the discipline's stewards to knowledge producers (Maheu, Scholz, Balan, Graybill, & Strugnell, 2014). In this sense, one can argue that doctoral students' individual development paths toward becoming academic professionals (either discipline's steward in the old time or knowledge producer in modern society) should be



considered a core aspect of the transformation process (Byrne et al., 2013). Moreover, earlier when Pearson (1999) called for research on doctoral education in diverse organizational and research contexts in Australia, he also argued that this should be done by considering doctoral students' experiences and their perceptions of how the environment has influenced the quality of their professional growth and education.

Meanwhile, the peculiar research-driven nature of doctoral education also suggests that knowledge advancement is an important determinant of the quality of doctoral education. EUA in *Salzburg Principles* identifies "the advancement of knowledge through original research" (European-University-Association, 2010, p. 2) as the first and foremost principle for reforming doctoral education in the Bologna Process in Europe. Even outside Europe, there is widespread global consensus that doctoral students should contribute to knowledge advancement via original research in the process of doctoral education (Bernstein et al., 2014). As pointed out by Nerad (2014a), the most important and tangible outputs of doctoral education are the production of (1) doctoral graduates, whose acquired skills and aptitudes have been validated by conferring on them right to use the title Doctor of Philosophy and (2) doctoral dissertations and other forms of research publications, which represent the graduates' contribution to knowledge advancement. Therefore, when considering the transformation process of doctoral education, both aspects of doctoral students' professional development and knowledge advancement are essential. A doctoral graduate's dissertation and academic publications are assessed by (internal and/or external) peer reviewers in the discipline, which is also a way for doctoral graduates to gain recognition within the discipline and develop their professional identity. In this sense, doctoral students' professional development and the advancement of knowledge are inter-related.

Lastly, another finding highlights the need for global awareness and adoption of quality assurance schemes in doctoral education. By reviewing dominant narratives on doctoral education in Australia, Pearson (2005) found that studies on doctoral education have typically a narrow focus: either on micro-level doctoral student experiences or on macro-level policy development. This is tied to the over-emphasis of individual paths of doctoral students or the strategic role of doctoral education in state development. Pearson (2005) therefore calls for a recognition of multiple stakeholders' interests when considering the quality of doctoral education. This proposal was supported by a comparative analysis of quality management of doctoral education in Europe, Mexico, and South Africa, conducted by Fortes et al. (2014). Their study showed how mechanisms of quality assurance operating at the institutional, national, and supranational levels were developed in the three said regions to meet the needs of multiple stakeholders. It seems clear that today, the issue of quality of doctoral education is no longer confined to the individual path, which only focuses on doctoral supervisors and doctoral students. Instead, it involves the development of mechanisms, procedures, and processes by multiple stakeholders at multiple levels to ensure the desired quality of doctoral education can be delivered (Fortes et al., 2014). In the

same book, Nerad (2014a) noted a greater standardization for quality assurance in doctoral education worldwide. Furthermore, she indicated a shift from measuring the number of completed dissertations to considering the characteristics of the research environment as a whole (including the contribution of academics and wider research environment) toward ensuring the quality of doctoral education, especially in Australia, the UK, Europe, and the US (Nerad, 2014a).

### 3.1.2 Studies on quality assessment of doctoral education

Quality-related studies on doctoral education have also focused on the *assessment* of quality (e.g., Herrmann et al., 2014; D. Kim & Roh, 2016; McKenna et al., 2014; Nagata et al., 2012). Quantitative research methods (e.g., survey) have been widely used by previous researchers to evaluate quality. Although these studies do not directly investigate how the quality of doctoral education can be ensured, findings from two moderately relevant works can be used to consider the quality of doctoral education.

Quality of doctoral education have been examined from the perspectives of different stakeholders in terms of inputs, process, and outputs of doctoral education. For instance, a quantitative study of the quality of doctoral education in nursing was conducted from 2010 to 2012, spanning seven countries: Australia, Japan, Korea, South Africa, Thailand, the UK, and the US. Quite a few papers have been published on the basis of this inter-country research (e.g., Kim, Park, Park, Khan, & Ketefian, 2014; McKenna et al., 2014; Nagata et al., 2012). These papers have considered several inputs of doctoral education, including staffing levels and expertise, the availability of resources, and the quality evaluation system being used (McKenna et al., 2014). Another survey by Herrmann et al. (2014) evaluated the quality of doctoral education in Arhus University in Denmark on the basis of six aspects, which covered a continuum from socio-psychological process goals to more product-based goals. Doctoral students' satisfaction, well-being, research self-efficacy, progress in the project, publications, and career plans were identified as quality parameters of doctoral education (Herrmann et al., 2014). As is evident, while the process perspective has been considered, the focus of quality assessment in doctoral education is mainly concerned with inputs and outputs.

Some studies have drawn attention to the influence of support received from the research environment on the quality of doctoral education. The cross-national investigation cited above found that support from the research environment is significantly associated with the quality of doctoral education (Kim et al., 2014; McKenna et al., 2014). Another survey that examined the effect of a ten-year-long financial initiative on the quality of doctoral education found that continued funding support within the research environment affects the characteristics of doctoral programs, strongly reduces the attrition rate, and increases the graduation rate of doctoral students (Ehrenberg, Jakubson, Groen, So, & Price, 2007).

Hence, one cannot overestimate the role of the research environment, which includes both financial and non-financial factors, in ensuring the quality of doctoral education.

### 3.1.3 Limitations in the existing literature

The available literature has to a certain extent enhanced our understanding of quality and quality assurance in doctoral education. It seems clear that doctoral education can be interpreted as the processes by which inputs of doctoral education transform into outputs under the impact of the research environment, and quality of doctoral education can be determined from the qualitative changes to doctoral students and knowledge advancement through such transformation process. In this sense, quality of doctoral education should be ensured in the transformation process of doctoral education within its situated research environment. Developing mechanisms of quality assurance is another factor important for ensuring the quality of doctoral education today. Despite this grounding, however, there are limitations that impede our understanding of the quality of doctoral education: it is unclear in what way the research environment can enable or constrain the process by which inputs transform into outputs and outcomes. It is also unclear in what way the research environment affects the development of quality assurance mechanisms that help ensure the quality of this transformation process. In other words, a clear association between the situated research environment, the transformation process of doctoral education, and the quality of doctoral education is not evident.

## 3.2 Studies on doctoral education

Given the characteristic nature of doctoral education (Byrne et al., 2013), previous studies on the topic are valuable for acquiring an understanding of quality. In particular, numerous studies have examined the learning experiences of doctoral students in the doctoral education process, which may contain useful insights for understanding the transformation process of doctoral education. This section first summarizes the results of earlier studies that are relevant to the research problem and then outlines the deficiencies in the available literature vis-à-vis the aims of this study.

### 3.2.1 Studies on the process of doctoral education

Researchers have primarily concentrated on the experiences of students in the doctoral education process (Austin & McDaniels, 2006; Gardner & Mendoza, 2010; Weidman et al., 2001). Both empirical and theoretical studies have been conducted on the topic, with empirical works having largely relied on qualitative methods. Three key findings extracted from these studies partially address the process of doctoral education.

The first recurrent notion in the past literature is the adoption of a socialization perspective for considering the individual paths of doctoral students' development. As noted by Gardner and Mendoza (2010), socialization is central to understanding doctoral students' lives and experiences in the education process. In a broad sense, socialization refers to a "process through which an individual learns to adopt the values, skills, attitudes, norms, and knowledge needed for membership in a given society, group, or organization" (Gardner & Mendoza, 2010, p. 19). Weidman et al. (2001) interpret the socialization of postgraduate and professional students as a process through which "individuals gain the knowledge, skills, and values necessary for successful entry into a professional career requiring an advanced level of specialized knowledge and skills" (p. iii). This argument has been broadly supported over the years by multiple works by Weidman and his colleagues (Weidman, 2006, 2010; Weidman & DeAngelo, 2020; Weidman & Stein, 2003; Weidman et al., 2001) and other researchers who have used the socialization perspective. Some researchers have used the conceptual framework of socialization developed by Weidman et al. (2001) to explicitly explore how doctoral students are socialized to be academic professionals in different geographic contexts, such as the US (Li & Collins, 2014; Veliz, 2020), Germany (Hottenrott & Menter, 2020; Wu, 2017), China (Guo, Zhang, & Hong, 2020), and Australia (Sonnenschein, 2020). Some have used the concept of socialization in their research, without explicitly referring to Weidman et al.'s (2001) model (e.g., Gardner & Mendoza, 2010; Hakala, 2009). Others, who have not employed the concept of socialization directly, have relied on a shared conceptual understanding. For instance, Austin and McDaniel (2006) have explained how a framework covering four domains of scholarship, advocated by Boyer (1990), can be used to understand how the doctoral experience can effectively prepare the next generation of faculty. The four domains are scholarship of application, scholarship of discovery, scholarship of integration, and scholarship of teaching (Boyer, 1990). Although the concept of socialization is not used here, the formation of scholarship, in essence, captures the idea of socialization of doctoral students to scholars. With these works in mind, it seems clear that the individual development paths of doctoral students can be seen as a socialization process by which doctoral students, as inputs, transform into socialized academic professionals, as outputs.

The second relevant finding on doctoral socialization affirms the important role of the research environment in ensuring the quality of doctoral education. Weidman et al. (2001) has pointed out that the process of socialization is not static and may be subjected to the impacts of the institutional culture in the research environment. This argument has been supported by other empirical findings about the impacts of one or multiple factors in the research environment on doctoral socialization, such as disciplinary cultures (Boden et al., 2011), market forces (Mendoza, 2007), departmental climate (Solem et al., 2009), and national policy (Mars et al., 2014). It seems clear that through different elements or factors, the situated research environment has either an enabling or constraining effect on the socialization process of doctoral students.

A couple of studies on doctoral socialization have extended the understanding of the research environment by stating that it exerts an influence on the process of doctoral education through its multiple institutional logics (Gu & Luo, 2016; Mars et al., 2014). Thus, the third valuable finding is recognizing the usefulness of the institutional logics theory in understanding the association between the research environment and the process of doctoral education. In a qualitative study, involving interviews with 36 students in the field of sciences and engineering from three US research universities, Mars et al. (2014) discovered that different cultural influences interact in the research environment of doctoral student socialization. To understand how these cultural differences and interactions influence students, they proposed and tested a conceptual framework based on the theoretical principles of both institutional logics and the socialization of doctoral students (Mars et al., 2014). They identified that three institutional logics (i.e., scientific logic, market logic, and blended logic) influence how the doctoral students investigate, perceive, and experience innovation and entrepreneurship in the doctoral training process (Mars et al., 2014). Using the same theoretical approach as Mars et al. (2014), Gu and Luo (2016) analyzed the institutional logics behind recent changes in the field of doctoral education. They found that the conflicting dynamics of academic (professional) logic and market logic had shaped the recent developments in doctoral education and modified the desired quality of doctoral education to fit the needs of the market (Gu & Luo, 2016). Their attempts (Gu & Luo, 2016; Mars et al., 2014) have led me to use the institutional logics theory to understand the impacts of the different cultures or elements in the research environment and to identify the association between the research environment and the transformation process of doctoral education. This, I believe, can to some extent address the limitation of the extant literature on the quality of doctoral education.

### 3.2.2 Limitations in the existing literature

Given the past literature, it seems clear that the developmental path of students in doctoral education can be seen as the socialization of doctoral students into academic professionals, which is enabled or constrained by the institutional logics in the situated research environment. This understanding from the past literature is valuable for further strengthening the transformative view of quality of doctoral education. What remain to be explored, however, are the ways in which the multiple logics in the research environment enable or constrain the socialization process of doctoral students. Moreover, evidence on the use of the institutional logics theory in doctoral education studies is still scarce, which highlights the need for more theoretical development and empirical exploration in the area. Besides, it seems clear that studies on doctoral education have prioritized the experiences of doctoral students' development over knowledge advancement through original research. By highlighting this imbalance, I hope to draw more attention to the aspect of knowledge

advancement via doctoral research, although the topic falls outside the scope of this dissertation.

### 3.3 Studies related to international doctoral education in Europe-China collaboration

Lastly, one cannot neglect research that investigates the international empirical context for doctoral education, or more specifically, the international context between Europe and China for joint doctoral education, which is the research site of this thesis. The following sub-sections first summarize the available literature on international doctoral education; review key studies focusing on the subject of Europe-China joint doctoral education; and finally discuss their limitations.

#### 3.3.1 Studies on international doctoral education

With the internationalization of higher education, scholars have taken an active interest in studying international doctoral education. Some have tried to investigate the international forms and modes of doctoral education, such as international doctoral students (Bilecen & Faist, 2015; Sakurai, Vekkaila, & Pyhältö, 2017), international joint doctoral programs (de Rosa, 2008), international joint supervision (van den Hoven & Connell, 2016), and cross-regional collaboration (Jorgensen, 2012). Several have explored the international context for doctoral education from a comparative perspective, for instance, by comparing doctoral education development between China and Europe (Bao et al., 2018) as well as between Europe and North America (Kehm, 2006). Recently, a new line of studies have focused on international doctoral education across cultures (Ryan, 2012; Sillitoe, Webb, & Zhang, 2005; Singh, 2009). The literature is discerned to have used a wide range of qualitative, quantitative and mixed methods to study the said topics, and it also shows an accentuation on qualitative data (e.g. interviews and narratives). Although these research efforts do not focus directly on the Europe-China collaboration, they do contain three relevant insights for international joint doctoral education between Europe and China.

Firstly, the majority of the works have emphasized the international nature of doctoral education. Over the last decade, doctoral degree has become the most international of academic degrees in the modern knowledge society (Bernstein et al., 2014). Not only are the demographic profile and training activities of doctoral students internationalizing, the context where doctoral students learn, grow, and get employed are also becoming international. International doctoral students are important to global flows of people, whose ideas and perspectives contribute to knowledge advancement and to the continuity and development of academic values (Bernstein et al., 2014; Ryan, 2012).

Second, while doctoral education has been internationalizing for better quality, it also foregrounds the issue of how to ensure the quality of international doctoral education more strongly than ever. Offering international doctoral education is different from traditional doctorates provided by a single institution, and it may involve doctoral students, supervisors, and institutions from different countries, cultures, and systems. Traditional doctoral training that only involved doctoral supervisors and doctoral students in one institution may fail to meet these increased demands and needs from multiple actors from different doctoral education systems or cultures. Even for a domestic doctoral program, except for satisfying the basic quality expectations of higher education within its national system (e.g., excellence, efficiency and transparency), it should also produce doctoral graduates who can meet the global standards of quality for doctoral education (Nerad, 2014a, 2014b). To fulfill these needs, we need to explore a transparent and efficient quality assurance system that minimizes risks and ensure the quality of international doctoral education for doctoral students, doctoral supervisors, HEIs and doctoral education systems that are involved (van den Hoven & Connell, 2016).

Third, the available articles on the quality of international doctoral education identify a need for more studies on inter-/cross-cultural elements. The global flow of international doctoral students, for instance from a non-Western cultural context to the Western context, introduces cross-cultural elements into the mix. These elements, such as language, cultural differences in dealing with hierarchy, stereotypes and so on, can affect the perceptions, values, beliefs, and actions of doctoral students and their supervisors in the international context (Winchester-Seeto et al., 2014). If both parties recognize and leverage these differences, the resulting inter-cultural interactions will be mutually beneficial (Sillitoe et al., 2005; Singh, 2009) and contribute to reciprocal learning (Ryan, 2012; Soong, Thi Tran, & Hoa Hiep, 2015). In fact, the positive impacts may even extend beyond doctoral education. For instance, when international doctoral graduates return to their home countries, as academic elites, they can use their cross-cultural experiences and competencies to contribute to the development of the domestic higher education system (Shen, Wang, & Jin, 2016; Yang, 2012) and to the inclusion of multi-cultural elements (multi-culturalities) in missions of their universities (Yang, 2017). Nevertheless, cross-cultural elements also introduce complexities and scope for misunderstanding in doctoral supervision, which may diminish the quality of doctoral education (Kobayashi, 2014). While many studies cite these problems with cross-cultural supervision, especially in the context of East Asian students, few have been able to explain the reasons behind these challenges (Kobayashi, 2014). In other words, how cross-cultural elements adversely affect the quality of doctoral supervision in the context of international doctoral education remains unclear.

### 3.3.2 Studies related to Europe-China joint doctoral education

Studies on Europe-China joint doctoral education is an under-researched topic in the literature on international doctoral education. Within the limited empirical evidence available on the joint doctoral education provision, scholars have mainly investigated doctoral students' experiences of international mobility between Europe and China (Shen et al., 2017; Wu, 2017) and the benefits of the educational collaboration for Europe-China relations (Hong, 2014). Two other studies have indirectly examined a wider context of doctoral education development and cooperation between Europe and China, through comparative analyses (Bao et al., 2018; Zhu et al., 2017). Empirical studies on the subject have used quantitative, qualitative, and mixed methods. While knowledge about the quality of Europe-China joint doctoral education is still far from satisfactory, studies have offered three important findings.

First, research has explicitly clarified that for both Europe and China, the quality issue occupies a central place in the development of doctoral education systems as well as in the Europe-China cooperation for doctoral education (Bao et al., 2018; Zhu et al., 2017). On the basis of desk research on policy frameworks and recent reforms in doctoral education development in China and Europe, Bao et al. (2018) noted that quality management and internationalization are two equally important issues in both China and Europe. In fact, internationalization is a strategy for quality enhancement of doctoral education (Bao et al., 2018). Similarly, quality has also been highlighted in the international cooperation for doctoral education between Europe and China. Under the umbrella of the EU-China Doc Project, a series of surveys were conducted by Zhu et al. (2017) to investigate Chinese and European stakeholders' perceptions of doctoral education in China and Europe and the mutual cooperation between the regions for doctoral education. Both Chinese and European stakeholders identified quality enhancement of doctoral education as the main advantage of cooperation in doctoral education, although Chinese stakeholders (15.8% of survey participants) had higher expectations than their European counterparts (9.6% of survey participants) (Zhu et al., 2017).

Second, as illustrated in studies on international mobility of doctoral students facilitated by the cooperative arrangements between Europe and China (Hong, 2014; Shen et al., 2017), Europe-China joint doctoral education has benefited doctoral students and the development of Europe-China relations. Shen et al. (2017) noted that doctoral exchange students from China to EU countries benefit from high-quality academic supervision and deep academic engagement in European host institutions. Through a mixed-methods investigation of the experiences of 865 CSC-funded doctoral exchange students in seven European countries—the UK, Belgium, France, Germany, the Netherlands, Switzerland, and Italy—they found that the participating doctoral students developed a more active network in the international academic community and a deeper understanding of local cultures in Europe (Shen et al., 2017).



Apart from the students, Europe-China relations have also experienced the positive effects of international mobility. Hong (2014) studied the impacts of students' mobility under the Erasmus Mundus Scholarship Program, which was launched by EC and sponsored hundreds of Chinese students in Europe, and its equivalent in China, the Chinese Government Scholarship (EU Windows), which funded hundreds of European students to study in China. Hong (2014) observed that the mobility experiences led to the development of mutual knowledge, understanding, and friendship between Chinese and European youth.

The aforementioned benefits of international mobility are closely related to the support received from the situated research environment. The third relevant finding from the past literature, therefore, draws our attention again to the importance of the research environment in ensuring the quality of doctoral education (Shen et al., 2017; Wu, 2017). Shen et al. (2017) argue that the benefits derived from the mobility experiences of doctoral students are closely related to the support from the research environment, which includes their host supervisors' research capacity, the condition of the research facilities, and the support received from the host institution. Further, cultural differences in the research environment may affect the socialization of cross-cultural doctoral students (Wu, 2017). Wu (2017) analyzed the socialization experiences of Chinese doctoral students in German HEIs and showed that Chinese students' cultural perceptions affected their attitudes and behaviors in the doctoral education process. When doctoral supervisors of the host institutions in Germany did not recognize the effects of Chinese culture or misinterpreted Chinese students' behaviors, the quality of supervision declined (Wu, 2017). Most participants in Wu's (2017) study were international doctoral students in Germany who had been co-funded via an arrangement between the CSC and their host institutions. Thus, evidence from two studies (Shen et al., 2017; Wu, 2017) emphasizes the impacts of various elements in the situated research environment on doctoral students' development.

### 3.3.3 Limitations in the existing literature

Previous studies have acknowledged the significance of quality within the context of international doctoral education as well as specifically within in the Europe-China collaborative context. They have also articulated the importance of the research environment in ensuring quality. However, the routes through which the research environment affects the quality of doctoral education in an international context have not been addressed by any of the studies. More studies also need to analyze the cross-cultural elements in the research environment and how they affect the transformation process of cross-cultural doctoral students. Meanwhile, no efforts have been made yet to outline the practices of quality assurance in the Europe-China joint doctoral education. Most of the empirical studies on the phenomenon yield little information as they primarily focus on the individual mobility of doctoral students. More empirical studies could, and should,

explore joint ventures in Europe-China joint doctoral education, such as Europe-China joint doctoral programs and Europe-China joint institutions.

### 3.4 Research gaps in the literature

Figure 3.2 visually summarizes the literature review with the help of a map that positions the past literature in relation to the research problem addressed in this dissertation. The figure shows that findings relevant to the quality of Europe-China joint doctoral education come from a range of sources: studies on the quality of higher education at the doctoral level, doctoral education studies, and studies on the empirical context of Europe-China joint doctoral education. Cross-checking and combining of insights from the three streams reveal several overlapping concepts such as “the importance of the research environment,” “inputs, throughputs, outputs,” and “the transformation process of doctoral education.” Particularly, the importance of the research environment in the quality of doctoral education has been well recognized in all three streams of literature.

Studies on doctoral education also offer two useful insights into the limitations of the past literature in terms of quality of doctoral education. First, the explanatory power of the institutional logics theory for understanding the impacts of the research environment could be a promising solution for linking the situated research environment and the transformation process of doctoral education. Second, a socialization perspective could be useful to understand transformation process of doctoral students engaged in doctoral education.

Nevertheless, the two major shortcomings that still persist in the research on the quality of Europe-China joint doctoral education are described below.

**Research Gap 1:** In terms of a theoretical understanding of the quality of doctoral education, several theoretical propositions have been made by researchers (e.g., Byrne et al., 2013; Fortes et al., 2014; Nerad, 2014a; Pearson, 1999). Building on their argument, I find that doctoral education can be considered 1) as a transformation process by which the inputs of doctoral education convert into outputs, 2) in relation to the supports/impacts from the situated research environment, and 3) from the theoretical lens of the institutional logics theory. The quality of doctoral education can be determined from the qualitative changes introduced by the transformation process of doctoral education. By understanding the transformation process of doctoral education in its research environment, one can understand the development of quality within doctoral education and the driving forces (institutional logics) behind it. **What remains to be explored, however, is how the transformation process of doctoral education, through which the quality of doctoral education is determined, and its situated research environment can be interpreted and connected through a lens of institutional logics.**

**Research Gap 2:** In terms of empirical investigations into the quality aspect of Europe-China joint doctoral education, there is little evidence available (Hong, 2014; Shen et al.,

2017; Wu, 2017). Studies on quality and quality assurance of doctoral education in Europe-China joint doctoral education are fewer still. **In what way the research environment has contributed to the quality and quality assurance in Europe-China joint doctoral education remains to be explored.**

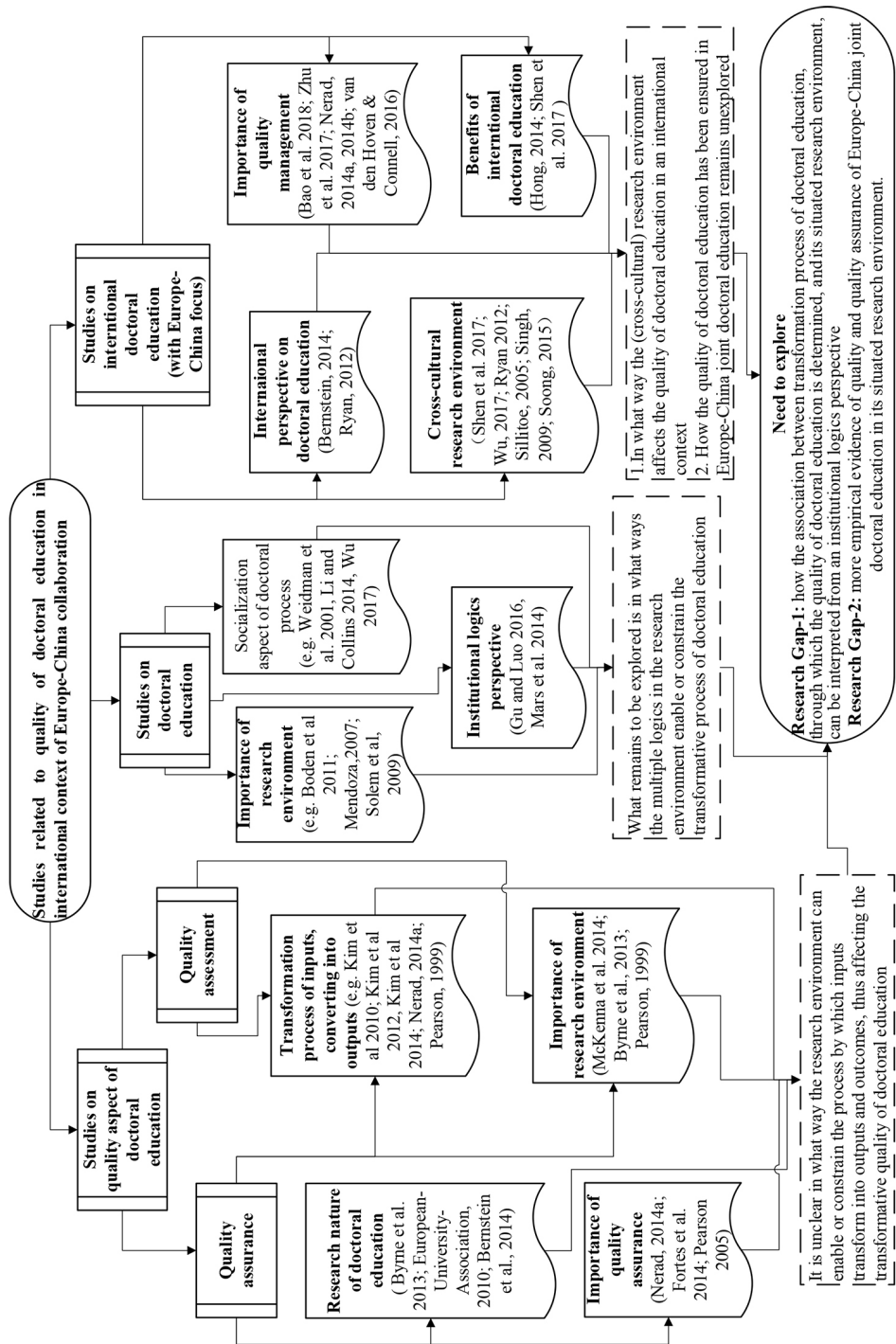


Figure 3.2 A literature map for addressing the research problem

## 4 Theoretical development

This chapter answers Research Question 1: “How can the association between the quality of doctoral education and its situated research environment be interpreted theoretically from an institutional logics perspective?” The chapter first defines the concepts of quality and quality assurance with regard to doctoral education and then proceeds to explain my consideration on the concepts of quality, quality assurance, and doctoral education in this study. By interpreting doctoral education as a transformation process, I review several transformational process models of education (Nerad, 2014a; Niedermeier, 2017; Sahney et al., 2004) and justify the choice of the context-input-process-output model. Next, I present and discuss previous literature on inputs, process, output and research environment of doctoral education and examine the diverse academic stances. Subsequently, the details of the institutional logics theory and how it can address the deficiencies in literature are discussed, which further explain the rationale for using the theory. Then with the help of the institutional logics theory and in response to the three sub-questions (Sub-question 1.1 to 1.3) following Research Question 1, a theoretical framework for understanding the transformation process of doctoral education is proposed, ideal types of institutional logics in the research environment of a doctoral education system are defined, and the association between different conceptions of quality of higher education and the underlying institutional logics are revealed. The theoretical framework and interpretive tools offer four theoretical arguments in response to Research Question 1. At the end of the chapter, on the basis of the proposed theoretical arguments, three analytical frameworks are developed from an institutional logics perspective to empirically and discretely analyze the research environment of a doctoral education system, the transformation process of doctoral students, and the establishment of an internal quality assurance system for an international joint education program.

## 4.1 Quality and quality assurance in higher education

### 4.1.1 Quality of higher education

The concept of “quality” in higher education has been a longstanding subject of academic discussion (Harvey & Green, 1993; Harvey & Knight, 1996; Harvey & Newton, 2007; Sahney et al., 2004). However, instead of providing an answer, scholars arrived at a consensus that it is impossible to define quality as a unitary concept and that it should be defined in terms of a range of concepts (Sahney et al., 2004). Since quality can have different meanings for different stakeholders, one possible solution is to adopt a pragmatic attitude and define the conditions relevant to each stakeholder in terms of the concept of “quality” (Sahney et al., 2004).

Adopting a similar line of thought in their seminal work, Harvey and Green (1993) identified five categories or approaches to defining quality within the domain of higher education. They explained that depending on whether the stakeholder adopts a process or product perspective, quality can be conceptualized as the pursuit of the exceptional, striving for perfection/consistency, fitness for purpose, value for money, and producing transformative change. Table 4.1 introduces each conception of quality based on Harvey and Green (1993)’s proposal. Whilst all five categories may be used by different actors to consider quality in higher education, they are not mutually exclusive (Harvey & Knight, 1996). Furthermore, researchers later recognize the transformative category as a meta-quality concept and other four conceptions as the operationalizations of transformative quality (Harvey & Knight, 1996). The phrase “meta-quality” implies that the transformative view of quality subsumes the other four conceptions of quality of education.

Interpreting the transformative view of quality as a meta-quality concept is essential for understanding the quality of education. This is because it distinguishes education from other services or products, where quality is typically measured by whether the outputs meet the standards or if the outputs fit the desired purpose, if the customers are receiving their money’s worth, or if the production process can ensure zero defects. Education should be understood as qualitative changes introduced through “an on-going process of transformation of the participants inside” (Harvey & Green, 1993, p. 24). Students are not simply customers or consumers receiving services as in a business world; instead, they are learners who are also engaged in the interactions and are transformed in the course of the educational process (Harvey & Green, 1993).

Table 4.1 Conceptualizations of quality of higher education

Categories	Illustration	Product/process perspective
<b>Exceptional</b>	<ol style="list-style-type: none"> <li>1) Traditional notion of quality: quality is associated with distinctiveness, which is often apodictic.</li> <li>2) Excellence 1 (exceeding high standards): doing the right things well by excelling in input and output.</li> <li>3) Checking standards: a diluted concept of "excellence." A quality product is a product that passes a set of quality checks.</li> </ol>	Product perspective
<b>Perfection/ Consistency</b>	Excellence 2 (zero defects and getting things right the first time): Quality as excellence that can be defined by conformance to specifications and prevention of defects in the process.	Process perspective
<b>Fitness for purpose</b>	<ol style="list-style-type: none"> <li>1) Fitness for Purpose I (customer's specifications): quality is evaluated by the extent to which the output (product/service) meets the specifications/ needs of the customers.</li> <li>2) Fitness for Purpose II (institution's mission): quality is defined by the extent to which the output fulfills the institution's mission.</li> </ol>	Product perspective
<b>Value for money</b>	A populist view of quality: "you get what you pay for." Quality is related to accountability.	Product perspective
<b>Transformative</b>	A transformative view of quality. Quality is rooted in the notion of qualitative change, both physical transformation and cognitive transcendence. A quality education involves enhancing and/or empowering participants.	Process and product perspective

Source: Harvey and Green (1993)

#### 4.1.2 Conceptualizing the quality of doctoral education in this study

In this thesis, the notions quality as they pertain to doctoral education are also rooted in the transformative perspective. The overall goal of doctoral education is to prepare students to become scholars (or academic professionals), and meanwhile they contribute to the advancement of domain knowledge through their original research and communicate and disseminate knowledge (European-University-Association, 2005; Gardner & Mendoza, 2010). Thus, the quality of doctoral education is associated with qualitative changes in doctoral students and in knowledge generation realized through the transformation process of education. Essentially, the transformative quality of doctoral education manifests as enhancement of doctoral students and of the domain knowledge. Doctoral students in this process are both learners that are under transformation and junior researchers who contribute to knowledge advancement through their research activities. If the transformative capacity of education is seen as enhancing the participants, then a quality education is "one that effects changes in the participants, and then, thereby, presumably enhances them" (Harvey & Green, 1993, p. 24). In line with this thinking, quality doctoral education is one that effects changes in doctoral students as both learners and researchers, and thus, presumably, enhances doctoral students to become scholars/professionals and advance knowledge development at the same time.

### 4.1.3 Measuring the quality of doctoral education

Viewed as the enhancement of participants, quality can be measured by examining how educational experiences enhance the knowledge, abilities, and skills of the participants (Harvey & Green, 1993). Accordingly, the quality of doctoral education can be measured by analyzing the qualitative changes seen in doctoral students and knowledge advancement through the transformation process of doctoral education. Qualitative changes to knowledge advancement can be measured and verified by expert peer reviews of doctoral students' dissertations and publications. On the other hand, qualitative changes in doctoral students can be analyzed from their learning experiences and their socialization toward becoming recognized scholars. This approach also aligns with the notion of "enhancing the participants," which places participants at the center of the transformation process and attaches value to their learning experiences and feedback (Harvey & Green, 1993). Therefore, the transformative quality of doctoral education should be understood by taking into account doctoral students' experiences in the process, both as learners and researchers. While the dual nature of their roles is integrated into their daily life and work, in this doctoral study, owing to paucity of time, I have mainly focused on the experiences of doctoral students as learners. However, I acknowledge that qualitative changes to both doctoral students and knowledge advancement are equally important to the quality considerations of doctoral education.

### 4.1.4 Doctoral education as transformation process

When quality is understood as transformative, education is seen as a process of transformation of the participants (Harvey & Green, 1993; Sahney et al., 2004). A transformation system is understood as a dynamic process that consists of "three essential constituents— the inputs, processes and outputs, all encompassed within an arbitrary boundary, the environment" (Sahney et al., 2004, p. 150). Thus, doctoral education can be seen as a transformation process where inputs of doctoral education (e.g., doctoral candidates, supervisors, resources from universities) are converted into outputs (e.g., the production of new knowledge and new doctoral graduates) inside the research environment. A detailed explanation of inputs, processes, outputs, and research environment will be presented in section 4.2 and 4.3.

### 4.1.5 Quality assurance in doctoral education

Conceptualizing quality as transformative is at the heart of philosophy of total quality management, which also guides the adoption of the idea of quality assurance (Harvey & Green, 1993). Harvey and Green (1993) define quality assurance as "ensuring that there are



mechanisms, procedures and processes in place to ensure that the desired quality, however defined and measured, is delivered” (Harvey & Green, 1993, p. 19). By definition, quality assurance implies fitness for purpose, irrespective of what the purpose may be (Harvey & Green, 1993). It also highlights a systematic approach to accomplishing tasks in a right way, which then entails seeing quality as perfection (Harvey & Green, 1993). The philosophy of total quality management thus “attempts to bring together quality as fitness for purpose and quality as perfection by seeing fitness for purpose in the context of quality culture” throughout a transformation process (Harvey & Green, 1993, p. 27).

In practice, quality assurance can be realized by setting up internal instruments, such as internal evaluations and improvement systems, at the university, institution, faculty, and program level, and external quality assurance mechanisms, such as audits, accreditations, quality assessments, and external examinations (checking of standards) (Harvey & Newton, 2007). Together, these instruments can help respond to two central questions pertaining to quality of higher education: “[Are] graduates learning the knowledge and skills necessary for a changing economy in the context of improved study program to achieved more and better learning? [Are] higher education institutions spending tax money in the right way?” (Westerheijden, Stensaker, & Rosa, 2007a, p. 4, text in [brackets] inserted by author). In this sense, internal quality assurance advocates the idea of quality improvement or enhancement for institutional actors, while external quality assurance is associated with guaranteeing accountability (Westerheijden, Stensaker, et al., 2007a). The two key goals (enhancement and accountability) are inter-related (Harvey & Newton, 2007), and so are the internal and external quality assurance systems for HEIs (ENQA, ESU, EUA, & EURASHE, 2015). The element of quality assessment is common to both internal and external quality assurance (Westerheijden, 2007), and it represents a crucial step (Check) in Deming’s Plan-Do-Check-Act (PDCA) cycle for continuous quality improvement. Implementing them jointly can aid the development of a quality culture in HEIs (ENQA et al., 2015).

In doctoral education, as illustrated by Fortes et al. (2014), tools and procedures of quality assurance can be deployed at multiple levels. For instance, in Europe, at the supranational level, procedures and mechanisms of quality assurance can involve structuring the process of doctoral education (integrating doctoral education in the “Bologna Process”) and the development of comparable quality frameworks across nations (the creation of European Qualifications Framework). At the national level, quality assurance is mainly associated with procedures and tools used by external agencies or accreditation bodies, such as national surveys, rankings, and benchmarking exercises. It also involves the state-level monitoring of quality of doctoral education through performance-based funding schemes for universities. At the institutional, faculty, and program levels, quality assurance entails the establishment of the internal systems that specify guidelines, good practices, structures to regulate the process of doctoral training, and mechanisms to monitor/evaluate the outputs. Individual-level mechanisms can cover a range of issues, including the framing of interactions between supervisors and students,

guidelines and procedures for thesis writing and defense, external review of theses, and examination of thesis quality (Fortes et al., 2014).

Additionally, given that doctoral education can be considered a transformation process, its quality assurance should include mechanisms, procedures, and processes to determine the credibility of inputs, throughputs, and outputs, both externally and internally (Nerad, 2014a). In terms of external quality assurance mechanisms, inputs into the doctoral education systems can be monitored through quality assessments of the teaching and research capacity of universities and programs. In some countries, the quality assessment result provide basis for the state to authorize universities and doctoral programs for the right of doctoral education provision. Outputs of doctoral education can be evaluated via accreditation of doctoral programs and external examination of doctoral dissertations. Given the educational autonomy of universities, quality assurance of the throughputs can be realized through the internal quality assurance systems within the universities and programs.

Components of an internal quality assurance system at institutional and program's levels can be categorized by inputs, throughputs, and outputs as below.

- 1) The quality assurance parameters for *inputs* include admission criteria for doctoral students, requirements for doctoral supervisors, standards of support from host institutions (funding, office facilities, research equipment, etc.), and a favorable environment (Nerad, 2014a).
- 2) The mechanisms, procedures, and processes to ensure the adequacy of *throughputs*, include, for example, 1) the process used by universities or doctoral programs to transform their doctoral students into qualified scholars or researchers (Nerad, 2014a); 2) the process by which doctoral students are allowed and expected to contribute to knowledge advancement via original research; and 3) the procedures to ensure the effectiveness and efficiency of the said transformative process (Nerad, 2014a), (e.g., rights and duties of doctoral supervisors and students, procedures for doctoral supervision, evaluation of supervision quality, checks on the progress of doctoral research, examination of learning outcomes through coursework and other training such as workshops, and complaint and redressal mechanisms).
- 3) Quality assurance mechanisms for *outputs* typically cover the procedures for assessing doctoral dissertations, which usually involves internal and external peer reviews, the procedure of publishing a dissertation and its public defense, the criteria for a qualified dissertation, graduation criteria, and the procedure for conferring doctoral degrees and graduation.

#### 4.1.6 Analysis of the implementation of quality assurance

Perellon (2007) proposes five questions that can be used to analyze the implementation of quality assurance mechanisms: 1) Objectives: What should be the objectives of a quality

assurance policy? 2) Control: Who should be responsible for quality assurance? 3) Area: What areas are covered by quality assurance? 4) Procedures: How have the quality assurance procedures been set up? 5) Uses: How is the information collected used? While these questions were originally framed to examine quality assurance policies at the state level, they do relevant bases from which to evaluate the implementation of quality assurance at other levels.

When examining the implementation of quality assurance in Europe-China joint doctoral education, I mainly focus on the “procedure” of setting up internal quality assurance systems. As indicated in Chapter 2, quality is a major concern for the stakeholders of Europe-China joint doctoral education. In fact, the lack of effective tools and mechanisms for ensuring quality is one of the reasons that the regions have not deepened their educational cooperation. This situation calls for more empirical evidence on the implementation of quality assurance in Europe-China joint doctoral education, particularly in terms of procedures—how have quality assurance procedures been set up in Europe-China joint doctoral programs or institutions? While my study mainly focuses on examining the procedures for setting up internal quality assurance systems, I must add that the five questions, discussed above, are inter-related and that answers to other four questions have also been covered here to some extent. Further, my decision to investigate internal quality assurance in this dissertation does not imply that external quality assurance for Europe-China joint doctoral education is not important. In fact, it is an equally important issue that warrants urgent research.

More specifically, this study analyzes how internal quality assurance systems are set up in the context of Europe-China joint doctoral *programs*. My original intention was to examine both programs and institutions, which are two major formats for delivering Europe-China joint doctoral education. However, during my study visits to the case institutions, which included the first ever Europe-China joint institution established to provide joint doctoral supervision, the SDC, I was informed that the quality assurance system was at a developmental stage and may yield more interesting data after three or five years. As a result, the current doctoral research focuses on establishing and developing an internal quality assurance system only within Europe-China joint doctoral programs but not institutions.

## 4.2 Conceptual models for understanding the transformation process of doctoral education

Recognizing the transformative capacity of quality, several researchers have proposed different models to explain the transformation process of education. Below, I discuss three models for exploring the transformation process of education, higher education, and doctoral education.

Adopting a broad view of education, Sahney et al. (2004) proposed a (resources-)input-process-output(-outcome) model of the transformation process (Figure 4.1). Their model sees the educational system as a process “whereby resources are used to convert inputs into outputs” (p. 152). Inputs cover human, physical, and financial resources relevant to the actors in educational process, such as students, teachers, researchers, and administrators; facilities; and infrastructure. Actors with access to inputs undertake a range of activities throughout the transformative process, including teaching, learning, research, administration, and knowledge transformation. The outputs of this transformative process consist of both tangible and intangible outcomes and value additions for the actors.

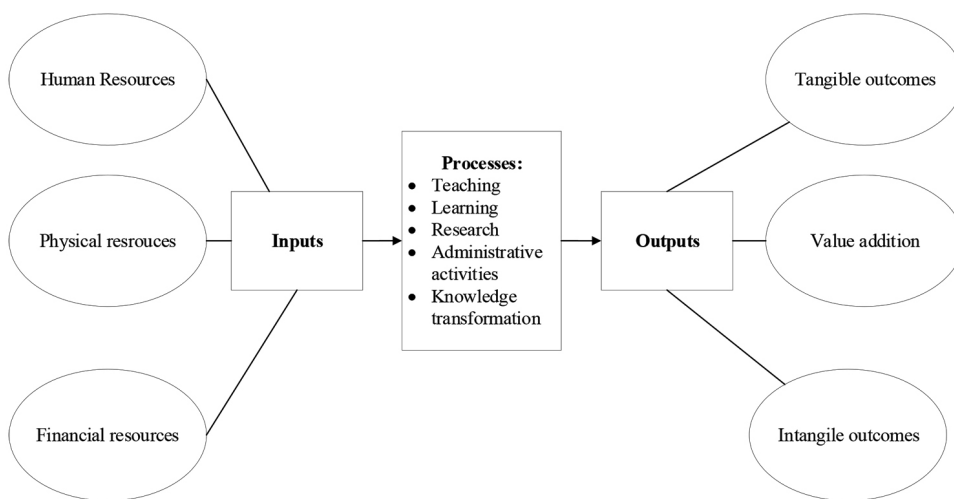


Figure 4.1 Model of education as a transformation process

Source: Sahney et al. (2004, p. 151)

Focusing on higher education, Niedermeier (2017) recommended the use of a context-input-process-output-context model to understand quality (see Figure 4.2). Per the model, inputs, through processes, are transformed into outputs (Niedermeier, 2017). In this model, the context serves as a source of both inputs and constraints, which affect the required outputs/outcomes/impacts (Niedermeier, 2017).

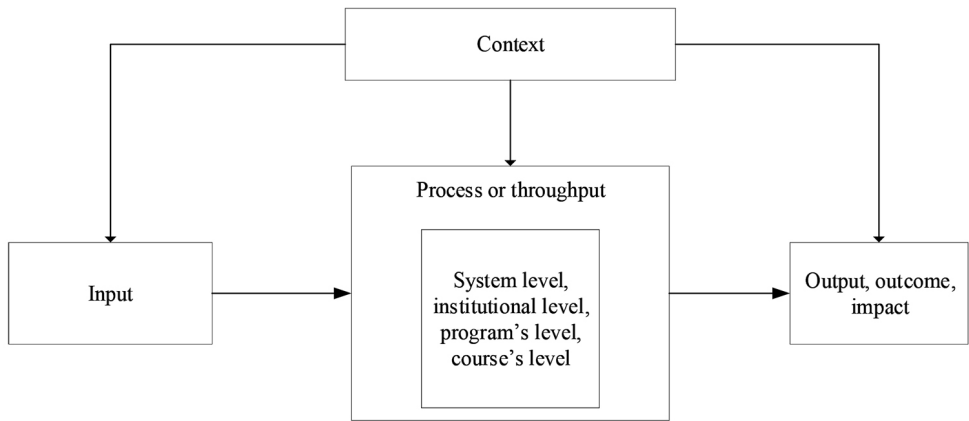


Figure 4.2 Context-input-process-output model of higher education process

Source: Niedermeier (2017, p. 26)

Specifically addressing the transformation process in doctoral programs, Nerad (2014a) proposed an input-throughput-output model. According to Nerad (2014a), in a doctoral program, inputs of quality include successful applicants, professors who teach and supervise, research infrastructure at the host institution, and the political context in which the program is situated; throughputs involve all the practices in the doctoral training process; and outputs consist of qualified scholars by conferring of doctoral degrees and the production of doctoral dissertations and other related publications as well as related outcomes or impacts. Figure 4.3 shows the input-throughput-output model of quality of doctoral education, developed based on Nerad's (2014a) description.

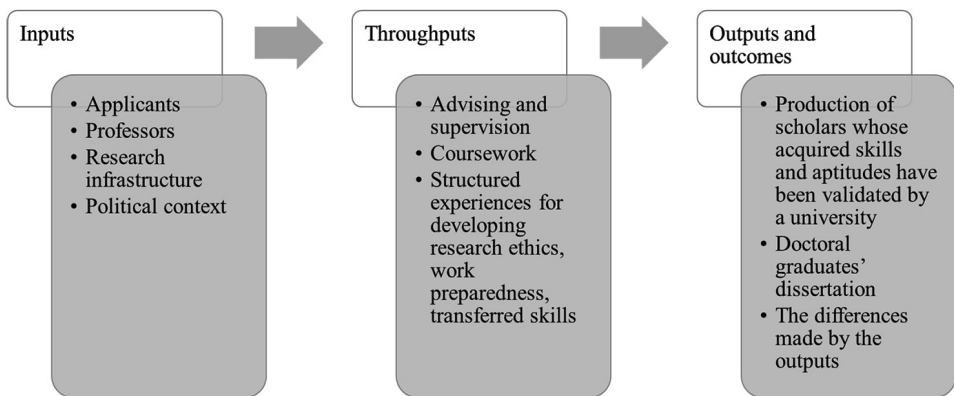


Figure 4.3 Inputs, throughputs, outputs, and outcomes of the quality of doctoral education

Source: Nerad (2014a)

While there may be other similar models on the transformation process of education, the main point of difference between these models is the role of the context. Niedermeier (2017) underscores the influence of context on all stages of the transformation process, Nerad (2014a) considers context a part of the inputs, and in Sahney et al.'s (2004) model, although "context" is not included explicitly, it is understood that "resources" are provided by the context and are used to convert the inputs into outputs. Of the three, Nerad (2014a) provides a more detailed picture of doctoral education by taking into account its peculiar nature. As argued in Chapter 3, past literature on the quality of doctoral education has highlighted the importance of considering the transformation process of doctoral education in its situated research environment. Niedermeier (2017) and Sahney et al. (2004)'s models seem more clearly aligned with this view. Therefore, I combine the two models and use a context-input-process-output(-outcome) model to frame the transformative process of doctoral education. To define each constituent of the model, I rely on Nerad (2014a)'s descriptions (considering the peculiar nature of doctoral education) as well as those of other researchers in the field (e.g., Byrne et al., 2013; Pearson, 1999).

### 4.3 Academic views on inputs, throughputs, outputs, outcomes, and the research environment of doctoral education

The inputs, process, outputs/outcomes/impacts, and context of doctoral education have been investigated by different researchers (e.g., Byrne et al., 2013; Nerad, 2014a; Pearson, 1999, 2005). Their findings elucidate the characteristics of the four essential elements of the transformation process of doctoral education. In what follows, I examine how each element in the model has been studied in literature.

#### 4.3.1 Inputs

Niedermeier (2017) interprets inputs of higher education as "providing the environment to students for their individual knowledge development" as well as "recruiting students themselves" (p. 27). He categorizes inputs into four groups: financial and material resources, human resources and staff qualifications, service resources, and the students and their backgrounds (Niedermeier, 2017). The first three categories pertain to the host institutions, while the last category of inputs is brought in by the doctoral students themselves.

First, in terms of financial and material resources, direct and indirect financial support for doctoral students has been recognized as an important input. As a direct input, different funding sources can affect doctoral students' research performance during the doctoral degree and even after graduation (Horta, Cattaneo, & Meoli, 2018). An indirect input that supports doctoral students is research infrastructure, which largely relies on the available financial resources (Nerad, 2014a). Research infrastructure aside, certain financial

schemes, for example external funding from foundations, can also be an input that leads to changes in doctoral training activities and gradually affects doctoral students' attrition and graduation probabilities (Ehrenberg et al., 2007).

Human resources and staffing cover the involvement of professors (or academics in general) in teaching, supervising, and other activities of doctoral training (Nerad, 2014a). Today, however, the stakeholders of doctoral education include not only students and supervisors as in traditional apprenticeship, but also university leaders, governments, businesses and industries, funding organizations, researchers, quality assurance agencies, communities, international organizations, and so on (Evans, 2014). At the program level, doctoral program coordinators, managers, and other supporting staff, particularly managers responsible for quality assurance, play an influential role in the development of a quality assurance system (Zheng et al., 2017). Their participation in the program is an important and vital input.

Third, service resources in higher education refer to student secretariats, career centers, student counseling, etc. that help students with their career development (Niedermeier, 2017). In the sphere of doctoral education, career-based service resources also include organizing supplementary workshops for doctoral students to develop a wide range of transferable skills and supporting their professional development (Nerad, 2014a). The ways in which professional development service is understood and implemented vary across universities. In the US and Europe, it is mainly offered through graduate schools or doctoral schools (Byrne et al., 2013; Nerad, 2014a).

The fourth input is the students themselves and their backgrounds. As pointed out by Nerad (2014a), high-quality applicants as prospective doctoral students are vital for ensuring the quality of doctoral education at the input stage. Apart from prospective students' research capacity, their personal background, such as their cultural roots (Li & Collins, 2014; Wu, 2017), is an important input that is introduced into the environment by the doctoral students themselves, which subsequently affects their development in the doctoral study process.

### 4.3.2 Process

Process represents the most crucial stage in ensuring the quality of higher education (Niedermeier, 2017). Niedermeier (2017) suggests that the process of higher education take place at multiple levels (system, institutional, program, and course) and can be examined on the basis of five factors: teacher and student behaviors, administration, research, quality assurance, and curriculum. While Niedermeier's (2017) view of process leans more toward teaching and learning quality, Sahney et al. (2004) provide a more comprehensive view of the process of education by considering the activities of teaching, learning, administration, research, and knowledge transformation. Nerad's (2014a) understanding of process focuses specifically on the activities of doctoral education, and they include advising and

supervision, coursework, and structured experiences (e.g., supplementary workshops) for developing transferrable skills.

Meanwhile, studies examining the individual development of doctoral students as part of the process suggest that doctoral students' developmental paths can be viewed as a socialization process (Gardner & Mendoza, 2010; Weidman et al., 2001). The process of doctoral socialization occurs through an interactive set of stages: anticipatory, formal, informal, and personal (Weidman et al., 2001). Further, the process of knowledge advancement, as mentioned earlier, is realized through doctoral students' original research (Bernstein et al., 2014), the outputs of which are presented in doctoral dissertations and other related publications (Nerad, 2014a).

### 4.3.3 Outputs, outcomes, impacts

According to Niedermeier (2017), in education (including doctoral education), the results of the transformative process are not only outputs but also outcomes and impacts. Outputs refer to the direct results of the process, and in the case of higher education, the direct output is student graduates (Niedermeier, 2017). However, outcomes refer to the changes that occur because of the results of the process (Niedermeier, 2017), in other words, the influence of the outputs. For instance, the outcomes of higher education consist of students who have greater relevant knowledge and skills that can be used in the society and can help them in their future careers. Impacts are the long-term effects of the outcomes, such as a well-educated population that can improve the society and advance economic development (Niedermeier, 2017).

Echoing this line of thought, Nerad (2014a) identifies two outputs of doctoral education: 1) the production of scholars whose acquired skills and aptitudes are validated by universities via PhD degrees; 2) doctoral graduates' research productivity, which includes their dissertations and research publications. She defines the outcomes of doctoral education as "important new theories, new knowledge that solves many types of social problems, the creation valuable new products, and so on" (Nerad, 2014a, p. 121). To some extent, Nerad's (2014a) idea of "outcomes" covers the concept of "impacts" used by Niedermeier (2017), as it includes both short-term and long-term differences that can emerge from the outputs.

In some works, the terms "output" and "outcome" have been used as interchangeably. For instance, in the *2010 Salzburg Recommendations*, a guideline for doctoral educational reform in Europe, published by EUA, the main outcomes of doctoral education are defined as the production of early career researchers (European-University-Association, 2010). Similarly, in their report on quality assurance in doctoral education in Europe, Byrne et al. (2013) argue that the core outcome of doctoral education is no longer the production of a thesis by doctoral graduates but the production of doctorate holders with specific research and transferable skills and experiences that can be used in their career development. Here, what they refer to as "outcomes" are the "outputs" of doctoral education according to Nerad



(2014a) and Niedermeier (2017). Nevertheless, in this dissertation, I follow Niedermeier (2017) and Nerad's (2014a) approach and clearly distinguish between "outputs" and "outcomes." "Impacts" are considered the long-term effects of "outcomes," and therefore the scope of "outcomes" covers "impacts."

#### 4.3.4 Research environment (Context)

According to Niedermeier (2017), many contextual factors influence the transformation process of the quality of higher education, ranging from demographic, cultural, regional to academic and autonomous. In the literature related to doctoral education, the terms "research environment" and "research context" are used to refer to the context in which doctoral education takes place. Pearson (2005) notes that the research environment for doctoral education should be framed to include multiple levels, namely global, regional, national, and local. Further, it should cover the interactions of forces and agents across the multiple levels. Typically, research environment is considered at the system level, encompassing political (Nerad, 2014a) or economic (Bernstein et al., 2014) aspects in the society as well as the recurring developments in the field of higher education (Weidman et al., 2001). At the institutional level, it can refer to the scholarly community (Pyhältö et al., 2009) or the academic departments or graduate programs that represent disciplines or fields of study (Weidman, 2010) for doctoral students. The impacts of some elements in the research environment, such as national policies (Mars et al., 2014), market forces (Mendoza, 2007), departmental climate (Solem et al., 2009), and disciplinary cultures (Boden et al., 2011), have also been discussed in the past literature.

#### 4.4 Contributions and drawbacks of previous academic views on doctoral education

The diverse points of view offered by other researchers are valuable for outlining the transformation process of doctoral education from inputs to outputs/outcomes as well as their contents. However, the available literature falls short in three areas in terms of understanding the transformative quality (qualitative changes) of doctoral education.

The first noticeable limitation is the lack of a holistic framework to explore the transformation process of doctoral education in its research environment. As noted in Chapter 3, for studying the issue of quality of doctoral education, one needs a holistic framework that can reflect the process of inputs of doctoral education transforming into outputs and outcomes in its situated research environment. In the past, most researchers were only able to consider one aspect (inputs, throughputs, or outputs/outcomes) or some features of an aspect. Of all the research attempts, Nerad's (2014a) work comes the closest to a holistic conceptual framework. However, an obvious limitation of her framework is

the absence of a “research environment,” where the process of inputs transforming into outputs occurs.

The second limitation is that the concept of research environment is still rather vague. Although the importance of the research environment to high-quality doctoral education is well recognized, there is no consensus on the definition of such a research environment in the literature. Moreover, most researchers have studied one or some factors/forces in the research environment at a specific level, for example, institutional or system. Only Pearson (2005) has acknowledged the multi-agent, multi-level interactions of forces in the research environment and their impacts on doctoral education. He, therefore, called for a more integrative framework to examine doctoral education—one that systematically accounts for the interaction of multiple forces from multiple (e.g., local, national, international, and global) levels (Pearson, 2005). Nevertheless, the question about how the forces interact across levels to enable or constrain the agencies of actors inside the environment remains unclear.

Related to the second is the third fundamental limitation: the lack of a linkage between the research environment and the inputs, process and outputs of doctoral education. How does the transformation process of doctoral education take place in the research environment? Why does it take place in a certain way? In what way does the research environment influence the transformative quality of doctoral education? All these questions remain unanswered because little is known about the meta-mechanisms in the research environment that either enable/constrain the conversion of inputs into outputs. This is why researchers cannot reach a common or consistent understanding about a certain component or the relation between components in different models. This explains the partial and diverse academic views on the inputs, process, outputs, and research environment of doctoral education and highlights the challenges associated with developing a consistent and holistic framework.

Addressing the three aforementioned limitations and developing a holistic framework involve understanding the meta-mechanisms that connect all the four components together consistently. More specifically, it is necessary to determine how (or through what inter-mechanisms) the research environment affects the process by which inputs transform into outputs and outcomes. As suggested earlier (Gu & Luo, 2016; Mars et al., 2014), this inter-mechanism and the impacts of the research environment on doctoral education can be understood with the help of the institutional logics theory.

## 4.5 Institutional logics theory

The institutional logics theory originally emerged as a key theoretical perspective in organizational institutionalism (Thornton, Ocasio, & Lounsbury, 2012). Today, the influence of the theory is not limited to organizational studies and sociology but has extended to a wide range of areas, including education, management, and political sciences

(Ocasio, Thornton, & Lounsbury, 2017). It has also become an increasingly popular theoretical lens for studying the prevalent issues in the field of higher education (Bleiklie, Enders, & Lepori, 2017; Cai & Mehari, 2015; Lepori, 2016). In the following section, I will briefly introduce the purpose of the institutional logics theory, the related theoretical insights that can help the present study, and the rationale for using the theory in this study.

#### 4.5.1 The purpose of institutional logics theory

The concept of institutional logics has been defined in similar ways by several scholars (e.g., Friedland, 2017; Friedland & Alford, 1991). The definition proposed by Thornton and Ocasio (1999) has been widely accepted by subsequent studies on the theory (Johansen & Waldorff, 2017) and has also been used in this study. According to their definition, institutional logics are “the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton & Ocasio, 1999, p. 804).

The institutional logics theory was first developed by Friedland and Alford (1991) to understand institutional changes and the linkage between rational or utilitarian individual and institutional influence (Johansen & Waldorff, 2017). They argued the content of an institutional logic enables organizations to conform or deviate from established patterns (Friedland & Alford, 1991). Further, the same logic content affords or constrains individuals’ sense-makings, like actors’ self-expression, utilitarian calculations, and group commitments (Friedland, 2017). In this sense, institutional logics represent inter-institutional systems that adapt the macro-level social structure to human agency and constitute the micro-level sense-making frames for human beings (Thornton et al., 2012). They enable individuals to conduct micro-level institutional analysis by incorporating the macro-structure and human agency (Cai & Mehari, 2015).

Importantly, the institutional logics theory facilitates a “meta-analysis” of the content of the institutional environment, by defining the macro-level social structure that enables or constrains organizational and individual behaviors (Johansen & Waldorff, 2017). As further explained by Friedland (2017, p. 15), institutional logics are “the real mechanisms of actual social life” and “implicit constitutions of the worlds in which we live,” and we can only understand the world through observable institutional logics. In this sense, the institutional logics theory contributes to our ontological understanding of our living environment.

Further, the theory allows a better understanding of institutional change by capturing the dynamics of institutional logics (Johansen & Waldorff, 2017; Thornton & Ocasio, 2008). Multiple institutional logics shape the dynamics of potential institutional change (Thornton et al., 2012). The logics theory can enhance one’s understanding of institutional changes that occurred in the past, are currently under way, or may be adopted in the future

in response to challenges faced by institutions (Johansen & Waldorff, 2017). It is, thus, particularly useful for understanding changes in complex institutional pluralism.

Thus, the institutional logics theory can be used to analyze the impacts of the institutional environment and the institutional change influenced by the environment. However, before that, it is first necessary to understand what the institutional logics are and how their dynamics lead to institutional change.

#### 4.5.2 What are institutional logics?

Institutional logics originate in key social institutions. Friedland and Alford (1991) initially defined five logics that corresponded to five social institutions in Western society: capitalism, nuclear family, the bureaucratic state, democracy, and Christianity. Their argument has since been amended and extended by Thornton and her colleagues (Thornton, 2004; Thornton & Ocasio, 1999, 2008; Thornton et al., 2012). Thornton et al. (2012) proposed a typology of ideal types of institutional logics, which cover seven logics of the following social institutions: state, profession, market, corporation, family, religion, and community. By far, this typology is the most comprehensive theoretical framework available to identify institutional logics (Johansen & Waldorff, 2017).

Different institutional logics provide different sense-making frames for actors to make choices and take actions in their social reality. In their works, Thornton et al. (2012) and Friedland and Alford (1991) elaborated how the logics of social institutions could serve as sources of legitimacy, authority, identity, norms, etc. for different actors and guide them and the society differently.

Table 4.2 summarizes the sense-making frames associated with the seven logics of institutions, defined earlier.

Table 4.2 Theoretical assumptions of the ideal type of institutional logics

Ideal type of logics	Theoretical assumptions (Sense-making frames for actors)
Logic of state	The state is a redistribution mechanism (Thornton et al., 2012). Therefore, the focus of the state logic is to convert diverse issues into the basis for routine official decisions that can be made either by consensus or majority vote (Friedland & Alford, 1991; Thornton et al., 2012). As such, this logic entails rationalization and the regulation of human activities via legal apparatus and bureaucratic hierarchies (Friedland & Alford, 1991).
Logic of profession	The profession logic posits that a person's reputation is connected to the quality of their craft, and actors all seek to improve their personal expertise and thus enhance their status in the professional community (Thornton et al., 2012).
Logic of family	"Families attempt to convert all social relations into reciprocal and unconditional obligations oriented to the reproduction of family members" (Friedland & Alford, 1991, p. 249). Under the family logic, patriarchal power dominates society, and actors as family members seek to increase their families' honor (Thornton et al., 2012).
Logic of market	This logic attempts to convert all human activities into transactions of commodities that have a monetary price (Friedland & Alford, 1991; Thornton et al., 2012). It emphasizes the strategy of increasing profits and efficiency (Thornton et al., 2012).
Logic of corporation	The actors in a society/organization driven by the corporation logic become employees under the control of corporate managers (Blau & Scott, 2003). Corporation logic emphasizes efficiency in managerial practices (Thornton et al., 2012).
Logic of religion	The logic of religion "attempts to convert all issues into expressions of absolute moral principles accepted voluntarily on faith and grounded in a particular cosmogony" (Friedland & Alford, 1991, p. 249). Actors seek to increase the religious symbolism of natural events (Thornton et al., 2012).
Logic of community	Community is constituted by a common group boundary and by social action that is driven by the satisfaction of common economic needs and value systems that influence its economy (Thornton et al., 2012). Members of a community try to cover each other's losses and increase the honor and status of group members (Thornton et al., 2012).

Source: Zheng et al. (2018)

### 4.5.3 Variants of ideal types of institutional logic

The above ideal types of institutional logics may have their variants. For instance, the literature on institutional logics theory identifies two variants of state logic: bureaucratic state and democratic state. It was first proposed in Friedland and Alford (1991)'s typology and later highlighted by higher education researchers. Evidence from previous research shows that these two variants of state logic are vital for higher education research, because they co-exist, distinct from each other, and affect actors' behaviors differently (Berg & Pinheiro, 2016; Bleiklie et al., 2017; Canhilal, Lepori, & Seeber, 2016). Table 4.3 shows the distinct sense-making frames of actors following the two variants of state logic. Nevertheless, one should also bear in mind that they both essentially reflect a logic of state.

Table 4.3 Variants of state logic

Variants of logic of state	Theoretical assumptions (Sense-making frames for actors)
Logic of bureaucratic state	Following bureaucratic state logic, actors attempt to convert diverse individual situations into a basis for routine official decisions that can be made by consensus (Friedland & Alford, 1991). Moreover, bureaucratic state logic entails rationalization and the regulation of human activities via legal and bureaucratic hierarchies (Friedland & Alford, 1991).
Logic of democracy (democratic state)	Actors following the democracy logic, attempt to convert diverse issues into decisions that can be made by majority vote (Friedland & Alford, 1991).

Source: Zheng et al. (2017)

Although variants of other ideal types of institutional logics have not yet been defined, it is likely that they exist in some form. For instance, while Friedland and Alford (1991) considered a nuclear family in their ideal type of family logic, there could be other variant of families, such as non-nuclear families that include both nuclear family members (parents and children) and extended family members (grandparents, aunts/uncles, and cousins) (Georgas et al., 2001). Linked to these family types are the differences between individualistic and collectivist cultures in different societies (Georgas et al., 2001). Even the definitions of “family,” “nuclear family,” and “extended family” are ambiguous, as these terms cannot be used without considering the situated societies and cultures (Castillo, Weisblat, & Villareal, 1968). Thus, it is possible that the family logic would have different variants. In societies with different types of families, the extent of geographical proximity and frequency of psychological and social interaction among family members can vary and affect the closeness of relation among family members (Georgas et al., 2001). Similarly, in a doctoral education system driven by the logic of a non-nuclear family, supervisors and doctoral students may develop close bonds and have more social interactions than those in a system following the logic of a nuclear family.

If one thinks about the disciplinary differences and their influences, variants for the logic of profession may also be likely. As Clark (1987) notes, each discipline has its knowledge tradition that shapes its related profession. According to Trowler (2014, p. 1728) “disciplines are reservoirs of knowledge resources which, in dynamic combination with other structural phenomena, can condition behavioral practices, sets of discourses, ways of thinking, procedures, emotional responses and motivations.” Features of disciplines lead to structured dispositions for disciplinary practitioners, and they reshape themselves in different practice clusters within the boundary of a discipline (Trowler, 2014) and their behaviors in related professions.

Recognizing the strong influence exerted by disciplines, many scholars have discussed the categories of disciplines (Becher & Trowler, 2001; Biglan, 1973; Whitley & Whitley, 2000). Disciplines can be categorized according to different features: 1) the existence of a single paradigm (hard or soft), 2) their concern with practical application (pure or applied or problem-oriented), 3) their concern with life systems (life or non-life), 4) the existence

of uniform standards in research practices (convergent or divergent), 5) the people-to-problem interaction ratio (urban or rural) (Becher & Trowler, 2001; Biglan, 1973). Further, the located context (political, social, or cultural) also affect the features of a discipline (Becher & Trowler, 2001). Disciplines can also vary in the extent to which researchers depend on each other's reputation and resources and the extent to which the research yields predictable results (Whitley & Whitley, 2000). Of course, with newer additions to disciplines, especially inter-disciplinary development, it becomes more difficult to simply group and define a discipline according to the characteristics above.

When actors subscribe to the logic of a profession, they can interpret the values, beliefs, behaviors, etc. of the profession with some room for variation because of the discipline's embedded features. Such room for variation also extends to their professional practices. Similarly, when faculties within universities are established based on disciplines, it is impossible to have common norms of teaching, research and services across faculties (Biglan, 1973), including practices of doctoral training. For instance, although driven by a common logic of profession, doctoral training activities in hard sciences and in soft sciences can be different: the former is usually carried out as collaborative work in laboratories, while the latter is performed by master-apprentice supervision. Training practices in professional doctoral education that are based on problem-oriented disciplines differ from research-based doctoral education that is underlined by a logic of profession of pure and applied disciplines.

Nevertheless, the discussion above about variants of state logic, profession logic, and family logic is mainly informed by preliminary evidence gathered during the application of the ideal types of institutional logics by Thornton et al. (2012) to the area of higher education. Accordingly, one may assume that variants of other ideal types of institutional logics (religion, market, corporate, community) may also exist. As it is beyond this dissertation's scope to define all the variants of ideal types of institutional logics, the limited evidence available calls for more in-depth research on the institutional logics theory to better define the variants and verify the assumptions.

#### 4.5.4 How do the dynamics among multiple logics lead to institutional change?

Several institutionalists have analyzed the interactions between different institutional logics (Goodrick & Reay, 2011; Johansen & Waldorff, 2017; Villani & Phillips, 2013) and broadly classified them into four situations:

- i. **Competing:** When multiple logics compete with each other to be the dominant one until a new form of stability is achieved; stability is when one institutional logic becomes dominant and guides actors' behaviors

- ii. **Cooperative:** When the relationship between multiple logics is cooperative, they can mutually influence practices, and the strengthening of one logic can lead to the consolidation of another
- iii. **Hybrids:** When multiple logics do not resolve but combine, regardless of conflicts, to uphold the organization, and different actors
- iv. **Bricolage:** When multiple logics “provide different materials for actors to choose and combine among” and actors consciously pick some elements from a given logic while leave out the others (Johansen and Waldorff, 2017, p. 23). In this case, the relation among multiple logics is fragmented as the elements of a logic can be used or discarded selectively by actors and combined with other elements of other logics.

Interactions of multiple institutional logics provide the setting for institutional change inside the institutional environment. According to Thornton and Ocasio (2008), three mechanisms—structural overlap, competing logics, and institutional entrepreneurs—can trigger logic changes in the institutional environment. In a structural overlap, institutional logics aligned with individual roles, organizational structures, and functions encounter one another and are forced into association, and this process in turn triggers interactions between the aligning logics (Thornton, 2004; Thornton & Ocasio, 2008). Conflicting institutional logics in the same institutional environment can compete with one another to exert influence on the actors and lead to institutional changes (Thornton & Ocasio, 2008). Institutional entrepreneurs who have the resources and interests in creating institutional changes can enable them by changing the logics in the environment through their agencies/ actions (Thornton & Ocasio, 2008).

#### 4.5.5 Rationales for using the theory in the present research

The power of the institutional logics theory for explaining the connection between the institutional environment, human agency, and institutional change makes it well suited for mapping the linkage between the research environment and the inputs, processes, outputs/ outcomes of doctoral education inside the environment. “Institutional logics” can refer to the meta-mechanisms that link all components together and help us understand the impacts of the macro-level institutional environment on the actions of actors at the micro-level inside the environment, which causes institutional change. Extending this thinking to doctoral education, the research environment of doctoral education can be seen as the institutional environment that is constituted by multiple logics. Inside the institutional environment, through enabling or constraining stakeholder actions, multiple logics exert an influence on the throughputs by which inputs are transformed into outputs and outcomes. The process of transformation can be understood as an institutional change that is guided by the dynamics of institutional logics. Thus, the use of the logics theory facilitates the



development of a holistic theoretical framework for understanding the transformation process of doctoral education in its situated research environment.

Several researchers have endorsed the usefulness of the institutional logics theory for higher education in its situated research environment research (e.g., Bleiklie et al., 2017; Cai & Mehari, 2015; Frølich, Huisman, Slipersæter, Stensaker, & Bótas, 2013; Lepori, 2016). Their results support my decision of using the institutional logics theory in this study. Firstly, their findings confirm that higher education can be studied as a plural organizational field consisting of multiple and contesting institutional logics (Bastedo, 2009; Bleiklie et al., 2017; Frølich et al., 2013). Further, the literature highlights two important characteristics of the theory: its multi-level nature and its capacity for incorporating embedded agency. These factors imply that the institutional logics theory can serve as a nuanced and flexible framework for higher education studies, particularly effective for studying university changes in response to new public management (Cai & Mehari, 2015; Lepori, 2016).

The above arguments are supported by a robust line of empirical studies that have applied the institutional logics theory in higher education research. Typically, the theory has been used for studying issues, such as university leadership and governance (e.g., Canhilal et al., 2016; Graham & Donaldson, 2019), university institutional management (e.g., Mampaey & Huisman, 2016), quality/accountability of higher education (Brown, 2017), academic work (Cai & Zheng, 2016), university-industry relation and innovation (e.g., Cai, Normann, Pinheiro, & Sotarauta, 2018; Liu & Cai, 2018), and doctoral education (Gu & Luo, 2016; Mars et al., 2014). The latter two works on doctoral education (Gu & Luo, 2016; Mars et al., 2014), albeit a small number, show that using the institutional logics theory can effectively concretize the research environment for doctoral education and consolidate the influences from it.

## 4.6 Understanding quality of doctoral education from an institutional logics perspective

I propose to use institutional logics to understand the meta-mechanisms that connect the research environment, inputs, throughputs, and outputs of doctoral education. In other words, I propose that the institutional logics theory can be used to theorize the impacts of the research environment on the transformation process—by which inputs of doctoral education transform into outputs. In so doing, I raise the first central research question and its three associated sub-questions (Sub-question 1.1 to 1.3). The three sub-questions have been answered through three sub-studies (Sub-study I to III). More details about the research design of the sub-studies are given in Chapter 5. By responding to Sub-questions 1.1 to 1.3 separately, I develop an overarching theoretical framework and two associated interpretive frameworks/tools.

In the sections below, the overarching theoretical framework and interpretive tools are presented. For each framework I explain *how it was developed* and *what it is about*. Later, on the basis of the proposed theoretical and interpretive frameworks, four theoretical arguments are presented to understand the quality of doctoral education in its situated research environment from an institutional logics perspective, in order to answer Research Question 1.

#### 4.6.1 Theoretical framework for the transformation process of doctoral education from an institutional logics perspective

*Response to Research Sub-question 1.1: How can the transformation process of doctoral education, which is enabled or constrained by its situated research environment, be interpreted theoretically from an institutional logics perspective?*

In order to answer Sub-question 1.1, in the first sub-study of the dissertation, I have interpreted the contents of the four components (inputs, throughputs, outputs, outcomes, research environment) of doctoral education from an institutional logics perspective by using the context-input-process-output model as the basic framework. I then propose, a new theoretical framework for understanding doctoral education as a transformation process, from an institutional logics perspective (see Figure 4.4).

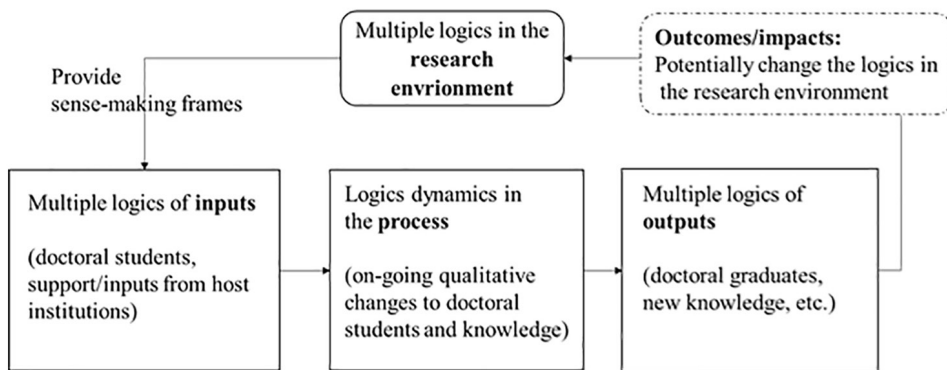


Figure 4.4 Theoretical framework of transformation process of doctoral education from an institutional logics perspective

The central idea of the theoretical framework (Figure 4.4) is to present doctoral education as a transformation process in which the multiple institutional logics underlying in the inputs reconcile and interact with each other until they reach stable interactive dynamics that shape the outputs and provide venues for outcomes to take place. In this framework, all the components of doctoral education are interpreted from the theoretical lens of institutional

logics and are linked together through a meta-mechanism, that is, the institutional logics in the research environment of doctoral education:

- 1) **Research environment for doctoral education:** The research environment of doctoral education systems can be seen as the institutional environment that consists of multiple institutional logics. By providing sense-making frames for actors, the institutional logics in the research environment influence the perceptions, values, beliefs, etc. of the actors in the environment.
- 2) **Inputs:** From an institutional logics perspective, inputs are a constellation of newly formed multiple logics that are composed of the institutional logics in the research environment of the doctoral education system and those that are brought in by actors from their previous experiences and backgrounds.
- 3) **Throughputs:** They are a process of institutional logics related to inputs that interact and reconcile with each other, guiding the qualitative changes acting on doctoral students and the knowledge production through the doctoral students' original research inside the research environment, until a point when the multiple logics reach stable interactive dynamics.
- 4) **Outputs:** The output of doctoral education is a stable interactive logic constellation that underlies the perceptions, beliefs, values, behaviors, etc., of socialized doctoral students, and their doctoral dissertations and other academic publications which constitute the doctoral students' contribution to knowledge advancement.
- 5) **Outcomes:** Changes in the logics of doctoral education may also affect the dynamics of the logics at the field, organizational, and societal levels and thus have an impact on the development of disciplines, institutions, and society. Outcomes are the potential changes that the dynamics of logics in a doctoral educational process can introduce in those underlying the research environment of the host doctoral education system and the society.

#### 4.6.2 Institutional logics in the research environment of a doctoral education system

*Response to Research Sub-question 1.2: What are the institutional logics that may underlie the research environment of a doctoral education system?*

Institutional logics in the research environment of doctoral education are the core meta-mechanisms that connect the inputs, throughputs, outputs, outcomes, and the research environment together. It is therefore essential to identify and define them.

Guided by Sub-question 1.2, in Sub-study II, using the doctoral education system in China as an example, I and my co-authors, Dr. Wenqin Shen and Dr. Yuzhuo Cai, have identified five logics in the research environment: state logic, profession logic, family logic,

market logic, and corporation logic (Zheng et al., 2018). We systematically and carefully applied the ideal types of logics (Thornton et al., 2012) to examine the research environment of the Chinese doctoral education system, relying on abundant qualitative data. The identified logics were further examined and refined in the follow-up empirical sub-studies (Sub-study V and VI). On the basis of the sub-studies, we define the five institutional logics in the research environment of doctoral education as in Table 4.4 (Zheng, 2019).

Table 4.4 Ideal types of institutional logics in the research environment of a doctoral education system

Ideal type	Theoretical assumptions
State logic	In a doctoral education system, following the state logic, actors with bureaucratic power, such as state governments and university administrators, exert the greatest influence. The system is developed through government policies and regulations, routine administration, and the redistribution of resources. Doctoral education is regarded as a public good and represents the interests of the state and the government.
Profession logic	Profession logic in the doctoral education system dictates that an individual's status rests on their personal expertise in disciplinary research. Doctoral supervisors who have greater expertise in the discipline and better academic reputations exert the maximum authority. Doctoral students, as apprentices of doctoral supervisors, try to enhance their personal expertise and their status in the profession.
Family logic	In the doctoral education system, a research family, which comprises a supervisor and their supervisees, becomes the basic unit of the system. A doctoral supervisor acts as the patriarchal leader of the family, and supervisees become their academic children. The doctoral patriarchal leader and their academic children behave like family members, and the relationship between them is based on patronage and reciprocity.
Market logic	In line with the market logic, market and market-like activities are adopted in the doctoral education system, and they increase the competition (for resources) and cooperation within the industry. Doctoral degrees and doctoral graduates are profitable commodities and valuable assets in the academic market. Doctoral education is pursued with a desire to increase the actors' profits.
Corporation logic	Following corporation logic, the actors in the doctoral education system emphasize the efficiency of research resources and performance-based management. On-time graduation, academic publications, and other activities that can demonstrate the effectiveness and efficiency of doctoral education management are encouraged. Doctoral students are managed through a contractual relationship in which universities or supervisors act as employers, while doctoral students act as employees.

Source: Zheng (2019, p. 214)

### 4.6.3 Institutional logics underlying conceptions of quality of higher education

*Response to Research Sub-question 1.3: What are the institutional logics guiding actors' conceptions of quality of higher education that may affect their behaviors toward ensuring quality?*

Institutional logics in the research environment provide sense-making frames for actors, enabling them to perceive and take actions for ensuring the quality of doctoral education. It is therefore essential to understand the meta-mechanisms operating between the research

environment and actors' conceptions of quality. In Sub-study III, I and my colleagues re-interpreted previous literature on the conceptions of quality in higher education (including doctoral education) (e.g., Harvey & Green, 1993; Harvey & Knight, 1996; Srikanthan & Dalrymple, 2003) through the lens of the institutional logics theory (Friedland & Alford, 1991; Thornton et al., 2012).

Table 4.5 Conceptions of quality of higher education and underlying institutional logics

Concepts	Key notions of the definition	Orientation of the underlying approaches	Underlying logics
Exception	1) Traditional notion of quality: distinctiveness 2) Exceeding high standards (excellence 1) 3) Checking standards	Outcome-orientation	Profession logic
Value for money	1) Accountability 2) Customer's charter		Market logic
Fitness for purpose (FFP)	1) FFP1: Customer specification 2) FFP2: Institution's mission		Market logic and bureaucratic state logic
Perfection (consistency)	1) Zero defects (excellence 2) 2) Getting things the right first time 3) Quality culture	Process orientation	Democratic state logic and corporation logic

Source: Zheng et al. (2017, p. 246)

We identified the meta-mechanisms linking the research environment to actors' perceptions and actions of quality assurance, which constitute the logics underlying actors' conceptions of quality (Zheng et al., 2017). Table 4.5 manifests that understanding quality as exceptional is linked to the logic of profession, while seeing it as value for money suggests a market logic. Interpreting quality as fitness for purpose is driven by the logics of market and bureaucratic state, while viewing quality as perfection reflects the logics of democracy and corporation. We identified the two variants of state logic—logic of bureaucratic state and logic of democratic state (also called democracy logic)—in the conceptions of quality, guiding actors to conceptualize quality differently, as fitness for purpose or as perfection. We therefore differentiated between the two. However, readers should note that they both reflect the state logic. Apart from logics, other perspectives relevant to quality (process-oriented or outcome-oriented) were also analyzed in Sub-study III. As Table 4.5 shows, while quality as perfection reflects a process perspective, the other three conceptions (value for money, fitness for purpose and exception) suggest an outcome orientation. Seeing quality as transformative is not included in the table, as it is meta-quality concept that subsumes all the four concepts.

#### 4.6.4 Key arguments from the theoretical and interpretive frameworks

*Response to Research Question 1: How can the association between the quality of doctoral education and its situated research environment be interpreted theoretically from an institutional logics perspective?*

Developing the theoretical framework and interpretive frameworks above has yielded four theoretical arguments that are important for understanding the notion of quality of doctoral education in its situated research environment from an institutional logics perspective. The **first** theoretical argument is related to the situated research environment: the research environment of a doctoral education system is constituted by multiple institutional logics. These logics provide sense-making frames for actors inside the environment to take actions. Building on this argument, and by referring to the theoretical assumptions of the ideal types of institutional logics, one can identify the institutional logics in the research environment of any doctoral education system. A **second** argument is that from the perspective of institutional logics, the transformation of doctoral education inside its research environment involves multiple environment-derived logics, where those related to inputs interact, reconcile, and guide the formation of outputs and potentially the creation of outcomes. Accordingly, the inputs, throughputs, outputs, outcomes, and research environment are connected through a common meta-mechanism. In other words, the institutional logics in the research environment provide material for actors to make sense, conceive, act, and make decisions. Following the second argument, it seems reasonable to propose the **third** argument regarding the transformative quality of doctoral education: qualitative changes to doctoral education is realized through a transformation process by which multiple institutional logics of inputs in the environment of doctoral education reconcile to form a stable interactive logics constellation that shapes the outputs of doctoral education. At the same time, qualitative changes in doctoral students and the domain knowledge are also produced by the same reconciling process of multiple logics, which influences the assumptions, values, and beliefs of doctoral students and their doctoral research. **Fourth**, the multiple logics in the situated research environment also affect the practices of quality assurance in doctoral education; they guide key actors to conceptualize quality in a certain way, which in turn influences their decision-making and actions toward developing quality assurance mechanisms. Therefore, the four arguments shed light on the influence of the research environment on the transformation process that contributes to the quality of doctoral education and on actors' conceptions of quality that, in turn, result in various practices and mechanisms employed to ensure the quality of doctoral education.

Based on the four arguments and the associated theoretical framework and interpretive tools, one can analyze the impacts of research environment for international joint doctoral education, including Europe-China joint doctoral education, on the quality and quality assurance of the joint doctoral education inside. Understanding the impacts of research environment for doctoral education via the common meta-mechanism (institutional logics)

allows us to analyze and compare the impacts of research environment for doctoral education across systems or cultures, and thereby enabling our analysis of the research environment for international joint doctoral education that involves different doctoral education systems. On the basis of this, we can also analyze the impacts of the cross-cultural or cross-system research environment for international (Europe-China) joint doctoral education on the transformation process of the joint doctoral education inside. Thus, we are able to understand how the quality of the joint doctoral education is determined in its situated research environment. Further, revealing the association between actors' conceptions of quality and the impacts of research environment based on the meta-mechanism allows us to analyze the development of quality assurance mechanisms for doctoral education in cross-system or cross-culture research environment, and enables us to analyze the setting up of quality assurance mechanisms in international joint doctoral education.

#### 4.7 Analytical international frameworks derived from theoretical arguments

Applying the theoretical arguments proposed above to answer Research Question 2, on empirically exploring quality and quality assurance in Europe-China joint doctoral education, leads to the development of the following three analytical frameworks:

- (1) An analytical framework for interpreting the research environment of doctoral education from an institutional logics perspective (See Table 4.6).
- (2) An analytical framework for understanding the transformation process of doctoral students from an institutional logics perspective (See Figure 4.5).
- (3) An analytical framework for understanding the development of an internal quality assurance system in international joint programs from an institutional logics perspective (See Figure 4.6).

In the following three sub-sections, I will continue to introduce the three analytical frameworks one by one. The construction of these three frameworks is explicated in four sub-studies (sub-studies II, III, V, and VI). The details of designing and implementing the sub-studies will be explained in the next chapter; here, the explanation focuses on presenting the purpose and content of the analytical frameworks. Hence, for each framework, I describe *how the analytical framework was constructed*, *what the analytical framework is about*, and *how to apply the analytical framework to empirical studies*.

#### 4.7.1 Analytical framework for interpreting the research environment of doctoral education from an institutional logics perspective

This analytical framework is rooted in the theoretical argument that the research environment of a doctoral education system is composed of multiple logics. It is later used to answer Sub-question 2.2. Constructed at the system level, the framework has been developed in Sub-study II. Initially, the framework was designed with seven ideal types of institutional logics (Thornton et al., 2012) on the X axis and six commonly investigated dimensions of a doctoral education system (CQAGDE, 2010; Yang, 2012) on the Y axis for exploring the possible institutional logics in the doctoral education system in China (Zheng et al., 2018). Later, based on the results from Sub-study II that captured five logics in the research environment of doctoral education (state logic, profession logic, family logic, market logic, and corporation logic), the X-axis of the analytical framework was modified to include only the five relevant logics, which resulted in the currently presented analytical framework in Sub-study V (See Table 4.6) (Zheng et al., 2019). The five logics included in the X-axis may have a more noticeable influence on doctoral education, but one should be open to the possibilities of discovering the other logics, specifically, community logic and religion logic, in this context in the future.

As shown in Table 4.6, the X-axis of the framework lists the five active logics in the research environment of a doctoral education system, and the Y-axis captures the six dimensions of a doctoral education system. The five logics refer to their associated theoretical assumptions (as illustrated in Table 4.4) whereas the six dimensions are admission, doctoral training, quality assurance, graduation, governance, and funding, which have been commonly investigated in the literature (CQAGDE, 2010; Yang, 2012).

Table 4.6 Analytical framework for interpreting the research environment of doctoral education from an institutional logics perspective

		X Axis: Ideal types of institutional logics				
		State logic	Profession logic	Family logic	Market logic	Corporation logic
Y Axis: dimensions of doctoral education systems	Admission					
	Doctoral training					
	Quality assurance					
	Graduation					
	Funding					
	Governance					

Source: Zheng et al. (2019, p. 200)

In terms of application, this analytical framework should be used in conjunction with Table 4.4 above, which lists the theoretical assumptions underlying the five logics, to analyze the research environment of a doctoral education system. Further, empirical data related to the six dimensions of doctoral education (Y axis in Table 4.6) should be collected and



categorized by dimension. By tying together the institutional logics (Table 4.4, illustrated as the X axis in Table 4.6) relevant to actors' perceptions, actions, beliefs, values, etc., under each of the six dimensions, one can map the institutional logics in the research environment of a doctoral education system and their impacts on different dimensions.

This analytical framework can also be used to analyze and compare the institutional logics in the research environment of two or more doctoral education systems. When actors from two or more systems are engaged in the provision of joint doctoral education, the logics embedded in the actors and their doctoral education systems are introduced into the joint research environment. Through comparative analysis, the above framework can not only identify the distinct logics stemming from the participating doctoral education systems but also infer the interactions between the multiple logics in the research environment of joint doctoral education.

#### 4.7.2 Analytical framework for understanding the transformation process of doctoral students

The second analytical framework presented here is based on the premise that an on-going transformation process of multiple institutional logics produces qualitative changes in the doctoral students inside the system. The analytical framework is constructed in Sub-study VI, and it is based on Weidman et al.'s (2001) model of socialization of postgraduate and professional students. Essentially, I have used the model for framing the transformation process of doctoral students and reinterpreted it through the lens of institutional logics. It is later used in Sub-study VI for analyzing the transformation process of CSC doctoral students in Finnish universities. When presenting the analytical framework in this thesis (Figure 4.5), I have included additional text (in the grey arrow) to explicitly indicate the aspects of inputs, process, and outputs of doctoral education and to help readers associate it with the overarching theoretical framework of the study (Figure 4.4).

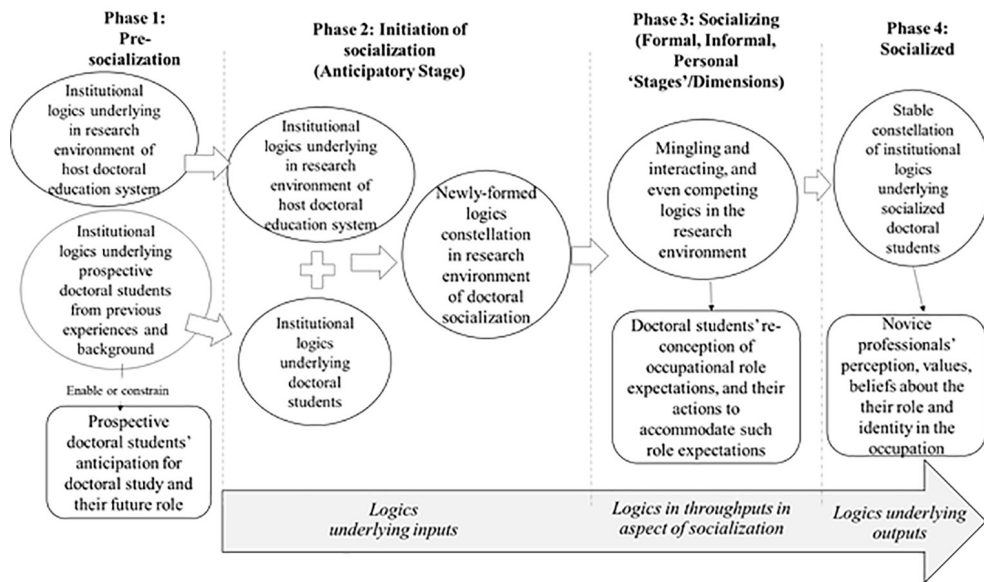


Figure 4.5 Analytical framework for analyzing the transformation process of doctoral students from an institutional logics perspective

Source: Modified from Zheng (2019, p. 210)

Figure 4.5 shows that institutional changes in multiple logics during the transformation process of doctoral students consists of four phases: pre-socialization, initiation of socialization, socializing, and socialized (Zheng, 2019). The pre-socialization phase is characterized by the logics underlying the research environment of the host doctoral education system and those underlying prospective students' previous experiences and backgrounds. Next, when doctoral students enter a doctoral program or institution, they enter the phase of initiation of socialization. In this phase, logics from the host doctoral system overlap with the embedded logics of doctoral students to compose the input logics constellation of doctoral students' socialization process. Influenced by the logics constellation, doctoral students experience the first stage of the socialization process, that is, the anticipatory stage. The newly formed logics constellation interacts with other logics and leads to the next phase of socialization: socializing. The interactions between logics in the socializing phase influence doctoral students' perceptions of the regulative, normative, and cultural-cognitive expectations from them to be academic professionals. These perceptions help them adjust their behaviors to the expectations. As they adjust, they experience the formal, informal, and personal dimensions of a socialisation process. Finally, they enter the socialized phase, which constitutes the output of the continuous interaction between multiple logics from the earlier phase. In this phase, the interactions between the logics constellation reach a stable dynamic and help doctoral students develop conceptions, perceptions, values, and beliefs about their roles and identities in the academic profession.

At the end of successful socialization, doctoral students are socialized to be recognized as professionals in their disciplines and institutions, and research outputs (e.g., dissertations) are produced.

This analytical framework—to study the socialization process of doctoral students—should be used along with Table 4.4. Further, the framework should be populated with empirical data about doctoral students' experiences and anticipations throughout the doctoral process. By interpreting the collected empirical evidence vis-à-vis the theoretical assumptions of institutional logics in doctoral education (Table 4.4), one can identify the institutional logics relevant to the phases of pre-socialization initiation of socialization, and socialized. The logics in the socializing phase are dynamic in nature; therefore, they can only be determined by comparing the logics constellation in the initiation phase with that in the socialized phase. By analyzing institutional changes within multiple logics in the socializing phase and how they influence doctoral students' experiences and guide them toward developing socialized outputs, one can understand why doctoral students are socialized in a certain way. In other words, this framework can unpack the reasons—or the impacts of the interactions of multiple logics—behind the transformative quality of doctoral students.

#### 4.7.3 Analytical framework for understanding the development of an internal quality assurance system in international joint doctoral programs

Based on the argument that multiple logics in the situated research environment guide actors to conceptualize quality in a certain way and thus affect their decision-making and actions toward developing quality assurance mechanisms, an analytical framework is proposed to understand the development of an internal quality assurance system in an international joint doctoral program. This supports the investigation on procedures for setting up international quality assurance systems in Europe-China joint doctoral programs (Sub-question 2.4). Guiding the construction of this analytical framework in Sub-study III is the idea that the development of such a quality assurance system can be considered a process of organizational innovation, underlined by the reconciling of multiple institutional logics (Zheng et al., 2017). According to Levine (1980), any departure from the traditional practices of an organization can be considered an organizational innovation. In Sub-study III, the development of an internal quality assurance system in an international joint program is considered an institutionalization process of organizational innovation, as it departs from any quality assurance systems in partner institutions (Zheng et al., 2017). Thus, the analytical framework is through combining the insights of institutionalization and organizational innovation (Battilana, Leca, & Boxenbaum, 2009; Levine, 1980) and re-interpreting them through the lens of the institutional logics theory (Thornton et al., 2012).

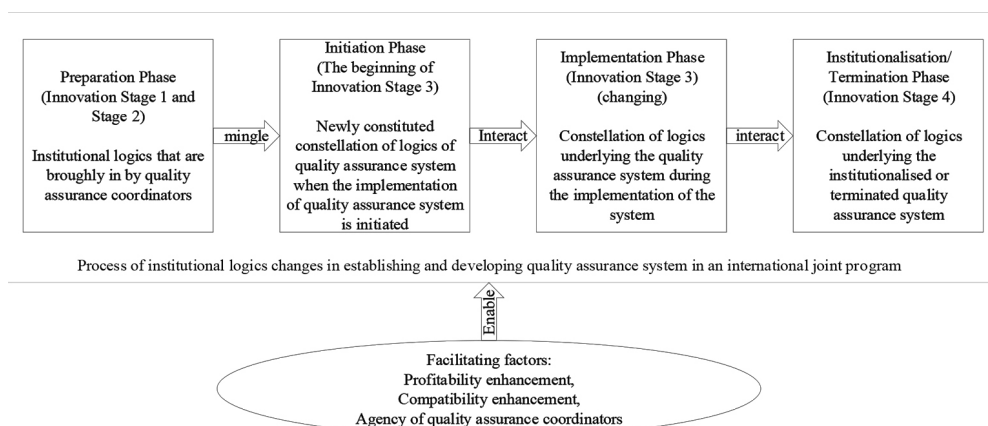


Figure 4.6 Analytical framework for understanding the development of an internal quality assurance system in international joint programs

Source: Zheng et al. (2017, p. 250)

As shown in Figure 4.6 the development of an internal quality assurance system in an international joint program can be regarded as a process of institutional changes in multiple logics, which consists of four stages: preparation, initiation, implementation, and institutionalization/termination (Zheng et al., 2017). The process begins with quality assurance coordinators acting as institutional entrepreneurs to initiate and implement the development of an internal quality assurance system. *Quality assurance coordinators*, here, refer to key actors in an international joint program who have the resources, interest, and vision for developing a quality assurance system. In the preparation phase, quality assurance coordinators, with different conceptions of doctoral education quality inherited from their previous experiences and backgrounds (e.g., influenced by the multiple logics in their home doctoral education system), bring various associated logics as the inputs of the internal quality assurance system. In the initiation phase, these logics intermingle and constitute a new constellation of institutional logics, which represents the input logics of the internal quality assurance system. The newly constituted logics constellation continues to interact and affect actors' actions in the implementation phase. Finally, once the logics constellation reaches a stably interactive dynamic, the internal quality assurance system has either been successfully institutionalized or terminated as an output of the whole process. Throughout the process, given that successful institutionalization of an internal quality assurance system is an organizational innovation, the interactions of multiple logics evolve toward greater compatibility and profitability for the situated program, realized through the actions of quality assurance coordinators (as agencies of institutional entrepreneurs).

The use of this analytical framework should be complemented with the use of Table 4.5, which clarifies the association between conceptions of quality and their underlying institutional logics. Users of framework should obtain data on (1) the perceptions of

quality among quality assurance coordinators and (2) the quality assurance mechanisms and practices incorporated into the proposed quality assurance system in the program. Table 4.5 can be used to analyze quality assurance coordinators' perceptions of quality and quality assurance as well as their underlying institutional logics associated with quality. This will serve as the logics input for the development of an internal quality assurance system in the initiation phase. Similarly, by referring to Table 4.5, users can interpret coordinators' perceptions of the practices and mechanisms in the system as well as the logic underlying in the outputs of the internal quality assurance system (in the institutionalization/termination phase). The logics active in the implementation phase are not static; therefore, they can only be identified by comparing the dynamics in the initiation phase with that in the institutionalization phase. By understanding the interactions among multiple logics in the implementation phase and the associated development of quality assurance mechanisms, one can see how the multiple logics in the research environment shape the procedures of setting up quality assurance mechanisms. Further, by analyzing whether the multiple logics behind a certain quality assurance mechanism increase or decrease the compatibility and profitability of a program and whether they are supported by the actions of quality assurance coordinators, actors may learn why some quality assurance mechanisms or approaches are effective and long lasting, while others fail and are terminated.

## 5 Research methodology

This chapter explains the procedure used to answer the research questions and the associated sub-questions. I chose a qualitative research approach, guided by the constructivist philosophy underlying my research assumptions, and the same assumptions led me to adopt an interpretivist approach toward my doctoral research. In terms of procedure, the research was conducted in two steps: (1) theoretical development, guided by Research Question 1 and (2) empirical exploration based on the theoretical framework developed, following Research Question 2. Each research question has been broken down into three to four sub-questions, which have resulted in six sub-studies. The six sub-studies are linked via the theoretical and analytical frameworks of the study. Conversely, they are also independent and address the specific sub-questions independently. For each sub-study, depending sub-questions guiding it, case study and/or desk research was used as a research strategy. Data from 90 interviews involving 156 participants, three site observations, and numerous documents were collected later analyzed in line the analytical framework of each sub-study. The design and implementation of the qualitative study strictly complied with the guidelines for Responsible Conduct of Research and Procedures for Handling Allegations of Misconduct in Finland (Guidelines of RCR) (TENK, 2013). Validation strategies were also employed to ensure the study's validity.

In the sections that follow, I first explain why the qualitative research approach was chosen. Subsequently, I introduce my philosophical assumptions about researchers and the researched. The next section introduces the research design used to answer the proposed research questions. Subsequently, I present the procedure and methods used in the study to collect and analyze data, as well as the rationale for choosing them. The procedure of analysis is followed by reporting and representing the study results. Ethical considerations and validation strategies considered throughout the study are presented at the end of the chapter.

## 5.1 Research approach for the study: Qualitative research

*Qualitative research* is “a situated activity that locates the observer in the world” that “consists of a set of interpretive, material practices that make the world visible” (Denzin & Lincoln, 2018a, p. 10). Accordingly, qualitative researchers try to discover and describe narratively “what particularly people do in their everyday lives and what their actions mean to them” (Erickson, 2018, p. 36). They tend to do it through “a series of representations, including field notes, interviews, conversations, photographs, photographs, recordings, and memos to the self” (Denzin & Lincoln, 2018a, p. 10).

According to John Creswell and Poth (2018, p. 46), a qualitative research approach can be used in the following situations:

- **Situation 1:** A complex, detailed understanding of the issue is needed; or
- **Situation 2:** A desire to empower individuals exists; or
- **Situation 3:** A literary, flexible style of reporting is appropriate; or
- **Situation 4:** An understanding of the contexts in which participants in a study address a problem is warranted; or
- **Situation 5:** A follow-up explanation of mechanisms about quantitative findings is sought; or
- **Situation 6:** A theory to address gaps in understandings is developed; or
- **Situation 7:** A lack of fit between quantitative measures and the problem exists.”

This doctoral research aims to explore the process of quality assurance in doctoral education in its research environment, given the context of European-Chinese joint doctoral education. The exploration calls for more knowledge about the situated research environment in doctoral education and its impacts on the said process. In this sense, the present doctoral research aligns with **Situation 4**; that is, an issue needs to be explored, and “an understanding of the contexts in which participants in a study address a problem is warranted.” Thus, the use of a qualitative research approach was deemed appropriate and rational for this study.

## 5.2 Philosophic assumptions and interpretive lens: Constructivism

The paradigm that influences my beliefs and philosophical assumptions of research is constructivism or relativism, which also supports my choice of a qualitative research approach for this study. In line with constructivist paradigm, I believe “realities exist in the form of multiple mental constructions, socially based, local and specific, dependent for their form and content on the persons who hold them” (Guba, 1990, p. 27). Grounded in the same philosophical assumptions, I use an interpretivist framework to understand

the relationship between researchers and the researched. In other words, epistemologically speaking, I consider the research findings to have emerged from researchers and that being researched (Guba, 1990) through a hermeneutical or dialectical research process (Lincoln, Lynham, & Guba, 2018).

To simplify, I often use the metaphor of solar eclipses to explain my interpretive lens. The solar eclipse represents the truth we seek to explore in the unknown world. However, just as human beings cannot view a solar eclipse without protective glasses, researchers rely on interpretive frameworks to understand the world. These frameworks consist of our philosophical assumptions, personal paradigms, background, experiences, among others. Information about the solar eclipse formed in our brain represents the truth that we seek, and it is always a creation constructed by what we see and interpret through our glasses.

Equipped with such philosophical assumptions and interpretive lens, I designed and implemented a qualitative study to fulfill the purpose of the study. The schematic below explains the general design of the qualitative study (see Figure 5.1), and more details are provided in the next section.



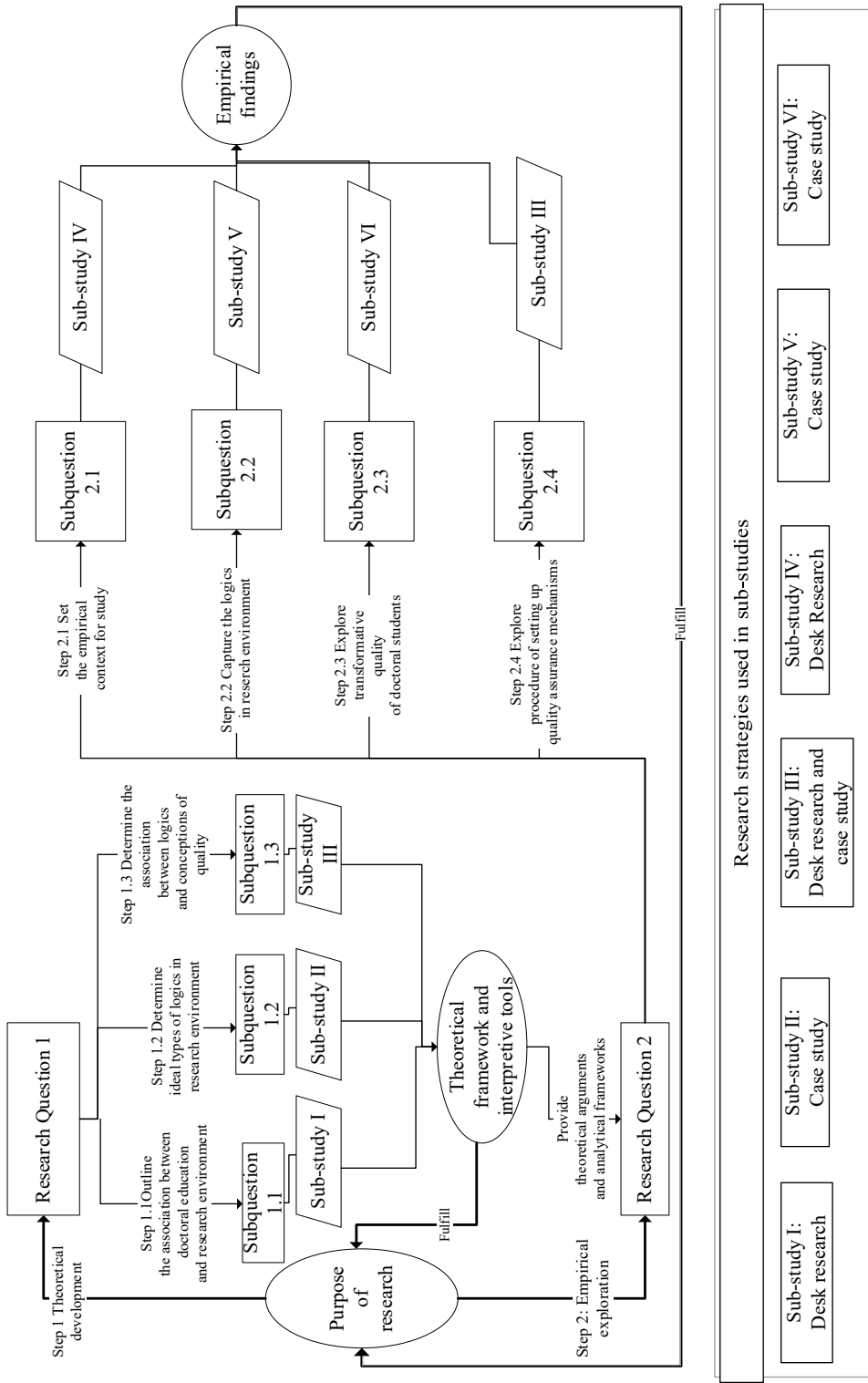


Figure 5.1 Research Design of the study

### 5.3 Research design and research strategies used in the sub-studies

The research design of the study is presented in Figure 5.1. To fulfill the proposed research purpose, the study was designed in two steps: theoretical development and empirical exploration. The first step addressed Research Gap 1 (as shown in Figure 3.2) to meet Research Objective 1 by posing and answering Research Question 1: *How can the association between the quality and quality assurance of doctoral education and its situated research environment be interpreted theoretically from an institutional logics perspective?* This central research question was further broken down into three sub-questions, leading to three sub-studies (Sub-study I, II, III):

**Research Sub-question 1.1** was as follows: *How can the transformation process of doctoral education, which is enabled or constrained by its situated research environment, be interpreted theoretically from an institutional logics perspective?* This question aimed to, from an institutional logics perspective, understand how the transformation process of doctoral education occurs in its research environment. To answer this question, I carried out a sub-study, performing desk research on the relevant literature on quality of higher education, especially at doctoral level. Primary data is not always essential, and much can be achieved by conducting desk research on secondary data, for example, existing literature (Moore, 2006). Particularly, in theoretically oriented qualitative research, the available literature can provide a ready series of hypotheses or models for researchers to study an issue. Accordingly, researchers can use a theoretical lens or perspective to shape “the types of questions asked, inform “how data are collected and analyzed”, and provide “a call for action or change” (Creswell, 2014). Therefore, in Sub-study I, I conducted desk research on the relevant literature related to understand the transformation process of doctoral education, critically reviewed and examined it from the perspective of institutional logics, and proposed a theoretical framework to understand the transformation process of doctoral education from the perspective of institutional logics.

Second, as an extension of Sub-question 1.1, I developed **Sub-question 1.2**: *What are the institutional logics that may underlie the research environment of a doctoral education system?* This aim of this sub-question was to determine the meta-mechanisms that connect components in the theoretical framework developed in Sub-study I (i.e., the institutional logics in the research environment of doctoral education). This called for an in depth understanding of the research environment of doctoral education systems. I used a case study as the research strategy in **Sub-study II**, as it allows researchers to describe and analyze the concerned topic in depth (Creswell & Poth, 2018). With case studies, the unit of analysis be decisions, individuals, organizations, processes, programs, neighborhoods, institutions, events, among others (Yin, 2014). Given that currently, regardless of internationalization, doctoral education is mainly planned and implemented at the national level, the unit of analysis in Sub-study II was doctoral education systems. For Sub-study II, Dr. Wenqin Shen and Dr. Yuzhuo Cai and I selected the doctoral education system in China as a case. The Chinese doctoral education system has been growing in line with global standards

since its establishment (Bao et al., 2018; Enders & Musselin, 2008; Yang, 2012); therefore, its development can shed light on some features of doctoral education that are advocated by the international academic community.

Influenced by institutional logics in the research environment, actors have different perceptions about the quality of doctoral education and take disparate actions to develop mechanisms for ensuring the desired quality of doctoral education to be delivered. The third sub-question was, therefore, as follows: *What are the institutional logics guiding on actors' conceptions of quality of higher education that affect their behaviors toward ensuring quality?* The purpose of this sub-question was to determine the association between the research environment and actors' actions toward developing quality assurance mechanisms. Guided by **Sub-question 1.3** in **Sub-study III**, my collaborators, Dr. Yuzhuo Cai and Dr. Shaozhuang Ma, and I used desk research as a research strategy and analyzed the literature relevant to the conceptions of quality of higher education from an institutional logics' perspective. In addition to answering Sub-question 1.3, Sub-Study III addressed Sub-question 2.4 by using the association to capture the logics dynamics involved in setting up an internal quality assurance system for an international joint doctoral program. This is explained in detail in a later paragraph.

By answering the three sub-questions (sub-questions 1.1 to 1.3), I succeeded in answering Research Question 1. Resolving Sub-question 1.1 resulted in the construction of a theoretical framework of the transformation process of doctoral education in its research environment from an institutional logics perspective. The framework clarifies the formation of transformative quality of doctoral education. Next, answering Sub-question 1.2 helped define the institutional logics in the research environment of a doctoral education system, which enables us to analyze the impacts of the research environment on the transformation process of doctoral education. Finally, addressing Sub-question 1.3 clarified how multiple logics at the macro-level research environment are associated with the micro-level actions taken by actors toward developing quality assurance mechanisms. This helped analyze the impacts of the research environment on defining quality assurance mechanisms in higher education. By answering the three sub-questions step by step, this study has captured how the situated research environment contributes to the transformative quality of doctoral education and to the practices for ensuring the quality of doctoral education via institutional logics.

After the realization of the first step, a second step was initiated to address Research Gap 2 and meet Research Objective 2 which pertained to an empirical analysis of quality and quality assurance in Europe-China joint doctoral education. The second central research question was as follows: *How has the research environment contributed to the quality of international joint doctoral education provided through the collaboration between European and Chinese stakeholders?* This central research question was broken down into four related sub-questions (2.1. to 2.4) and led to the four sub-studies discussed below.

Creswell and Poth (2018) argue that qualitative researchers should understand contextual features and their influence on participants' experiences. Accordingly, the first

step of the empirical exploration was reporting the setting of Europe-China joint doctoral education. Since the study of Europe-China joint doctoral education should be situated in the context of international collaboration between Europe and China, Sub-question 2.1 was formed: *How and why has the doctoral education collaboration between Europe and China developed since the 1980s?* To answer this sub-question, **Sub-study IV** was jointly conducted by my doctoral supervisor Dr. Yuzhuo Cai and me. Desk research was used as a research strategy for the sub-study, mainly to unravel the historical evolution of the international collaboration between Europe and China in the field of doctoral education, after the establishment of the current Chinese doctoral education system.

After outlining the empirical context for the study, the next empirical question was **Sub-question 2.2:** *With Finland as an example of a European country, what are the possible institutional logics that underlie the research environment for international joint doctoral education between China and Europe?* Since in Europe is composed of many countries who have diverse doctoral education systems, in the interest of in-depth analysis of doctoral education systems, a case study approach was used as a research strategy for Sub-study V. The unit of analysis was a doctoral education system. My colleagues Prof. Jussi Kivistö, Dr. Wenqin Shen, and Dr. Yuzhuo Cai and I selected the Finnish doctoral education system as an example of the doctoral education systems in Europe. The research environment for Finland-China joint doctoral education was, thus, an example of that for Europe-China joint doctoral education. Sub-study V involved collecting and analyzing literature on the research environments of Finnish and Chinese doctoral education systems and comparing the differences and commonalities in institutional logics between the two systems. On the basis of the analysis, we identified the possible logics dynamics in the research environment for international joint doctoral education provided by Finnish and Chinese doctoral education systems. It should be acknowledged that Finland's doctoral education system is only an example of the systems in Europe and not entirely representative of all European countries. The differences in the development of doctoral education at the national and regional levels are discussed in Section 6.2 along with the results of Sub-study V.

Contextualizing the second empirical enquiry to the given setting, I formulated **Sub-question 2.3:** *Taking CSC-funded doctoral students in Finland as an example, how has the research environment contributed to the quality of international doctoral students in Europe-China joint doctoral education?* The intention behind this question was to explore the institutional change in multiple logics acting on doctoral students in the course of doctoral education. This led to the execution of **Sub-study VI**. Continuing to use Finland as an example of a European country, I selected a group of CSC-funded doctoral students in the Finnish doctoral education system as student participants in the collaborative arrangements between Europe and China. Thus, the units of analysis in Sub-study VI were doctoral students. I specifically selected CSC-funded doctoral students because they represent the important component of Chinese doctoral students coming to Europe for their doctoral studies as part of Europe-China cooperation in doctoral education (Shen et al., 2017).

The last sub-question (**Sub-question 2.4**) was as follows: *Using the example of a Portugal-China joint doctoral program, how can an internal quality assurance system for Europe-China joint doctoral program be established and developed in its situated research environment?* The question was developed to explore the institutional change in multiple logics that contributes to the development of quality assurance mechanisms. In **Sub-study III**, after determining the institutional logics associated with the conceptions of quality in higher education, Dr. Yuzhuo Cai, Dr. Shaozhuang Ma, and I continued to examine changes in institutional logics within the research environment for procedures related to setting up of an internal quality assurance system in a Portugal-China joint doctoral program. We selected Doctoral Program of Management in Healthcare (DMH), a Portugal-China joint doctoral program, as a case for the sub-study. The unit of analysis was a doctoral program, and the DMH program was selected as a representative because its development captured the main features of Europe-China joint doctoral programs in China.

The four sub-questions were formulated to ultimately answer Research Question 2. Answering Sub-question 2.1 helped construct the empirical setting for the study, answering Sub-question 2.2 helped capture the possible logics in the research environment of international joint doctoral education between China and Finland. Addressing Sub-question 2.3 revealed the impacts of institutional logics associated with the transformative quality of doctoral students, and answering Sub-question 2.4 showed the logics impacts on the establishment and implementation of an internal quality assurance system in Europe-China joint doctoral education.

I carried out six sub-studies as part of this doctoral research. Guided by a specific sub-question, each study had a distinct focus, yet all the studies were interrelated via the theoretical framework and interpretive frameworks. This also is why different research strategies were used. Even with the same research strategy, for example, case studies, depending on the sub-questions, different units of analysis were used (i.e., doctoral education system in sub-studies II and IV, doctoral program in Sub-study III, and doctoral students in Sub-study VI). Finally, outcomes from the six sub-studies fulfilled the purpose of this research, including the development of theoretical framework and interpretive frameworks, and identification of empirical evidence in the context of Europe-China joint doctoral education.

## 5.4 Data collection and analysis

This section explains what data were collected, how they were collected, and how they were analyzed in the six sub-studies. In sub-studies I and VI, I was the sole investigator, while in the other sub-studies, data were collected and analyzed jointly by my collaborators and me. Nevertheless, the procedure for data collection and analysis in all the sub-studies complied with the recommendations for data collection, analysis, and representation by Creswell and Poth (2018). In the following sub-sections, when describing the procedure of

data collection and analysis, I use “we” to refer to investigator(s) regardless of the number of investigators. At the beginning of the sections “data collection” and “data analysis,” I will clarify the investigators for data collection and analysis in each sub-study.

For the sub-studies related to theoretical development, we first decided the data that were needed and collected them. After collecting data we interpreted them through the lens of the institutional logics theory and developed the theoretical framework and associated interpretive frameworks. Based on the theoretical argument of theoretical framework and the interpretive tools/frameworks, in sub-studies related to empirical exploration, we constructed the analytical frameworks for the sub-studies. Then following the analytical frameworks, we decided the empirical data that were needed, collected them, and analyzed the collected data using the relevant analytical framework.

#### 5.4.1 Research data

Three sources of research data—interviews, observations, and documents—were used for data collection across the six sub-studies. Data from 156 participants, collected through 85 formal interviews and five informal interviews were used. The 156 participants consisted of 37 supervisors, 69 students, 31 university managers (university rector, dean, and program coordinator), 19 university administrators, and one government officer. Three site observations were also conducted to collect observatory data on thesis seminars, supervision meetings and classroom teaching for one sub-study (Sub-study III). Abundant documentary data were obtained from academic literature, policy documents, news articles, and other relevant documents

In terms of origins or sources, the collected research data originated from both primary and secondary sources, depending on the sub-questions and the availability of research sources. The majority of the research data were collected through secondary sources, mainly documentary data for all the sub-studies and the interview data for Sub-study II. The interview data in Sub-study II was originally collected during a research project on “Quality Evaluation of Doctoral Education in China” by the CAQGDE in China from 2004 to 2015. My colleagues and I sought permission to access the existing dataset of the research project and re-used its interview data for Sub-study II. In terms of primary sources, interviews and observation data for Sub-study III and interview data for Sub-study V were collected from primary sources. Table 5.1 presents an overview of the collected data according to the data types in sub-studies.

Table 5.1 Forms and origins of research data in the study

Sub-studies	Forms of data			Sources or origins of data
	<i>Interview data</i>	<i>Observation data</i>	<i>Documentary data</i>	<i>Primary source or secondary source</i>
Sub-study I	None	None	Relevant academic literature on components of quality assurance in doctoral education	Secondary source
Sub-study II	70 interviews (135 subjects) consisting of 53 individual interviews (one university vice rector, 13 deans of university graduate schools, 14 deans of faculties, 24 supervisors, and one government officer) and 17 focus group interviews (involving 56 students, nine supervisors, and 17 university administrators)	None	Relevant academic literature and policy documents on doctoral education	Secondary source
Sub-study III	Four individual interviews (two program coordinators and two supervisors), one pair of interviews (of one program coordinator and one supervisor), five informal communications (with three doctoral students and two program administrators)	Observation of one class, one supervisory meeting, and one thesis seminar	Relevant documentary data on the case program (unpublished), information on the program's webpage, news articles, and policy documents.	Primary source (interview and observations) and secondary source (documentary data)
Sub-study IV	None	None	Relevant academic literature and relevant policy documents, news articles and information	Secondary source
Sub-study V	None	None	Relevant academic literature, policy documents, and reports	Secondary source
Sub-study VI	10 individual interviews (of 10 doctoral students)	None	Relevant academic literature and relevant statistics from the Chinese government (unpublished), policy documents	Primary source (interviews) and secondary source (documentary data)
TOTAL	90 (85 formal + 5 informal) interviews involving 156 participants (37 supervisors, 69 students, 31 university managers, 19 university administrators, and one government officer)	Three observations	Abundant relevant academic literature (more than 190 articles), policy documents, news articles, etc.	Both primary and secondary sources

## 5.4.2 Data collection

Data collection was carried out independently for each of the six sub-studies. For Sub-studies I, IV, and VI, I was the sole data collector. For sub-studies II, III and V, my collaborators and I gathered data jointly, with me acting the principal investigator.

In Sub-study I, to develop a theoretical framework from an institutional logics perspective, I identified literature relevant to understanding the quality of higher education as well as the inputs, process, and outputs of doctoral education. Literature on institutional logics theory was also useful to understand the theoretical lens.

In Sub-study II, an analytical framework was constructed to guide the collection and analysis of data by combining insights from the seven ideal types of institutional logics (Thornton et al., 2012) and the six frequently studied dimensions (admission, doctoral training, quality assurance, graduation, governance, and funding) of a doctoral education system (CQAGDE, 2010; Yang, 2012). The purpose of data collection was to acquire information about the practices, values, beliefs, among others, underlying a doctoral education system in China. As explained earlier, the interview data for this sub-study were obtained from a research project on the “Quality Evaluation of Doctoral Education in China.” One of our collaborators, Dr. Wenqin Shen, was a key investigator on the project and helped with the access needed for reusing the data. In 2015, we received permission to use data from 70 interviews (including 53 individual interviews and 17 focus group interviews), which reflected the participants’ practices and perceptions with regard to the Chinese doctoral education system. Besides, from 2016 to 2017, to supplement the interview data, informed by the analytical framework constructed in the sub-study, we searched for and collected documentary material in relation to the Chinese doctoral education system, including relevant academic literature, government policy documents, university strategic documents, and news articles.

Sub-study III tried to answer two sub-questions, which resulted in two stages of data collection. To answer Sub-question 1.3, we first searched for and collected literature on conceptions of quality of higher education. Subsequently, to address Sub-question 2.4, an analytical framework was constructed for understanding the development of an internal quality assurance system in an international joint academic program from an institutional logics perspective (Figure 4.6). Informed by the analytical framework, in 2015, I contacted the case program coordinator and gained permission to collect field data. From 2015 to 2016, I conducted five formal semi-structured interviews with quality assurance coordinators and supervisors, five informal unstructured interviews/communication with doctoral students and program administrators, three site observations of supervision meetings, a thesis seminar, and a classroom teaching. Dr. Shaozhuang Ma, one of our coauthors and a case program coordinator, shared the case-related internal documents (internal management information, reports, etc.) as supplementary data. We also jointly collected other documentary data, such as government policy documents related to Sino-foreign joint programs, website information on the case program, news items, among others, to supplement the interview data.



In Sub-study IV, I and my supervisor Dr. Yuzhuo Cai first developed an analytical framework that was based on the perspectives of multiple stakeholders proposed by Clark (1983) and the evolution of the collaboration between Europe and China in the field of doctoral education. In keeping with the analytical framework, we defined the purpose of data collection as collecting information and material related to the cooperation for doctoral education between China and Europe at multiple levels from the 1980s to this. Then, from 2015 to 2016, I searched for and collected relevant documentary evidence, including mainly academic literature on the collaboration between Europe and China in higher education (including doctoral education), related government policy documents from China, European countries, and the EC, and news articles.

In Sub-study V, we modified the analytical framework of Sub-study II in order to interpret institutional logics in the research environment of a doctoral education system (see Table 4.6). Guided by the interpretive framework, I and Prof. Jussi Kivistö collected documentary data about the practices and underlying values and beliefs associated with the six dimensions of doctoral education in China and Finland. The documents collected include relevant academic literature, government policy documents, and reports.

In Sub-study VI, I first developed an analytical framework for analyzing the transformation process of doctoral students from the perspective of the institutional logics theory (see Figure 4.5). Then, informed by the analytical framework, the purpose of data collection was to obtain information about the expectations, learning experiences, and identity-related reflections of CSC-funded doctoral students in Finnish universities. Accordingly, I conducted interviews with 11 CSC-funded doctoral students in Finland. One interview was treated as invalid because of a recorder malfunction and removed from the dataset.

Throughout the process of data collection, we designed the protocols for interviews (see Appendix 5.1 Interview protocols used in the empirical study) and for observation notetaking (see Appendix 5.2 Observation protocol) before initiating the processes. These were shared with the interviewees and gatekeepers of the field in advance if they requested. When initiating the process, we obtained consent on participation from the interviewees via a research permission form (see Appendix 5.3 Research permission form). Consent on observation were obtained through direct communication between me and the coordinators of the case program via email and phone calls. After collecting data from the field, I also made notes to reflect on my first impression of the data and my activities during data collection.

### 5.4.3 Data analysis

The data analysis process was conducted according to the steps of the Data Analysis Spiral proposed by Creswell and Poth (2018, p. 186). Data analysis, like data collection, was carried out independently for each sub-study. Excluding sub-studies I and VI, where I worked

alone, data analysis for all the sub-studies was conducted jointly by my collaborators and me. Thematic analysis was used to examine the collected data in line with the analytical framework of the sub-study.

The process of data analysis process began with organizing the data. Interview data were transcribed and stored as documents. Observation data were sorted out, stored as field note documents. Documentary material was also sorted out and categorized by topic. For each sub-study, all the relevant files (interview transcription documents, observation notes, and documentary data) were organized in a folder with a consistent naming system.

Second, we read the data files and noted the broad emerging themes to get a sense of the whole database. On the basis of our memos or notes from the first reading, we developed our reflections on the data.

Third, guided by our reflective thinking and the analytical framework of the sub-study, we identified coding categories. We listed the coding categories along with their explanations when they were not self-explanatory.

Fourth, we classified the data by assigning them to coding categories. We were also open to creating a coding category that could be relevant to answering the research sub-question. For sub-studies II, III, and VI, which involved a large amount of data, we used NVivo 10 software for coding. For sub-studies I, IV, and V, as the database was relatively small, coding was performed manually. We then created a coding report (codebook), which included the categories for coding, their descriptions, and the quoted text, that is, the coded data.

Last, we interpreted the emerging themes from the coded data. Excerpts from the coded quotations were identified for highlighting the themes. By making sense of the thematic ideas from the data, we generated the findings of the analysis.

## 5.5 Representing and reporting the study

After analyzing and interpreting the data, the next step is to (re)present and report the results and discuss them in the context of other findings in the literature (Creswell & Poth, 2018). As Table 5.2 shows, representing and reporting the results from the study led to the production of this dissertation and five academic articles (full text in Chapter of “Original publications”). All five articles have been through the peer-review process. The peer-review process of the published articles is also shown in the appendices of the dissertation (see Appendix 5.4 Peer review information on published articles). When writing this dissertation, I discussed the findings of all the sub-studies and returned to answer the central research questions presented in Chapters 4 and 6. I also connected the findings to extant literature to discuss their theoretical and practical implications for the target audience in the conclusion (Chapter 7).

Table 5.2 Reporting analysis results from sub-studies

Sub-study	Representing and reporting analysis results
Sub-study I	Chapter 4 in the dissertation
Sub-study II	Article 1 and Chapter 4
Sub-study III	Article 2, Chapters 4 and 6
Sub-study IV	Article 3 and Chapter 6
Sub-study V	Article 4 and Chapter 6
Sub-study VI	Article 5 and Chapter 6

## 5.6 Ethical considerations

Throughout the research process, I strictly complied with the Guidelines for Responsible Conduct of Research and Procedures for Handling Allegations of Misconduct in Finland (Guidelines of RCR) (TENK, 2013). According to the Guidelines of RCR, research in the humanities and behavioral sciences conducted in Finland should comply with three ethical principles: voluntary participation and informed consent; avoiding harm; and protecting privacy (National-Advisory-Board-on-Research-Ethics, 2009). As a researcher, I adhered to these three principles throughout the design and implementation of the study.

For instance, in compliance with the voluntary participation principle, during the data collection process, I sent written invitations (explaining the research purpose) to target participants via email/Wechat first and later obtained informed consent from the participants who voluntarily responded and expressed their willingness to participate. For field observations, I first acquired permission from the case program officials. For the interviews, after getting participants' voluntary responses, I invited them to sign a research permission form (see Appendix 5.3 Research permission form) before the interviews were conducted. Apart from obtaining consent, the research permission form informed interviewees that their personal data will be protected and that they had the right to withdraw from the study at any stage. All the subjects consented to participate in the research and permitted the use of collected textual and audio data.

Complying with the principle to avoid harm, during the data collection process, I treated the participants with respect. I scheduled interviews and observations considering the participants' convenience and informed them that they could pause the data collection whenever they wanted. The results of the analysis were presented systematically and carefully in academic publications with clear arguments, in line with the ethical principles for research publications. In all the published and publishable academic articles, information about the participants was anonymized and any identifying personal information was removed to prevent potential harm to the participants.

Anonymizing participant information also aligned with the third principle: privacy and data protection. Any identifying personal data about the participants were removed when

the results were presented. In the published results, the participants were not identifiable but referred to with respect. Further, data were stored carefully in encrypted folders at my work computer from Tampere University and protected from any potential breach. Original research data were accessible only to researchers participating in each sub-study.

When presenting the results in published articles, the co-authors and I were mindful of the principle of responsible authorship and complied with the guidelines for *Agreeing on Authorship: Recommendations for Research Publications* (TENK, 2018). As a doctoral researcher writing a publication-based dissertation, I am expected to clarify my and co-authors' contribution to the co-authored articles (TENK, 2018). Accordingly, I evaluated my responsibilities and those of my co-authors in each published article, and I have clarified them in Appendix 5.5. For all co-authored articles, as a first author of the article, I led the discussion with co-authors on authorship before and throughout the writing, including the sequence of authorship, responsibility of each co-author for the content, and principles of writing and discussion.

## 5.7 Reliability, transferability, and generalization of the findings

### 5.7.1 Generalization of the study

Before introducing my approaches to ensure the reliability and transferability of the study, it is important to clarify the generalization considerations of the present research. As qualitative research, this work aims to make theoretical inferences about research, called *moderatum generalization* by Williams (2000). *Moderatum generalization* is different from *total generalization* and *statistical generalization*. According to Williams (2000, p. 215), *total generalization* consists of axioms and is only possible in the world of “axiomatic laws of nature specified in physics, chemistry and their cognate disciplines.” In other words, *total generalization* is made when “*situation S' is identical to S in every detail*” (Williams, 2000, p. 215). *Statistical generalization* is “where the probability of situation S occurring more widely can be estimated from instances of ‘s.’” It focuses on the relationship between sampling and population (Williams, 2000). Different from *total generalization* and *statistical generalization*, *moderatum generalization* shows “where aspects of [Situation] ‘S’ can be seen to be instances of a broader recognizable set of features” (Williams, 2000, p. 215).

As pointed out by Williams (2000, p. 220), the basis for *moderatum generalizations* is “cultural consistency in the social world, and it is the same cultural consistency that makes social life possible.” To understand cultural consistency, we rely on the method of instances, instead of statistical methods, and take each instance of a phenomenon as evidence of the operation of cultural consistency in the social world (Denzin & Lincoln, 2018c). The task of qualitative researchers is to understand how this instance and its interactions work and why they work in such a certain way and to show the structure and process, including

philosophical assumptions and approaches in empirical settings, of the investigation and interpretation of the instance (Denzin & Lincoln, 2018c; Williams, 2000). This in turn helps readers determine within which cultural consistency they reside and allows them to generalize subjectively from the instance to their own personal experiences (Denzin & Lincoln, 2018c; Williams, 2000). In line with this thinking, readers of qualitative research are expected to find something similar, instead of finding something identical (Payne & Williams, 2005).

While *total generalization* concerns laws of nature in specific disciplines and is easy to distinguish from the other two, the concepts of *statistical generalization* and *moderatum generalization* are often confused. In fact, most assume that research “generalization” refers to *statistical generalization*. To distinguish the two concepts for readers, here, I use a metaphor of doctors’ diagnoses. Doctors diagnose patients’ conditions before deciding on a treatment plan. They make diagnostic judgments in two ways: (1) via *statistical generalization*, by considering statistics from previously similar cases and by inferring the possibility (the percentage rate of possibilities) that a certain syndrome may occur, (2) via *moderatum generalization*, by interpreting the details of the patients with a certain syndrome from their own previous experiences with the condition. Both inputs are important for doctors to make a judgement. However, irrespective of the percentage of possibilities derived from previous patients or experiences, each individual patient either contracts the syndrome (100%) or does not (0%). Patients may even exhibit new features related to the syndrome that have not been seen in others before and were, thus, omitted from *statistical generalization*. In this sense, for a *qualitative-research* doctor, he/she may want to learn about past patients’ situations as much as possible—all possible routes of a diagnosis. Hence, this is what qualitative research tries to do: make *moderatum generalization* based on the method of instances. Accordingly, for qualitative research, making *total (abstract)* or *statistical (empirical) generalizations* has neither been a goal nor a concern (Denzin & Lincoln, 2018c; Williams, 2000).

As the present study is qualitative, its goals are clearly not to achieve *total or statistical generalization* but *moderatum generalization*. In doing so, the method of instances is used to design the study. More specifically, in sub-studies II, III, V and VI, case studies were used as the research strategy to ensure *moderatum generalization*. For example, in Sub-study II, using the doctoral education system in China as an example of doctoral education systems across the world, we attempted to understand how institutional logics exist and exert influences on actors in the research environment. In Sub-study III, a Portugal-China joint doctoral program was used as an instance of an international joint doctoral program between Europe and China. In Sub-study V, the Finnish doctoral education system was treated as an example of doctoral education systems in Europe in order to determine the possible logics in doctoral education in Europe. In Sub-study VI, CSC-funded doctoral students in Finnish universities were considered as representatives of international doctoral students in Europe-China joint doctoral education.

## 5.7.2 Approaches to ensure the reliability and transferability of generalizations

While pursuing *moderatum generalization*, we adopted different approaches to ensure their reliability and transferability. First, to confirm the originality and internal validity of the research parameters, we collected and reported data with complete honesty and accuracy. Further, to overcome the weakness or bias of a single perspective in conducting the research, we used a strategy of triangulation. For data triangulation, my collaborators and I collected data from multiple sources via interviews, observations, and documentary evidence. An investigator triangulation strategy was also employed in the data analysis process for some sub-studies (Sub-study II, III, IV, V). For sub-studies conducted via collaboration, we first analyzed data individually and then compared and discussed our analysis results. If they converged or complemented each other, we drew a consensus on the findings. If they were contradictory, we discussed the reasons for the divergence. We also used a theoretical triangulation strategy to reduce theoretical bias. For instance, when developing the associated analytical frameworks for empirical exploration, except for the main theoretical lens of institutional logics, a relatively wide range of conceptual frameworks and models—including the socialization model of postgraduate and professional students (Weidman et al., 2001), the model of the organizational innovation process (Levine, 1980), institutional entrepreneurship (Battilana et al., 2009), and the multi-level stakeholder framework for higher education (Clark, 1983)—were used according to the needs of the sub-questions.

Second, we secured the external validity of the study through thick descriptions of the fieldwork. Each case selected for study has been clearly described in this chapter and in the related published articles. Meanwhile, evidence of the fieldwork, including the research instruments used in the study (e.g., field notes, interview protocols, and observations) were stored and well preserved. The protocols are presented in the appendices of this dissertation. Via thick descriptions, we tried to allow readers to see and understand the structure and process of the research, including its philosophical assumptions, the process of empirical investigation, methods of investigation, and the interpretation and presentation of the cases.

Third, because qualitative researchers are considered research instruments in themselves, I am aware that my subjectivities, like those of other qualitative researchers, “may bias, unbalance, and limit endeavors, but they may also motivate and illuminate inquiry” (Preissle, 2008, p. 845). To enable readers to consider these aspects while evaluating the study’s credibility and validity, I have reflected on details of my personal history, cultural background, personal experiences, among others, in a Subjectivity Statement (see Appendix 5.6 Subjectivity statement).

## 6 Empirical findings

This chapter presents empirical answers to Research Question 2: *How has the research environment contributed to the quality and quality assurance of international joint doctoral education provided through the collaboration between European and Chinese stakeholders?* The research question was broken down into four sub-questions (sub-questions 2.1 to 2.4) that guided the empirical explorations in the related sub-studies. The empirical findings of the sub-studies have already been reported in published peer-reviewed articles (See Chapter of “Original publications”). To avoid repetition, in this chapter, I focus on the answers to each sub-question, discuss the major findings, and return to Research Question 2 in the end.

### 6.1 Collaborative context for Europe–China joint doctoral education

*Response to Sub-question 2.1: How and why has the doctoral education collaboration between Europe and China developed since the 1980s?*

The results of the development of Europe-China collaboration in the area of doctoral education indicated it has progressed through three stages from the 1980s to 2017 (Zheng & Cai, 2018):

- i. **Under-Development Phase (from 1980 to 1989):** The modern doctoral education system in China was established in the 1980s. During that period, international collaboration between Europe and China for doctoral education development was not a key topic of interest.
- ii. **Preparation Phase (from 1990 to 2009):** In the 1990s, Europe-China cooperation entered the second phase, with the EC beginning to assume a coordinating role in Europe and initiating more collaboration with China at a regional level. However, it is important to note that despite EC’s coordinating role, individual country in

Europe held high autonomy and authority in developing their higher education system, including their own strategy for cooperation with China.

- iii. **Development Phase (from 2010 to the present):** The third stage is the current developmental stage of Europe-China cooperation in doctoral education. This international collaboration between Europe and China operates at multiple (European and national, institutional, program, and individual) levels. It has manifested in the development of European and national policy dialogues, international joint projects, joint ventures (institutions and programs) for doctoral education, bilateral institutional agreements, co-funding mechanisms for individual mobility, and so on.

The rapid development of Europe-China collaboration in doctoral education in the 2010s was spurred by an increase in matched interests and the need for internationalizing doctoral education for quality enhancement in both regions (Zheng & Cai, 2018). As illustrated in Table 6.1, China and Europe are currently have common interests in internationalizing their domestic doctoral education, providing international joint doctoral education, enhancing the states' soft power in international relations through higher education, and diversifying the profile of doctoral education to meet the changing needs of a knowledge society. They also have complementary needs in importing and exporting educational resources and encouraging the bidirectional mobility of students and staff between Europe and China. The growing number of matched interests between Europe and China for forging international collaboration in doctoral education has not only enriched the cooperation between both sides at multiple levels since the 2010s but also shifted the focus of the cooperation from quantitative to qualitative enhancement of education (Zheng & Cai, 2018).

Notably, it is against such a backdrop that Europe-China joint doctoral education is currently operating. While providing international joint doctoral education via cooperation with international partners equipped with high-quality educational resources was a shared interest among stakeholders in Europe and China, their common goal is to utilize international strategy to enhance the quality of doctoral education provision (Bao et al., 2018; Zheng & Cai, 2018). Ensuring the quality of international joint doctoral education between Europe and China is, therefore, highly important for both Europe and China to realize their common goals and deepen their cooperation, especially in the area of doctoral education.



Table 6.1 Europe and China's interests and needs in the collaboration for doctoral education

<b>Compatibility of interests and needs between China and Europe</b>	<b>Europe's interest and needs</b>	<b>China's interest and needs</b>
<b>Common interests</b>	Internationalize doctoral education	Internationalize doctoral education
	International joint doctoral education provision	Attract high-quality institutions to provide joint doctoral education
	Enhance understanding and knowledge of Chinese society and Chinese higher education	Enhance exposure to and understanding of European higher education
	Enhance the diversity of doctoral education	Diversify forms of doctoral education
<b>Complementary needs</b>	Export education resources	Utilize advanced education resources in the West
	Attract international doctoral candidates, staff, and guest researchers to Europe	Send doctoral students to study abroad and then incentivize them to return
	Enhance students' outward mobility to China	Attract international doctoral students to study in China

Source: Modified based on Zheng and Cai (2018, p. 346)

However, what is not known is how a European dimension to Chinese international cooperation in doctoral education will influence national-, institutional-, or even individual-level ties or how it will enable the development of a coherent European overarching policy for doctoral education cooperation with China. An important question in this regard is as follows: is there a convergence between Europe-China cooperation in the area of doctoral education? As shown in Sub-study IV, one of the challenges to strengthening the Europe-China collaboration in doctoral education is reconciling the diverse needs and interests among European countries and those between EU and the member states of EU (Hoslag, 2011). This implies there is not yet convergence within Europe in terms of higher education cooperation with China.

Further, other studies on the impacts of European-level development—particularly the Bologna Process—on the higher education in European countries have shed light on considering the convergence issue (Dobbins & Knill, 2014; Hsieh & Huisman, 2017; King, 2010; Westerheijden, 2007). Bologna Process, one of the most influential European-level course/policy for higher education development in Europe, has created a transnational communication platform that enables national higher education systems in European countries to translate the European policies into national actions, assess their practices and learn from the best practices of other countries (Dobbins & Knill, 2014). However, the Bologna Process is a loose system for exchanging experiences and promoting reform principles, with no binding or monitoring authority for the implementation of changes (Dobbins & Knill, 2014). Moreover, throughout the Process, it is almost impossible for all European countries to adopt a common European route (or EU route, if the policy is coordinated by the EU), as every European country and its HEIs have the autonomy to

develop their own strategies for internationalization in higher education (Westerheijden, 2007). Only common interests between individual countries can lead to a temporary coalition among them (Westerheijden, 2007). Further, critics have argued that the Bologna Process may result in the loss of diversity among European universities, which is a major reason that European countries and universities have translated European policies autonomously to best fit their needs. Recently, the translation of a European-level quality assurance policy in three case countries—the Netherlands, England and Denmark—highlighted the variations in the degree and direction of policy changes in the selected countries (Hsieh & Huisman, 2017). This confirms that there is no one-size-fits-all situation within European countries that can lead to convergence over higher education development in Europe (Hsieh & Huisman, 2017).

Doctoral education has been recognized as an important element of the Bologna Process in Europe since 2003 and an important component of the European Higher Education Area (EHEA) and European Research Area (ERA) as well as a bridge connecting the EHEA and ERA (European-University-Association, 2010). The above discussion on the Bologna Process and its translation in European countries, to some extent, indicates that even with the emergence of European-level cooperation in doctoral education with China, one cannot ignore the diversity in doctoral education development within European countries, including their internationalization strategy, for instance, with Chinese actors. Thus, it is important to recognize that there is no joint doctoral education provided by a single unified European-level doctoral education system and a Chinese doctoral education system. Instead, international joint doctoral education is provided through cooperation between actors at the national and institutional levels in China and Europe.

Therefore, in order to analyze Europe-China joint doctoral education, the optimal approach is to select an example of a single European country (in this case, Finland), a joint doctoral program, and a group of international doctoral students. Of course, given the diversity in higher education systems and universities in European countries, none of these selected examples should be considered as a fit-for-all case.

## 6.2 Institutional logics in the research environment of Finland-China joint doctoral education

*Response to Sub-question 2.2: With Finland as an example of a European country, what are the possible institutional logics that underlie the research environment for international joint doctoral education between China and Europe?*

The aim of sub-question 2.2 was to investigate the research environment for Europe-China joint doctoral education. We used the Finnish doctoral education system as an example to uncover the institutional logics relevant to doctoral education systems in a European country. Traditionally based on the German Humboldt model, the doctoral education

system in Finland later (in the 1960s-70s) went on incorporate characteristics of the Nordic welfare state (Laiho, 1997). In the 1990s, market mechanisms were introduced into the Finnish doctoral education system, with the development of “graduate schools” (actually joint doctoral programs) for increasing the efficiency and effectiveness of doctoral education (Laiho, 1997). More recently, since 2010, the education system has been subjected to the structural doctoral education reform of the Bologna Process (Jussi Kivistö, Pekkola, & Siekkinen, 2017), which aim to strengthen the quality assurance mechanisms of doctoral education by increasing institutional management and involvement (Byrne et al., 2013). Of three different historical models of modern universities—the French state-control model, the German Humboldt Model, and the Anglo-American market-oriented model (Dobbins & Knill, 2014)—the Finnish doctoral education system is a mixture of doctoral education systems that were originally rooted in the Humboldt model, some aspects introduced by state planning, and more recently the external pressures of market force and managerialism. However, as mentioned, given the divergent development of higher education in European countries and universities, Finland’s doctoral education system only serves as an window into some features of doctoral education systems in Europe; it cannot be considered completely representative of all doctoral education systems in European countries.

After selecting Finland as an example, Sub-question 2.2 was resolved through Sub-study V, which complemented the findings of Sub-study II. The results of the two sub-studies yielded the following five findings that are important to understand the multiple logics in the research environment of Finland-China joint doctoral education.

A first finding is that the research environment of doctoral education system in China is constituted of a couple of dominating logics—the state and profession logics—a weakening but still strong family logic, an increasingly influential market logic, and a relatively weak corporation logic (Zheng et al., 2018; Zheng et al., 2019). Influenced by this constellation of institutional logics, the current doctoral education system in China can be characterized as a state-led model, with family characteristics, market orientation, and state-regulated academic autonomy (Zheng et al., 2018; Zheng et al., 2019).

Similarly, a second finding reveals the multiple logics in the research environment of the Finnish doctoral education system, which consist of two dominant logics—profession and corporation—an increasingly penetrating market logic, and relatively weak state and family logics (Zheng et al., 2019). Guided by this constellation of institutional logics, the Finnish doctoral education system features strong academic autonomy, strong corporate management behaviors, relatively low market incentives and state regulative impacts, and implicit family features (Zheng et al., 2019).

Drawing on the first and second findings, we can assume that the research environment for Finland-China joint doctoral education consists of the logics: state, profession, family, market, and corporation. Even though the impacts of a specific logic vary across systems, the doctoral education systems in Finland and China seem to be underpinned by the same five institutional logics. In international joint doctoral education, stakeholders from both sides

bring with them the institutional logics of their perceptions, values, and beliefs inherited from their home systems. These logics constitute a new institutional logics constellation for the research environment of joint doctoral education between China and Finland.

Third, a comparison of the influence of multiple logics on Chinese and Finnish doctoral education systems showed that the logics of profession and market had largely similar and compatible effects whereas those of family and corporation logics differed greatly. The influence of the state logic was similar in some dimensions (e.g., funding support for doctoral education and seeing it as public goods) and differed in other dimensions (e.g., supervisor-supervisee relation, quality assurance mechanisms). These differences in the influence of the logics on both sides can explain, to some extent, the cultural differences that cross-cultural students may encounter during joint doctoral education. For instance, influenced by the family logic in Chinese education traditions, doctoral supervisors and doctoral students in China develop a close family-like hierarchical supervisor-supervisee relation. Doctoral supervisors are respected by doctoral students as patriarchal leaders of their research group, which often includes the doctoral supervisor and their supervisees. However, such a strong reflection of the family logic was not observed in Finnish doctoral education system. Instead, the Finnish system adhered to the values of the Nordic welfare state, which advocated an equal relationship between supervisors and supervisees, reflecting a logic of state. Thus, one can summarize that differences in supervisor-supervisee relations that Chinese students encounter in Finland and Finnish students encounter in China actually stem from the conflicting effects of family logic and state logic.

Lastly, based on the comparative analysis above, we can also infer the possible dynamics among the multiple logics in the research environment for international joint doctoral education between China and Finland. Both similarities and differences were observed in the influence of the five logics on the Chinese and Finnish doctoral education systems. When logics structurally overlap, interact, and compete with one another to influence joint doctoral education, the common effects of a certain logic (e.g., profession logic) are strengthened and elevate the logic to the dominant status within the research environment. On the other hand, the differing effects of some logics on a certain aspect may lead to tensions (e.g., the impact of family logic and state logic on doctoral supervisor-supervisee relation), and these logics may compete to guide the actors' perceptions and behaviors in diverse directions.

### 6.3 Quality of doctoral students in Finland-China joint doctoral education

*Response to Sub-question 2.3: Taking CSC-funded doctoral students in Finland as an example, how has the research environment contributed to the quality of international doctoral students in Europe-China joint doctoral education?*

This sub-question analyzed how multiple logics contributed to the transformation of doctoral students (the transformative quality of doctoral education) inside the given research environment. This sub-question was answered through Sub-study VI, with CSC-funded doctoral students in Finland serving as a sample of international doctoral students engaged in joint doctoral education provided by China and Europe (more specifically, Finland). Sub-study VI shows multiple logics, including profession logic, corporation logic, market logic, state logic, and family logic, were captured in the research environment for the transformation of CSC-funded doctoral students in Finland (Zheng, 2019). These multiple logics influenced the perceptions and behaviors of actors (doctoral supervisors, CSC doctoral students, other research group members, faculty members, etc.) inside, and introduced the qualitative changes in CSC doctoral students. The qualitative changes in CSC doctoral students were shown in the following three aspects of the formation of professional identity, the relation between doctoral supervisors and supervisees, and students' academic activities (Zheng, 2019).

First, the dynamics among the multiple logics in the research environment affected CSC-funded doctoral students' learning experiences in the education process and contributed to the formation of their professional identity. Guided by the dominant profession logic and corporation logic, the participating doctoral students in the sub-study chose to complete a publication-based dissertation instead of monograph, and during their doctoral study they all managed to publish articles in peer-reviewed journals. Publications in such journals or books enabled their researcher expertise to be recognized by peers in their disciplines, which reflected a profession logic. With the publication of their research outcomes, they also proved their competency to be productive knowledge workers, which is suggestive of a corporation logic that emphasizes productivity within doctoral education.

Meanwhile, with respect to the formation of professional identity in host institutions, the impacts of profession logic and corporation logic were in conflict. As a result, the CSC-funded doctoral students perceived that their professional identity and academic contributions were overlooked by their Finnish host institutions. Finnish universities managed staff (including employed doctoral students) based on employment contracts, which reflected the universities' corporation logic. However, because CSC doctoral students were externally funded in Finnish universities, they often had no employment contracts with their universities and were not included in the university staff management system. On the other hand, their Finnish doctoral peers with university employment were included in the staff management system, had staff benefits, and were recognized as junior researchers in staff system. Thus, CSC doctoral students, as well as other externally-funded grant doctoral students, had fewer opportunities to participate in teaching or practice their teaching skills compared to their peers with employment contracts. This contradicted their expectation that all doctoral students are treated equally based on their academic merits and contributions—an idea that is underlined by a profession logic. Thus, in the transformation process of doctoral education, students gradually recognize the effects of

these logic conflicts on their identity formation and tend to develop a stronger sense of belonging and commitment to their discipline than to their host institutions.

Second, in course of doctoral education, CSC doctoral students' perception of supervisor-supervisee relations transformed from a close, family-like, hierarchical bond to one characterized by formal, professional and equal relations. This change in perception was rooted in the conflicting effects of family logic, which governed their expectations of supervisor-supervisee relations, and those of profession logic and state logics, which also influenced their perception of the relations. Sub-study VI reports that before their doctoral study in Finland, CSC doctoral students expected to develop family-like, close, hierarchical bonds with their supervisors, which is in alignment with the familial traditions of the Chinese education system and reflects a family logic. However, once they began their doctoral study in Finland, most of the interviewed CSC doctoral students' supervisors developed a formal, professional, and more equal relationship with the students, which is the norm in the Finnish doctoral education system and is underpinned by a state logic that emphasizes equality and a profession logic that focuses on professionalism. Confronting the differences between their expectations and realities, the interviewed CSC doctoral students gradually grew to accept the latter format of supervisor-supervisee relations, over the course of their doctoral education. Nevertheless, during the transformation process, the students were confused about the relationship format that was appropriate and what the role of the supervisors should be. Such confusion was often left unsolved until they graduated and may influence their behaviors as supervisors in the future.

Third, CSC doctoral students engaged in market-like activities during the doctoral education process, such as applying and competing for external funding, and treated them as normal academic activities. This reflects a strengthening of the market logic in their perception of academic work. Driven by a logic of market, the CSC students not only accepted the market-oriented behaviors of the Finnish doctoral education system, they also strived to increase competitive advantage in the academic market. One of the binding obligations of CSC funding is that the students should return to China after their graduation and work in China for two years. Accordingly, the CSC students considered the academic market in China as their future job market. Knowing that publications in international indexed journals (e.g., SSCI, SCI, EI indexed journals) are highly valued by Chinese universities, the interviewees in Sub-study VI indicated their preference for publishing in SCI, SSCI, EI indexed journals. This, they explained, would garner them peer recognition within the international academic community and would prove more advantageous when competing with other doctoral students for postings in Chinese universities. This thinking reflects a switch from the profession logic to a hybrid of profession and market logics in their publication behaviors.

Further, the dynamic changes in institutional logics were captured by comparing the logic changes between CSC doctoral students' expectations about their roles and their perceptions after they joined doctoral study in Finland. Through the transformation process

of doctoral education, the CSC doctoral students developed a high commitment toward their disciplines, and they were willing to pursue an academic career after their graduation. This reflects a steadily dominant profession logic underlying their perceptions, values, and beliefs of academic work. During the process, they first disagreed, gradually rationalized, and eventually accepted some corporate behaviors of the university management (e.g., doctoral students were managed differently based on contractual relation with universities), which highlighted a strengthening of the corporation logic in their perception of university operations. The interview data also showed a strengthening of the market logic in CSC doctoral students' perceptions of academic work. This led them to engaging in some behaviors in the academic market, such as competing for external funding and publishing for more profits or benefits. On the contrary, the influence of the family logic on the students' perceptions weakened in the process of doctoral education, as they eventually relinquished the expectations of family-like, close supervisor-supervisee relations. The other change in their perception pertained to the quality assurance process of doctoral education. Driven by a logic of state, before they began their doctoral study, CSC doctoral students expected an external system to regulate their doctoral progress. In the course of the education process, they gradually dropped this idea and accepted the autonomous and independent role of doctoral students. This also indicates a weakening of the state logic and strengthening of a profession logic. Therefore, along with the transformation process of doctoral students, the influence of the profession logic on the perceptions and behaviors of CSC doctoral students became stronger with respect to profession identity and academic work, and so did the influence of the market and corporation logics. Meanwhile, the impacts of the state and family logics loosened in certain aspects.

## 6.4 Internal quality assurance system in Portugal-China joint doctoral program

*Response to Sub-question 2.4: Using the example of a Portugal-China joint doctoral program, how can an internal quality and quality assurance system for Europe-China joint doctoral program be established and developed in its situated research environment?*

The last empirical investigation under Europe-China joint doctoral education pertained to the setting up of quality assurance mechanisms. In Sub-study III, we selected a Portugal-China joint doctoral program (DMH program), as a case study and explored the establishment and development of an internal quality assurance system within the program.

The setting up of an internal quality assurance system in the DHM program has been through the Preparation Phase, Initiation Phase and still in the constantly-changing Implementation Phase (Zheng et al. 2017). It began with programs coordinators' recognizing the need for a quality assurance system that was tailored to the joint doctoral

program and could accommodate the needs of both partner institutions. Four key program coordinators (A<sub>1</sub>, A<sub>2</sub>, B<sub>1</sub>, B<sub>2</sub>) were appointed to develop the quality assurance system, and they formed a quality assurance working group. These coordinators acted as institutional entrepreneurs and initiated organizational changes for setting up a quality assurance system. The institutional logics underlying the coordinators' conceptions of quality of higher education were introduced into the context of the quality assurance system and led to a structural overlap of multiple logics. Other actors involved in the development of quality assurance also introduced other logics; however, as institutional entrepreneurs with access to resources and social positions to develop the quality assurance system, the perceptions and actions of A<sub>1</sub>, A<sub>2</sub>, B<sub>1</sub>, and B<sub>2</sub> played a stronger role in the setting-up process. The newly formed institutional logics at the initiation phase consisted of the democratic state logic, market logic, and corporation logic—these three guided the conceptions of both Chinese and Portuguese actors—the bureaucratic state logic mainly influencing Chinese actors and the profession logic on Portuguese actors.

Even though Levine's (1980) model of organizational innovation was used to conceptualize the process of setting up an internal quality assurance system, which ends with either institutionalization or termination, research data analyzed in Sub-study III indicated that the development of the quality assurance system for the DMH program was an on-going process. In other words, it had not been institutionalized and certainly not been terminated. Without explicitly mentioning the Plan-Do-Check-Act (PDCA) cycle for a spiral improvement process, actors in the DMH program maintained that they constantly checked and improved their practices for ensuring the quality of doctoral education. In the implementation phase, driven by the dynamics of the newly formed multiple logics in the initiation phase, they took actions to ensure the desired quality of doctoral education in the program to be delivered, checked and improved their actions constantly, and gradually set up an internal quality assurance system with certain features, reflecting in the following four aspects (Zheng et al. 2017).

The first major feature of the quality assurance system in the DMH program was the emphasis on the development of a quality culture, standardization of process management, and meeting the market needs of the students. These factors confirm that the logics of democratic state, corporation, and market logic, which were common to the both Chinese and Portuguese systems, were accepted by actors on both sides and emerged as the dominant logics in the context of the development of a quality assurance system for the case program.

The second feature was related to a new supervision system that involved multiple stakeholders, along with traditional apprenticeship for doctoral supervision. Under the new supervision system, a process-monitoring structure, called "checkpoint system of doctoral student's progress" was introduced, which specified the expected goals for both doctoral supervisors and doctoral students at each check point. A quality assurance coordinator noted that initially a master-apprentice supervision mode was used in the DMH program because it was often used for similar doctoral programs at the Portuguese



partner institution. However, soon the supervision mode was found to be inefficient, as most of the doctoral students in the case program were lagging behind their thesis schedule. To address this problem, a checkpoint system for monitoring the thesis process was introduced by the program coordinators. This changed the situation of relying solely on supervisors' and students' communication and interactions for doctoral supervision. This changed system was the result of the democratic state logic and corporation logic competing with the profession logic to guide actors' behaviors in ensuring the quality of doctoral education process. The profession logic exerted the maximum influence on setting academic standards for doctoral students, as interviewees in the sub-study explicitly shared that the criteria for assessing doctoral students in the DMH program was identical to those used for other doctoral students in the Portuguese partner institution.

Third, driven by a bureaucratic state logic, actors in DMH program also used external quality assurance mechanisms to support the internal quality improvement process of the program. Chinese actors in the DMH program stressed the importance of securing state accreditation and gaining the state's approval for running the program. They also felt that external accreditation communicates high quality, which would be a successful outcome of their internal quality management.

Fourth, given the successful institutionalization of the quality assurance system, multiple logics in the context interacted and moved toward higher compatibility and yielded higher profitability for the case program. The changes of multiple logics also needed to be supported by the agencies of the quality assurance coordinators. For instance, in the DMH program, a quality culture was gradually developed to ensure that multiple stakeholders were involved in ensuring the quality of doctoral education. This was different from the quality assurance systems of either of the partner institutions. Such an approach was adopted in the case program because it not only contributed to the quality but also enhanced the mutual communication, understanding and cooperation between the actors from China and Portugal. In other words, it has increased the compatibility between the case program and the partner institutions. The development of a quality culture could not have been realized without the support of actions from quality assurance coordinators (especially A2 and B1). The development of a quality culture in the DMH program also led to the acceptance of the view that quality is perfection, which reflected the strengthening of a democratic state logic.

## 6.5 Significant findings

*Response to Research Question 2: How has the research environment contributed to the quality and quality assurance of international joint doctoral education provided through the collaboration between European and Chinese stakeholders?*

The findings presented above clearly indicate that international joint doctoral education between Europe and China operates in a multi-actor, multi-level collaborative context. Within such a context, when actors from doctoral education systems in China and in Europe cooperate to provide doctoral education jointly, the institutional logics underlying the participating doctoral education systems structurally overlap and form a new constellation of institutional logics in the research environment, which facilitates the transformation process of the joint doctoral education. The newly formed logics constellation provides actors inside the research environment with assumptions, values, beliefs, and rules to understand joint doctoral education and take actions to transform the inputs of joint doctoral education into outputs through a doctoral education process. This process brings qualitative changes to doctoral students and to knowledge advancement inside the research environment. The multiple logics in the situated research environment also provide actors with assumptions, values, beliefs, and rules to understand the concepts of quality and set up mechanisms, procedures, and processes to ensure that the desired quality (desired qualitative changes to doctoral students and knowledge advancement) are delivered through the transformation process. As such, the multiple logics in the research environment exert effects on the quality and quality assurance of doctoral education in the Europe-China joint doctoral education.

Specifically, the multiple logics in the research environment of the international joint doctoral education offered by Finland and China was composed of multiple logics of institutions: state, profession, family, market, and corporation. These multiple logics, interacting and reconciling in the research environment, enabled the transformation process of Finland-China joint doctoral education. For CSC-funded doctoral students in Finland, they were mainly influenced by strengthening logics of profession, corporation, and market, whereas family and state logics exert a weakening influence on the research environment for their transformation process. Within such a research environment, the CSC-funded doctoral students in Finnish universities grew to perceive themselves as junior researchers and productive knowledge workers in their disciplines. They also developed a higher commitment to their disciplines than to their host institutions. Meanwhile, they accepted market-like activities as part of academic work and recognized corporate behaviors in university management. A formal, professional, and equal relation was established between the supervisors and the CSC doctoral students.

In DMH program case, a constellation of (democratic and bureaucratic) state, profession, corporation, and market logics defined the context for setting up an internal quality assurance system, and thus contributed to the system and its features. Among these multiple logics, the democratic state logic, profession logic and corporation logic, introduced by actors from both China and Portugal, became the dominant logics of the internal quality assurance system. Driven by these dominant logics, the quality assurance coordinators developed an internal quality assurance system that stressed the development of a quality culture, process management, and meeting the needs of the enrolled students

and the educational market. Meanwhile, supported by the bureaucratic state logic, Chinese actors also employed external quality assurance mechanisms—in this case, accreditation by the Chinese government—to assess and ensure the quality of the case program. The Portuguese actors, on the other hand, insisted on using the same academic standards to evaluate doctoral students of the case program as those used in their own institution. Thus, they followed a profession logic.

The two case studies showed that how the multiple logics in the research environment contributed to the quality and the setting up of quality assurance mechanisms of Europe-China joint doctoral education by providing material practices, assumptions, values, beliefs, and rules to the actors inside and thus empowering their actions. In practice, Europe is not a composite entity that cooperates with China on doctoral education. Instead, international joint doctoral education provided by China and Europe is delivered by national and institutional actors on both sides.

The sub-studies also yielded four significant findings for understanding the research environment for Europe-China joint doctoral education and its impacts on the quality of the joint doctoral education from an institutional logics perspective. These findings reveal the macro-level forces guiding the development of doctoral education, the complexity of the research environment of Europe-China joint doctoral education, the multiculturalism within the environment, and the impacts of the logics conflict on quality of the Europe-China joint doctoral education. In the following four sub-sections, I will discuss on the four major findings one by one.

### 6.5.1 Societal forces

The five logics of institutions represent the main forces at the macro level—state power, academic authority, market forces, family culture, and managerialism—that influence the development of doctoral education systems. In other words, state logic is governed by the power of the state, profession logic by academic oligarchy, market logic by the market forces, family logic by family culture in the situated society, and corporation logic by the impact of new public management. The first three forces are easy to determine and understand as they reflect Clark's triangle of coordination in higher education (Clark, 1983). In terms of family culture, a deeper analysis of Chinese and Finnish doctoral education systems is warranted, as seen with the influence of the family logic (either explicitly or implicitly) on doctoral education. In both systems, though more obvious in the Finnish system, the globally prevailing trends of managerialism have introduced corporation logic as well as changes to the management of doctoral education in universities. When we explore the dynamics of these multiple logics and their influences on the quality of doctoral education within a single doctoral education systems or within the international collaborative context, we are actually analyzing the power dynamics between the aforementioned forces and their impact on doctoral education.

## 6.5.2 Complexity of the research environment

Analysis results in this study points to following four important insights for understanding the complexity of the research environment of Europe-China joint doctoral education. First, in the research environment for international joint doctoral education with two or multiple education systems as participants, the extent of impact of a specific logic on the participating system varies. These differing levels of impact have been clearly captured in the comparative results of the multiple logics in the doctoral education systems in Finland and China. Further, results from the case studies of CSC doctoral students and the DMH program suggest that the impact of a logic can be strengthened and even dominate the research environment for the joint doctoral education, especially if it already exerts a strong or dominant influence on the actors in the participating doctoral education systems.

However, it is not only the impact of a single logic that matters; the interactions or conflicts among the logics in the participating systems also play an important role in determining the complexity of the research environment. Hence, the second insight draws our attention to the differences logics conflicts in the participating systems. For instance, in the Finnish doctoral education system, profession and corporation logics exerted conflicting influences on the management of doctoral students. Interestingly, such a conflict of profession and corporations logics was not so influential in the Chinese doctoral education system, mainly because the impacts of the latter logic did not penetrate the Chinese system as deeply as they did the Finnish system. However, a conflict between the profession and family logics was noted to be influential on doctoral training and quality assurance in the Chinese doctoral education system. The different logics dynamics between the participating doctoral education systems increase the possibilities of different relations among multiple logics in the research environment of international joint doctoral education.

Third, apart from the extent of impacts and the logics conflicts across systems, the presence of the variants of the same institutional logic in different doctoral education systems is a source of complexity. For instance, the study found that the Chinese and Finnish doctoral systems were influenced by different variants of the state and family logics. In the DMH case study, variants of the state logic guided the actors to perceive the quality of higher education differently. Similarly, in the case of CSC doctoral students, discipline-specific variants of the profession logic affected their experiences in the socialization process. While details about the impacts of the variants of state, family, and profession logics will be explained in Section 6.5.3, what I want to emphasize here is that in Europe-China joint doctoral education, these variants of a common logic seem to introduce minor differences in the assumptions, values, and beliefs, of the actors who come from different systems and cultures. This situation adds to the dynamics of the interaction between the multiple logics in the research environment of joint doctoral education.

Fourth, these logics dynamics in the research environment of joint doctoral education (constellation of various impacts of a specific logic, logics conflicts, variants of logics) provide

actors with the material practices, assumptions, values, beliefs, rules, etc., that help them make sense of their realities and inform their perceptions and actions within the domain of doctoral education. For a specific issue, the material practices, assumptions, values, beliefs, etc., may be informed by a single institutional logic or often by multiple logics (from one or multiple doctoral education systems) with different emphases. Interactions and dynamics (competing, cooperative, hybrid, or bricolage) among the multiple logics determine how the actors make sense of the specific issue and act in the transformation process of joint doctoral education, which shapes the outputs of doctoral education.

Thus, underpinning the complexity of the research environment of Europe-China joint doctoral education are the differing influences of multiple logics on doctoral education systems, the different logics conflicts or logics dynamics in different systems, and the presence of variants of logics. Naturally, this finding does not facilitate an easy understanding of the cross-cultural research environment for Europe-China joint doctoral education. However, it does allow us to capture the meta-mechanisms (institutional logics) relevant to the cross-cultural elements in the research environment, and thus translate abstract notions at the macro-level into describable institutional logics that provide actors with assumptions, values, beliefs, etc., for their sense-making, decision-making, and action-taking at the micro level. In other words, elements from one culture/system or multiple cultures/systems in the research environment of Europe-China joint doctoral education influence actors inside the environment through the same meta-mechanisms or logics. Here, cultural elements in this context can stem from a society, an educational system, or a discipline.

### 6.5.3 Multiculturalism in the environment of Europe-China joint doctoral education

A discussion on the complexity of the research environment inevitably leads to another major finding: multiculturalism in the research environment of Europe-China joint doctoral education. The study finds that a certain term associated with a social institution can be operationalized differently depending on the society or culture and lead to the presence of diverse variants of a given logic in Europe-China joint doctoral education, resulting in multiculturalism in the environment. First, the state logic manifested in two variants—bureaucratic state and democratic state. It can be interpreted that state logic in the Chinese doctoral education system reflects a bureaucratic state setting as it underpins the strong role of the state in policy regulation, resource distribution, and external quality assurance. On the other hand, state logic in Finnish doctoral education refers to a democratic state, emphasizing the Nordic welfare state ideals and an equal relationship between supervisors and students. Nevertheless, driven by the common nature of state logic, in both systems, doctoral education is regarded as public goods, and the state acts as the main funder of doctoral education. Meanwhile, actors in the DMH program following a democratic state logic conceptualize quality as perfection and embrace the

idea of increasing stakeholders' engagement in quality assurance. On the other hand, in the same program, those driven by a bureaucratic state logic consider quality as fitness for purpose and support external quality assurance approaches. In any cases, seeing quality as either perfection or fitness for purpose emphasizes external regulation and outsider involvement to ensure quality.

Second, the variants of the family logic, found in the Finnish and Chinese doctoral education systems, reflect a different cultural understanding of family in Finland and China. Family considerations in the literature on Finnish doctoral education systems focus on a nuclear family within a Nordic welfare society; however, in the Chinese system, the notion of a family is a non-nuclear one, within a Confucius society. In other words, if a family-like relationship develops between a supervisor and supervisee develops in Finland, the close bond may be confined to doctoral supervisor and the student. However, in China, the closeness extends beyond the supervisors and doctoral students. Within the supervised family (often called *shi-men*), not only are doctoral supervisors and supervisees like parents and children, respectively, but all the doctoral supervisees are like siblings to one another. Some prominent scholars are known to function like patriarchal leaders of a supervised family, where they assume the role of a grand-supervisor, their students are supervisors, and they in turn have supervisees.

Third, variants of the profession logic were identified across disciplinary cultures (not across doctoral education systems). CSC doctoral students in the sciences and medicines worked more closely with their peers in the research groups on joint publications and projects than doctoral students in the social sciences, who tended to work independently. This implies that different variants of the profession logic influence doctoral training in hard and soft sciences. While all the CSC doctoral students claimed to lack a sense of belonging to their host universities, those in science and medicine disciplines had a closer affiliation to their universities, owing to their research teamwork, than the students pursuing a doctorate in the social sciences. However, because the sample size of CSC students in the study was small, this implication needs to be verified with more empirical evidence, and the variants of profession logic should be appropriately defined. Although this study did not find any evidence of variants of market and corporation logics in the doctoral education systems, one cannot completely disregard the possibility of their existence.

In sum, these variants of social institutions project the differences across societies, cultures, and educational disciplines on the research environment of Europe-China joint doctoral education. Thus, the research environment is rooted in multiculturalism. The ideal types of institutional logics (Thornton et al., 2012) were originally defined based on Western realities. Nevertheless, the study shows that local traditions, cultures, and system structures in a non-Western society (e.g., Chinese Confucius society) may inbreed new variations of social institutions and contribute to the development of multiculturalism in the research environment for Europe-China joint doctoral education. Earlier, Yang (2017) also reported evidence of multiculturalism in the context of Chinese higher education system, which

suggests that Western paradigms have not been simply transplanted to non-Western societies. Instead, they have been integrated with local cultures, thus gradually giving rise to multiculturalism in non-Western societies. Supporting Yang's (2017) argument, this study also shows that multiculturalism is bred in the research environment of international joint doctoral education, where different cultures encounter each other. Moreover, besides social traditions and local cultures, the disciplinary cultures in higher education also introduce variants of profession logic into the environment of Europe-China joint doctoral education and thus enrich the cultural differences.

#### 6.5.4 Impacts of logics conflicts on quality

The study found a conflict between profession logic and other logics, such as corporation and family, in the research environment can be a threat to the quality of Europe-China joint doctoral education. In the Finnish doctoral education system, the impact of the profession logic was weakened by the corporation logic, which influenced the socialization of CSC doctoral students. As a result, instead of being treated on an equally footing on the basis of their academic merits and contributions, CSC doctoral students were discriminated on the basis of their employment contracts. Their professional identity and contributions were not recognized adequately by their host institutions. The differentiated management also limited the scope of their doctoral training and teaching experience. If doctoral students are to develop into qualified scholars in the four domains of scholarship—discovery, integration, application, and teaching (Boyer, 1990)—CSC doctoral students without any university employment in the Finnish doctoral education system could only succeed in the first two. This no doubt will affect their quality of doctoral education and, in the long run, have adverse impacts on the quality of the next generation's scholars. Thus, in Finland-China joint doctoral education, when Finnish actors assume the main responsibility for doctoral training and doctoral students management, actors from both Finland and China should be aware of the impacts of the conflict between corporation logic and profession logic, and try to reduce its negative impacts on the quality of the joint doctoral education.

Furthermore, if Europe-China joint doctoral education is provided with Chinese actors assuming the main responsibility for doctoral training and quality assurance, special attention should be paid to the conflict between the profession and family logics in the Chinese education system, as it may also diminish the quality of the joint doctoral education. The family logic underlying the Chinese doctoral education system supports a parent-child, hierarchical relationship between doctoral supervisors and their doctoral students. On the positive side, through such close bonds, doctoral supervisors provide more emotional support and life guidance to doctoral students, inspire mutual trust, increase the efficiency and effectiveness of communication, and thus enhance the quality of doctoral supervision. On the other hand, a hierarchical relationship sometimes prevents doctoral students from expressing their thoughts openly or challenging their supervisors or their

views. This may affect the transformation process of doctoral students into independent and autonomous researchers. It may also affect their research activities and the extent to which these activities can challenge previous works and achieve a breakthrough that contributes to knowledge advancement. Besides, the family logic also puts pressure on doctoral supervisors in the Chinese system to not fail their “supervisory children” during the assessment of doctoral theses, which may in turn lower the quality standards. In this sense, the impact of family logic and that of profession logic on actors’ perceptions and behaviors are in conflict with regard to doctoral supervision and quality assurance, and such conflicts can lead to a decline in the quality of doctoral education. Hence, in the context of international joint doctoral education between Europe (in case of Finland) and China, one should be aware of these logics conflicts, and if possible, reconcile them to ensure that the desired quality of joint doctoral education is delivered.



## 7 Conclusions

This chapter begins with a review of the research objectives and concludes with the study's contribution toward addressing the research problems and gaps in past literature. Subsequently, the chapter reflects on the limitations of this study in theoretical, methodological and empirical aspects, including the limitations of the sub-studies. It further reviews the practical implications of the research findings for practitioners such as policy makers and proposes avenues for future research.

### 7.1 Study contributions

The present study aimed to address the knowledge gaps regarding quality and quality assurance in European-Chinese joint doctoral education from both a theoretical and empirical perspective. After five years of design and implementation, this study has fulfilled its research objectives by performing a qualitative research from an institutional logics' perspective. From a theoretical viewpoint, it has adopted an institutional logics perspective to capture the association between the research environment of a doctoral education system and the transformation process of doctoral education as well as the association between the research environment and actors' perceptions and actions to ensure that the desired quality of doctoral education is delivered. From an empirical perspective, it provides new empirical evidence on the quality and quality assurance mechanisms in the international joint doctoral education provided through the cooperation of European and Chinese actors.

The study primarily contributes to highlighting the difficulties faced in ensuring the quality of international joint doctoral education in the Europe-China collaborative context by enhancing our understanding of the complexity of the situated context. As pointed out in Chapter 2, these difficulties were related to our insufficient knowledge about the impacts of the research environment constituted by environmental elements, both compatible and incompatible, from different doctoral education systems or cultures. This study's findings show us that the complex cross-cultural or cross-system elements in the situated research

environment for European-Chinese joint doctoral education can be interpreted through a common meta-mechanism, institutional logics. Using international joint doctoral education between Finland and China as an example, the analysis results suggest that the doctoral education systems in Finland and China are underlined by a common set of multiple logics. The differing system features and cultural conflicts between Finland and China in the research environment can be traced to the varying degrees of logics impact on a certain dimension of doctoral education, the differences in logics dynamics, or the variants of a common institutional logic. By interpreting these multiple logics and the dynamics among them, we can understand how the environmental elements of different cultures and systems in the research environment influence internal actors and contribute to the quality of doctoral students in Finland-China joint doctoral education. Meanwhile, with the defined association between the conceptions of quality of higher education and the institutional logics in the research environment, as proved in the case study of the Portugal-China joint doctoral program (DMH Program), we can also capture how the environmental elements of different cultures and systems enabled/constrained the actors' actions to set up the procedures, processes and mechanisms for ensuring the quality of the joint doctoral education. Drawing on this understanding, the study recommends that when it comes to concrete cases of national, institutional and program-level cooperation in Europe-China joint doctoral education, one should first analyze the institutional logics and logics' dynamics underpinning the difficulties for ensuring the quality of the joint doctoral education. Based on the analysis, solutions can be proposed to overcome these difficulties by creating avenues for institutional changes in the related institutional logics, for example, by utilizing the mechanisms, procedures, processes of quality assurance to introduce new logics, or strengthen/weaken the impacts of some logics.

The study also presents new empirical evidence on cooperative practices in Europe-China joint doctoral education. Through a case study on the internal quality assurance system of the DMH joint doctoral program, this research has addressed deficiencies in the previous literature, particularly the lack of evidence on quality assurance mechanisms in Europe-China joint doctoral programs. With the case study of CSC doctoral students in Finland, this research examines the international mobility of a group of doctoral students from China to Europe based on the co-funding collaborative arrangement between both sides. Both case studies have enriched the empirical evidence on joint doctoral education defined as non-venture and joint-venture collaborative arrangements between Europe and China. In doing so, this research also contributes toward addressing another limitation in the past literature: the lack of comprehensive empirical evidence on Europe-China joint doctoral education. This doctoral research is thus a pioneering study on the issue, and it calls for more research attention and empirical evidence by future works.

By extending beyond the geographic focus on Europe and China, this study also makes contributions to the research and literature on higher education in the following six aspects.

First, the study provides new insights to researchers interested in the current topics of international doctoral education, including international doctoral students, international joint programs, and the cross-cultural or international context for doctoral education. Findings on the CSC doctoral students in Finland add to the literature on cross-cultural doctoral students from the East to the West and draw our attention to the important role of the research environment in their learning experiences and transformation. Findings from the DMH program provide vivid evidence on the setting up of procedures, mechanisms, and processes to ensure the quality of doctoral education in international joint programs and reveal why some practices can be continuously adopted, while some others need changes. Both case studies add to our knowledge of the inter-cultural interactions between doctoral supervisors and doctoral students in international doctoral education. Moreover, the study identifies the ideal type of institutional logics in the context of a doctoral education system. The findings will aid future researchers in interpreting the impacts of the context of a doctoral education system and the context of international doctoral education that involves more different cultures and doctoral education systems. In particular, the analysis and comparison of the doctoral education systems in China and Finland, the case study of CSC doctoral students and that of the DMH program provide new evidence that helps us understand cross-cultural elements in international doctoral education.

Second, this study contributes to the literature on doctoral education studies. The theoretical framework for doctoral education as a transformation process from an institutional logics perspective and the associated analytical framework used to analyze the transformation process of doctoral students enhance our understanding of how a research environment influences the quality of doctoral education. The findings from the CSC doctoral students in Finland offer new empirical evidence on doctoral education in the Finland-China context.

Third, this study contributes to the theoretical foundation of the quality of higher education. Using a lens of an institutional logics perspective, this study determines the association between the quality of doctoral education, the doctoral education process, and the impacts of the research environment where the doctoral education process occurs. More specifically, by developing a theoretical framework for the transformation process of doctoral education from an institutional logics perspective, it addresses the absence of a holistic theoretical framework to understand the transformation process of doctoral education in a research environment. The study also reveals the underlying institutional logics in the research environment and that the institutional logics exert effects on different conceptions of quality of higher education. This insight will broaden researchers' understanding about why actors have varying perceptions of the quality of higher education and why some practices to ensure quality are adopted in a given research environment. Researchers interested in studying the quality and quality assurance mechanisms of doctoral education can employ the proposed theoretical framework and the association between institutional logics and the conceptions of quality as inputs for

further development. Alternatively, they may use them to explore issues related to quality and quality assurance in doctoral education. Nevertheless, this study remains a preliminary attempt to advance the theoretical foundations of quality and quality assurance of doctoral education. More research is needed to testify and improve the theoretical and interpretive frameworks developed in the study.

Fourth, the present study expands the literature on sociology theories, particularly the institutional logics theory, by using them to investigate issues in the field of higher education. To be more specifically, this study prove that the institutional logics theory is useful for understanding the association between the quality of doctoral education and its situated research environment. The defined association via institutional logics explains how the research environment influences the transformation process that contributes to the quality of doctoral education and to actors' conceptions of quality, which in turn result in practices and mechanisms to ensure quality. Besides, through the theoretical lens of institutional logics, the study furthers our understanding of the cross-cultural elements in the international research environment of Europe-China joint doctoral education. It therefore advocates a new approach to understanding these elements in the environment of international joint doctoral education—through the common meta-mechanism of institutional logics.

The fifth contribution of the study comes from the practice of applying the institutional logics theory in this study, and it provides a new reference for future researchers interested in applying the theory to higher education studies. Given the growing popularity of institutional logics theory, researchers are interested in knowing how this theory can be used to fit the needs of higher education research (Bleiklie et al., 2017; Lepori, 2016; Warsaw & Upton, 2018). This study used the ideal types of institutional logics proposed by Thornton et al. (2012) to examine the context of the Chinese doctoral education system and derive the institutional logics relevant to the context of doctoral education. In so doing, the study combines a pattern-matching approach with a pattern-inducing one (Reay & Jones, 2016) to use the institutional logics theory. This approach along with its results provides fresh input to the on-going discussion on the application of institutional logics theory to higher education research. Other researchers may benefit from such an approach in their future studies. Nevertheless, the defined ideal types of institutional logics in the context of a doctoral education system could be further validated and refined with more empirical evidence. This also holds true for the application approach of the institutional logics theory in this study.

Sixth, this study also contributes to facilitate the analysis of higher education issues by the construction of three analytical frameworks from an institutional logics' perspective: an analytical framework for analyzing the research environment for doctoral education, an analytical framework for understanding the transformation process of doctoral students, and an analytical framework for analyzing the development of an international quality assurance system in international joint academic programs. The applicability and usefulness

of these frameworks have been confirmed by the sub-studies of this doctoral research. Future researchers interested in the aforementioned key issues of doctoral education quality can use these analytical tools in other empirical contexts.

## 7.2 Limitations

This study is subject to several theoretical, methodological, and empirical limitations. The sub-studies, which constitute a key component of this research also have several limitations.

First, in terms of theoretical development, regardless of the explanation power of institutional logics as acknowledged by higher education researchers (Cai & Mehari 2015; Lepori 2016) and illustrated in my research, I acknowledge that the use of this theory was not without drawbacks. The first theoretical limitation is that because of the weakness of the typology of ideal type of the seven institutional logics by Thornton et al. (2012), the study could have overlooked a wider range of impacts of institutional logics in studying the research environment for Europe-China joint doctoral education. The typology of the ideal types of institutional logics was developed according to Western realities, and today the development of non-Western societies is also largely influenced by the West-led paradigms, so it must be acknowledged that the essence of the ideal types of institutional logics is relevant, rational, and consistent with the presumed realities in most societies. Nevertheless, it is also possible that new social institutions inbred in non-Western societies have not yet been documented in the current literature. Further, discussions on the ideal type of a specific logic in the literature of the typology did not fully explain the differences in cultures (e.g., discipline, societal, and traditional cultures) related to the variants of a certain logic. Since this study focused on Europe-China joint doctoral education, which involves doctoral education systems from Western and non-Western societies, this weakness of the typology of the ideal types of institutional logics (Thornton et al. 2012) may result in an over-simplification of social practices and perceptions by different actors from different cultures in the study. Moreover, as this study defined theoretical assumptions for institutional logics in the research environment of a doctoral education system based on the typology of ideal types of institutional logics, it may not include all the possible logics variants in the research environment.

The second limitation is related to the weakness of the institutional logics theory on explaining the situations of actors being guided or guiding the multiple institutional logics (Johansen and Waldorff, 2017). Although the current studies on institutional logics have shown how multiple logics relate to each other, knowledge about the agencies of actors in relation to the multiple logics is rather limited (Johansen and Waldorff, 2017). Because of that, this study did not fully explain how the multiple actors (e.g., doctoral supervisors, policy-makers and doctoral students) undertook agencies differently, guiding or being guided by the multiple logics, within the situated environment of the Europe-China joint doctoral education. Neither did it explain the reasons underpinning the interactions

among the multiple logics in the transformation process of doctoral education. Given these limitations, it is likely that the analysis of actors' perceptions and behaviors in this study may not have captured all the underlying dynamics of multiple logics in the research environment for the joint doctoral education.

Third, the theoretical framework developed in the study for understanding the transformation process of doctoral education in the research environment still needs further validation. It was partially validated by constructing an analytical framework for analyzing the transformation of doctoral students and testifying the analytical framework in studying the transformation process of CSC doctoral students. However, the aspect of knowledge advancement, which is an important aspect of the transformation process in the theoretical framework, has not yet been addressed. This limitation calls for further theoretical and empirical exploration.

Fourth, regarding regarding limitation in methodological approaches, the choice of a qualitative research approach and available data did not permit the direct application of the research findings to all other instances of Europe-China joint doctoral education. Nevertheless, the empirical findings detailed some instances of Europe-China joint doctoral education, which readers can reference to identify and understand similar instances. Moreover, doing so was beyond the scope of this study. Interview data constituted an important component of the research data; however, not all data were collected directly from the field because of the limited time and resources. Thus, there could be different interpretations, verbalizations, and misunderstandings between interviewees and me as a researcher. In addition, my personal subjectivity and knowledge limitations could have restricted my interpretation of the research data. While a triangulation strategy was used to enhance the validity of the study, readers must be made aware of this possible limitation.

Fifth, in terms of the empirical data presented in the research, as this study was set to make *moderatum generalization* via the method of instances, there could be limitations because of the selection of the instances. Although it was beyond the scope of this study to examine institutional logics in all doctoral education systems in European countries, collecting more empirical data for the doctoral education system in one more European country could have affirmed the analysis results and provide a more accurate understanding of the logics underlying European doctoral education. In many ways, this study has been the first stage in a thorough analysis of the quality and quality assurance mechanisms of international joint doctoral education between Europe and China. At present, Europe-China joint doctoral education is mainly offered in three formats: joint institutions for doctoral education, joint doctoral programs, and support for the individual international mobility of doctoral students as per other collaborative arrangements. This dissertation, to some extent, empirically analyzed the latter two aspects. However, it did not examine joint institutions for doctoral education because the SDC case study (a case for Europe-China joint institutions) was deferred due to the limited research data available at the time.

Sixth, there are also limitations in sub-studies. The limitation of Sub-study I, wherein the theoretical framework is developed from an institutional logics perspective, which is discussed in the third limitation, is not repeated here. Next I will reflect on the limitations of Sub-study II to VI.

Given the limitation of the ideal types of institutional logics in explaining the variants of logics related to different cultures, and considering the lack of complete awareness of this limitation at the time of conducting the studies, it is possible that sub-studies II and V may have not been able to capture all possible logics or all variants of possible logics in the doctoral education system in China and Finland.

In Sub-study III, the use of the model for the organizational innovation process allowed us to understand the establishment and implementation processes of an internal quality assurance system. However, the model did not recognize the internal quality assurance process as a spiral improvement process whose ending may not simply be institutionalization or termination. I addressed this limitation by highlighting the continuous improvement feature of the internal quality assurance process in Section 6.4.

Sub-study IV was found to have several limitations in presenting a comprehensive and updated picture of Europe-China collaboration in the area of doctoral education. As a sub-study conducted from 2015 to 2016 (4 to 5 years ago), some latest important international policies concerning higher education development in China or Europe could be absent in the discussion. For instance, the One Belt, One Road (OBOR) Policy, which is an important international strategy introduced by China since 2013, has brought in new perspective to higher education cooperation between Europe and China and will continue to exert influences in the near future (Cai & Zheng, forthcoming). However, the influences of the policy on the internationalization of higher education only became more notable in recent years after the establishment the University Alliance of the New Silk Road (UASR) in 2015 and the subsequent set up of several sub-alliance groups in different fields (UASR, 2019), and thus not being included in the Sub-study IV at that moment. Further, there is no explicit evidence of its impacts on Europe-China collaboration in doctoral education yet, and thus, future studies are needed to explore and address this limitation. The development of higher education cooperation is considered a part of the EU and China's soft power policy, aimed at strengthening their influences on the world. The sub-study could have introduced this important backdrop of international relation development between Europe and China and presented a brief discussion on the soft power policy on both sides. While the missing background information may not alter the analysis results for multiple-level cooperation between Europe and China, it could deprive readers of general policy background and cause them to miss the big picture of international relations between Europe and China. The sub-study also offers a limited discussion on whether the emergence of a European dimension of international cooperation with China contributed to a convergent or divergent approach to international cooperation with China at the national, institutional, and even individual level in Europe. This limitation is also associated with the insufficient exploration of

national-level cooperation between China and individual European country given the limited access to research data at this level. While Section 6.1 has tried to address this limitation by briefly discussing the relation between European policy and national and institutional actors in European countries in the Bologna Process, it warrants future study with more empirical evidence.

Sub-study VI adopts a socialization perspective to understand the development of doctoral students throughout the doctoral education process. The perspective proved useful in exploring the regulative, normative, and cultural-cognitive transformation of doctoral students. However, since the socialization perspective focused on the transformation of doctoral students, the sub-study's discussion on knowledge advancement was limited. This limitation was addressed in Chapter 4 of this dissertation, wherein I explicitly highlighted the importance of both knowledge advancement and qualitative changes in doctoral students in respect of quality of doctoral education. Nevertheless, knowledge advancement in the transformation process of doctoral education needs to be studied in the future.

## 7.3 Practical implications

### 7.3.1 Recommendations for policymakers in doctoral education systems

This study's offers implications for multiple-levels policymakers (e.g., government, university leaders, and deans) engaged in doctoral education in China and Europe. However, the study focuses on three national doctoral education systems (China, Finland, and Portugal), and thus, the findings are possibly more relevant to policymakers in these and similar systems.

First, policymakers in Chinese doctoral education should introduce an international external review system for doctoral dissertations. As the study shows, the challenge in ensuring the quality in the Chinese system is controlling and avoiding the impact of family traditions on the quality evaluation of doctoral education. By introducing the international external review for doctoral dissertations, the "family pressure" restricting the doctoral supervisors from failing unqualified doctoral dissertations can be relieved, and the standard for high-quality doctoral dissertation can be maintained.

Second, it is critical that policymakers in Finnish doctoral education pay attention to the negative impacts of a university's corporate management on the quality of doctoral students. A management system for doctoral students that recognizes their academic merits and contributions regardless of their employment status should be developed in universities and across the doctoral education system.

Third, policy-makers in international cooperation in doctoral education (within Europe-China cooperation or beyond) are recommended to note that the forces driving the development of various doctoral education systems can be the same or compatible. Actors



often focus on the distinctions between system structures and hesitate to make decisions for further cooperation. This research shows that common logics are an underlying factor of various system features. This finding should render policymakers more confident about extending the cooperative relationship between Finland and China in the context of doctoral education. They are, therefore, recommended to promote this advantage and motivate more actors to participate in the cooperation. The implication applies to policymakers across all doctoral education systems, prompting them to reflect on their systems and those of partners they are interested in cooperating with, and can serve as a basis for their decision-making process.

The final recommendation is for policymakers in international cooperation in the context of higher education. Necessary actions must be taken to reduce the incompatibilities of higher education systems through joint efforts such as establishing a common information-sharing platform, developing a commonly recognized credit system for learning outcomes, and creating more communication platforms and channels for practitioners, supervisors, and students to communicate and increase mutual understanding and trust in the collaboration.

### 7.3.2 Practical implications for practitioners in international doctoral education

The research findings offer several recommendations for practitioners in international collaboration in higher education (with more attention to doctoral level), including program coordinators and administrators, doctoral supervisors, and doctoral students.

First, when managing or organizing international joint doctoral education, program coordinators and administrators should attempt to enhance the compatibility and profitability of joint doctoral education for home universities or home doctoral education systems. The case study of DMH programs shows that quality assurance can result in greater compatibility between the case program and home institutions or in higher benefits for home institutions. This could be continuously adopted in the case program and effectively ensure the quality of doctoral education. Thus, program coordinators and administrators must learn about the compatibility (common features of logics) and incompatibility of partner institutions (the influences of disparate features of logics) and understand how to enhance the compatibility and profitability (benefits) of partner institutions (and systems). Their actions to manage and organize joint doctoral education should also enhance the compatibility and/or profitability for partner institutions as failure to do so may render joint doctoral education unsustainable.

Second, it is important for program coordinators to carefully select qualified and appropriate responsible persons for quality assurance. The institutional logics underlying the perceptions of quality assurance coordinators affected the implementation of a quality assurance system and other actors' perceptions and approaches to doctoral education quality. Therefore, the role of quality assurance coordinators is vital to the effectiveness

and efficiency of an internal quality assurance for international joint doctoral program. To maximally enhance the compatibility and profitability of an internal quality assurance system for an international joint (doctoral) program and its home institutions, this research offers three recommendations for the consideration and selection of qualified quality assurance coordinators: (i) They should be familiar with the doctoral education systems that are involved and be willing to promote cooperation between the participant systems. (ii) They should be aware of compatibilities and incompatibilities between the participant systems. They must be motivated to reduce the incompatibilities by developing a commonly recognized quality assurance system. (iii) They should be aware of mutual benefits for partner institutions and willing to create more benefits through their actions to ensure and enhance the quality of the joint doctoral education.

Third, doctoral supervisors in international doctoral education are recommended to pay more attention to cross-cultural doctoral students (e.g., Chinese doctoral students in Europe or European students in China) and help them integrate into the local scholarly community. Cross-cultural doctoral students may have developed expectations for their doctoral education on the basis of experiences in their home country and may be unaware of role expectations in host institutions. As a result, the students faced many difficulties at the beginning of socialization process and when engaging with the local community throughout the process. To address this issue, supervisors must proactively communicate with cross-cultural doctoral students; understand their expectations for doctoral education; and share (silent) knowledge about the norms, routines, values, and beliefs of the host doctoral education system. For most cross-cultural doctoral students, supervisors are the gatekeepers to the local scholarly community. Thus, supervisors' commitment and support are critical in helping cross-cultural doctoral students realize their expected roles in the host doctoral education system and engage in the local scholarly community. For instance, Finnish supervisors advising doctoral students from China should be aware of the family traditions embedded in Chinese students' approach to supervision relationships and should help them smoothly adapt to Finland's formal, equal, and professional supervisory relationships.

Finally, cross-cultural doctoral students in international doctoral education should proactively learn about the host doctoral education system and be open minded to adapting their preconceptions of doctoral education to the host system. As junior researchers, doctoral students should also act independently to improve the quality of their learning experiences during the doctoral education process. They can achieve this by learning about the host institutions, the host system, and the local culture and by proactively adapting to the working environment and optimizing available resources. For instance, CSC doctoral students in Finland should learn about the Finnish culture and education system, their identity as grant researchers in Finnish universities, the associated available resources and benefits, and the work culture in their universities or faculties. They can also proactively participate in the activities held by the local scholarly community and strive for equal treatment with other non-employment doctoral students.

## 7.4 Directions for further research

On the basis of the analysis conducted in this study and its informed limitations, I propose five research avenues for future studies in both theoretical and empirical aspects.

First, in regards of theoretical development, several topics about the institutional logics in higher education are noteworthy. Further theoretical research on the five ideal types of institutional logics of doctoral education is needed to examine and refine its theoretical assumptions. Since the main literature of institutional logics are based on western realities, more theoretical studies are needed on non-western contexts. In addition, theoretical research should explore and define the variants of social institutions in different societies. More specifically, the following questions should be investigated. Are there different variants of all institutional logics? If yes, can we define them? How is disciplinary culture, an important aspect of higher education and academic professions, reflected in the variants of profession logic? To what extent can the varied essence of the same social institution affect actors' thinking, sense making, and decision making in a doctoral education system? It is also important for future studies to further examine the applicability of the theoretical framework, the two interpretive frameworks, and the related analytical frameworks, which were developed in this study, in various empirical settings.

Second, this study captured institutional logics associated with different quality conceptions in the context of higher education. It would be interesting to continue exploring the distinct approaches of quality assurance guided by actors' conceptions and associated logics. Brown (2017) proposed a conceptual model to understand the association between diverse accountability approaches in higher education and the underlying institutional logics. Extending the current study and Brown's (2017) bold trial, future scholars could map the association between the underlying institutional logics, conceptions of higher education quality, and approaches to quality assurance in higher education. This would not only advance our knowledge about quality assurance in higher education, but also offer practical implications for policymakers and practitioners engaged in developing quality assurance schemes in higher education.

Third, further investigations are needed on the effectiveness of applying institutional logics theory to the field of higher education. In particular, scholars can explore if the theory can be widely applied to various issues in higher education and whether it is more effective in explaining some phenomena over others. Further studies could also examine the roles of different actors in the higher education sector and their response to values, assumptions, and beliefs provided by multiple institutional logics. To this effect, models to understand the relation between actions and institutional logics can be explored. In addition, scholars should investigate an effective approach (e.g., pattern inducting, deducting, and matching or a combination of pattern matching and inducting) to using institutional logics theory in higher education research.

Fourth, this study verified the availability of numerous promising research topics for empirical analysis. In terms of quality of doctoral education, the empirical analysis results

provided insights on how the inputs of doctoral education turn into outputs through the transformation process. However, the transformation of outputs into outcomes is yet to be seen. Scholar may adopt an institutional logics' perspective to understand how logics underlying outputs influence logics in the host doctoral education system or even those in society. Further, the transformation process of knowledge advancement through doctoral students' original research is yet to be revealed. Future studies on doctoral education can examine the role of doctoral students as researchers in the transformation process and analyze the qualitative changes to the knowledge generation by studying the transformation of their research activities and productivities.

Lastly, several topics can be considered when empirically analyzing Europe-China joint doctoral education. For example, researchers can investigate if the international strategies of European countries to cooperate with China in the area of doctoral education have become more convergent or divergent since the emergence of the European dimension cooperation. It is also important to examine the impacts of key international relation strategies by the EU and China (e.g., China's OBOR policy and the EU and China's soft power policy) on the recent development of cooperation between European and Chinese stakeholders. Empirical studies can be conducted on the quality of doctoral education in Europe-China joint institutions (including the unfinished SDC case study). To further enrich the empirical evidence and examine the theoretical and analytical frameworks developed in this study, empirical analyses are needed to explore the quality of European doctoral students in Chinese universities and the internal quality assurance system in Europe-China joint doctoral programs that are based in Europe. In addition, investigations on external quality assurance mechanisms in Europe-China joint doctoral education should be considered.

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# Appendices

## Appendix 1.1 An annotated glossary of terms

1. **Doctoral program:** “An organised set of possible taught courses and research opportunities within one or more disciplines” (Byrne et al., 2013, p. 15).
2. **Doctoral school:** “An institutional structure within a HEI with its own resources dedicated to the management of doctoral education” (Byrne et al., 2013, p. 15).
3. **Doctoral students/candidates/researchers:** Students undertaking doctoral studies and conducting doctoral research. All three terms have been used in the literature depending on the context.
4. **Europe-China joint doctoral education:** Doctoral education jointly offered through the cooperation of stakeholders (i.e., higher education institutions [HEIs], research institutes, funding organizations, and governments) from China and counterparts from European countries.
5. **International joint doctoral education:** Doctoral education jointly provided through the cooperation of stakeholders in doctoral educational systems from more than one country.
6. **Institutional logics:** “The socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton & Ocasio, 1999, p. 804).
7. **Institutionalization from an institutional logics perspective:** The process of reconciling multiple institutional logics, wherein a stable interrelationship between multiple institutional logics is developed and prevails within the institution.

8. **Institutionalization:** “An inherently historical process” in which “something that happens to an organization over time, reflecting the organization’s own distinctive history, the people who’ve been in it, the groups it embodies and the vested interests it has created, and the way it has adapted to its environment” (Selznick, 1957, p. 16).
9. **Moderatum generalizations (theoretical inferences):** “Modest, pragmatic generalizations drawn from personal experiences” that “make everyday life possible” through “bringing a semblance of order and consistency to social interaction” (Payne & Williams, 2005, p. 296).
10. **Organizational innovation:** “Any departure from the traditional practices of an organization” (Levine, 1980, p. 4).
11. **Paradigm:** “A basic set of beliefs that guide action” (Denzin & Lincoln, 2018b, p. 97).
12. **Policy makers in doctoral education systems:** Multiple-level decision makers in a doctoral education system, for instance, the government, university leaders, deans of faculties, and heads of doctoral schools.
13. **Practitioners in European-Chinese cooperation in doctoral education:** Actors interested or already involved in Europe-China cooperative practices in doctoral education, for instance, doctoral program coordinators and administrators, doctoral supervisors, and doctoral students (Zhu et al., 2017).
14. **Quality culture:** “An organisational culture that intends to enhance quality permanently and is characterised by two distinct elements: on the one hand, a cultural/psychological element of shared values, beliefs, expectations and commitment towards quality and, on the other hand, a structural/managerial element with defined processes that enhance quality and aim at coordinating individual efforts” (Jensen et al., 2006, p. 10).
15. **Quality assurance:** “Ensuring that there are mechanisms, procedures and processes in place to ensure that the desired quality, however defined and measured, is delivered” (Harvey & Green, 1993, p. 19)
16. **Qualitative research:** “A situated activity that locates the observer in the world” and “consists of a set of interpretive, material practices that make the world visible” (Denzin & Lincoln, 2018a, p. 10).
17. **Research environment:** The context of research-based doctoral education. This study used the notion of a research environment to refer to quality assurance in doctoral education. From an institutional logics perspective, it is viewed as the institutional environment constituted by a set of institutional logics (Thornton & Ocasio, 1999).
18. **Socialization of doctoral students:** A process by which “individuals gain the knowledge, skills, and values necessary for successful entry into a professional career requiring an advanced level of specialized knowledge and skills” (Weidman et al. 2001, p.iii).

19. **Stakeholders in doctoral education:** Relevant actors in the area of doctoral education. They can be from multiple levels: supranational and national, institutional, faculty, program-related and individual (Clark, 1983). The stakeholders include international organizations, governments, higher education institutions (HEIs), research institutes, funding organizations, doctoral supervisors, doctoral students, university management and administrators, and researchers (Evans, 2014; Pearson, 2005; Zhu et al., 2017).
20. **Transferable skills:** Occasionally termed as *generic skills*, they refer to doctoral students' competence as a writer, speaker, manager, and team member who can effectively communicate research goals and results within and outside universities (Nerad, 2014a).
21. **Triangulation:** "The application and combination of multiple (theoretical and methodological) approaches in the study of the same phenomenon" (Denzin & Lincoln, 2018c, p. 318)

## Appendix 5.1 Interview protocols used in the empirical study

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### Interview Protocol for Sub-study II

- Time of interview:
- Date:
- Place:
- Interviewer:
- Interviewee:
- Position/role of interviewee:
- Doctoral student (please specify the discipline \_\_\_\_\_)
- Supervisor (please specify the discipline \_\_\_\_\_)
- University management involved in doctoral education (please specify the role \_\_\_\_\_)
- Group interview (please specify the detailed components of A, B, and C in the group \_\_\_\_\_)

---

### Short description

- Expected to collect data concerning different stakeholders' perceptions of quality of doctoral education as well as the status quo of (the quality of) doctoral education in China.

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### Outline of interview questions 访谈提纲

- **For doctoral students (including graduates)** 对博士生(含毕业生)的访谈
  1. How do you understand the “quality of doctoral education”?  
您是如何理解博士质量的?
  2. What do you think about the quality of doctoral education that you received?  
如何看待当前博士质量?
  3. If given a second opportunity, would you still choose the same university, supervisors, and the topic? Why?  
如果有机会的话,您还会选择现在的学校、现在的导师、现在的专业攻读博士吗?
  4. Could you share three major issues/elements that contribute to your completion of doctoral education?  
请您谈谈对您完成博士学业最有帮助的三件事情。
  5. What do you think should be improved in doctoral education to better cultivate doctoral graduates in the future? Why? Could you give some examples?  
请您结合学习谈谈您认为在博士培养方面应该更多注意哪些方面素质的培养?请您列举相关事例具体谈谈。
- **For supervisors** 对博士生导师的访谈
  1. How do you understand the “quality of doctoral education”?  
您是如何理解博士质量的?
  2. What do you think about the quality of doctoral education overall in your institution?  
如何看待当前博士质量?

3. Could you share with us the three most satisfactory and most unsatisfactory aspects of the quality of your supervisees?  
请您列举您培养的三个最满意的学生和三个不太满意的学生,
4. What are the reasons behind this? Do you think part of the reasons may lie in the system development?  
以此说明除博士个人努力的原因之外, 您和培养制度所起的作用。
5. In terms of supervising students, what aspects do you think should be highlighted? Could you share some examples?  
请您结合工作谈谈您认为在博士培养方面应该更多注意哪些方面素质的培养? 请您列举相关事例具体谈谈。

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● **For management** 对管理人员的访谈

1. How do you understand the “quality of doctoral education”?  
您是如何理解博士质量的?
2. What do you think about the quality of doctoral education in your institution?  
您如何看待当前博士质量?
3. What do you think about the advantages of doctoral degree holders in your institutions? What benefits can they bring to your institutions? Do you think they are distinguished from non-doctoral degree holders? Is there anything that needs improvement?  
您觉得具有博士学位的工作人员对本单位的发展作用如何? 与其他群体的差异在哪里? 哪些方面的素质还需加强? 请您举例说明。
4. If you could make some improvements, what would you like to do?  
请您谈谈在博士培养和使用上, 还需做哪些方面的改进?

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● **For focus group interviews** 集体座谈的提纲

1. How do you understand the “quality of doctoral education”?  
您是如何理解博士质量的?
2. What do you think about the quality of doctoral education in your institution?  
您如何看待当前博士质量?
3. Please share your perceptions on the current procedure of doctoral education (from admission to graduation). Do you find one or some stages affect your doctoral experiences a lot and you hope to keep or improve it/them in some way?  
根据您的经验, 您怎么看待博士生教育的招生方式(入学考试、考试内容、面试等)、和培养基本环节(比如导师遴选和导师构成、指导制度、培养过程中的课程学习、综合考试、开题、预答辩、匿名评审、答辩、论文发表等)? 这些环节是如何影响您的学业成就的?
4. Is there a proper withdrawal mechanism in your faculty for doctoral students? If yes, what do you think about it?  
您所在院系有没有博士生淘汰机制? 若有, 您是如何看待的?
5. Do you feel pressured about your doctoral study? In what aspects?  
您就学期间遇到的最大的问题或压力来自哪些方面?
6. What do you think about the current financing system for doctoral education?  
您如何评价您所在院系的研究生资助体系, 如奖学金、助学金和困难补助制度?

7. Could you share three major issues/elements that contribute to your completion of doctoral education?  
请您谈谈对您完成博士学业最有帮助的三件事情。
8. If your faculty or graduate schools in your university could make some improvements, what would you like them to do?  
您认为学校、院系在哪些方面可以做出改进, 以提高研究生受教育质量?

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Thank the interviewees for participating in the interview. Assure him or her of the confidentiality of responses and potential future interviews.

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## Interview protocol for Sub-study III

- Time of interview:
  - Date:
  - Place:
  - Interviewer:
  - Interviewee:
    - A. Supervisor
    - B. Management
    - C. Students
    - D. Administrators
- 

### Short description

- Guided research question:

How has a quality assurance system in a European–Chinese joint doctoral program developed?

- Expected to collect data concerning: different stakeholders' conception of the quality of a doctoral education (in general and of the selected program) and approaches to assure quality in the programs.
- 

### Outline of interview 访谈提纲

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#### Participants' background 访谈对象背景

Describe your role and responsibility in the DMH program.  
描述下你在DMH项目中的角色, 所负责的工作范畴

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#### A. Supervisor 针对项目导师的访谈

1. Could you describe your experiences being a supervisor in the DMH program?  
描述下你在项目中当导师的体验?
2. What is your understanding of good supervision of doctoral education in general?  
你觉得, 什么样的导师指导是好的导师指导?
3. What's your understanding of good supervision in a joint doctoral program? What are the approaches in the DMH program?  
你觉得, 理想状态下, 联合培养博士学位项目中该如何实现优质的联合导师指导? 在DMH项目中是怎样做的?
4. Any different understandings concerning the quality or outcome of theses by supervisors from Chinese institutions and Portuguese institutions?  
在联合指导中, 中欧双方的导师对导师指导的理解和做法一样吗? 有哪些差别?
5. What are the challenges you have faced in joint supervision?  
在指导学生中, 你有没有遇到什么困难? 有没有妥善解决? 怎么解决的?
6. What is your understanding of the quality of doctoral education?  
你是怎么理解博士生教育的质量的?
7. How do you evaluate the quality of the DMH program? If possible, in what aspects do you think the quality assurance system can still be improved?  
你如何评价DMH项目的质量? 有哪些方面是做的好的? 哪些方面需要改善?

---

**B. Management** 针对项目管理人员的访谈

1. How have the two partner institutions come to establish the DMH program? What are the challenges in establishing the programs?  
项目是怎样成立的? 成立的过程, 目的。是否遇到什么挑战? 怎么解决的?
2. Can you describe how the joint program has been (jointly) managed? Are there challenges? What are they?  
目前项目的运作情况? 联合管理如何实现的? 是否遇到什么挑战? 怎么解决的?
3. What's your understanding of the quality of doctoral education?  
你怎么看待博士教育的质量?
4. What's your understanding of the quality of a joint doctoral program? Can you see some effective or ineffective approaches in the DMH program?  
你觉得, 理想状态下, 联合培养博士学位项目中该如何实现优质的联合导师指导? 在DMH项目中是怎样做的?
5. Do you find any different understandings concerning the quality assurance of doctoral education between both sides? What are the major differences? How do you handle the differences in program management?  
项目管理中, 中欧双方院校对质量保障方面的理解和做法有哪些不同? 如何协调的?
6. What are the quality assurance approaches employed in the DMH program? How have they come into being? Please give some examples.  
项目目前有哪些质量保障的举措? 为什么会这么做?
7. How would you evaluate the quality of the program? If possible, in what aspects do you think the quality assurance system can still be improved?  
你如何评价项目目前的质量? 是否有哪些方面, 你希望能有所改进的?

---

**C. Students** 针对项目学生的访谈

1. How do you like your experience as a doctoral student in the DMH program? If possible, in what aspects do you think it can still be improved?  
描述下你的读博体验。有没有什么方面你希望有所改善的。
2. What's your understanding of the quality of doctoral education?  
你怎么看待博士教育的质量?
3. How would you evaluate the quality of the doctoral education you received from the program? If possible, in what aspects do you think the quality can still be improved?  
你如何评价项目目前的质量? 是否有哪些方面, 你希望能有所改进的?
4. What is your understanding of good doctoral supervision?  
你觉得, 什么样的导师指导是好的导师指导?
5. Could you describe your experience with doctoral supervision in the program? Are there any different understandings concerning the doctoral supervision between your Chinese/local supervisor and European supervisor? How do you understand it?  
你如何评价项目中的联合导师指导? 在联合指导中, 中欧双方的导师对导师指导的理解和做法是否出现不一样的情况? 有哪些差别? 你是如何理解和处理的?



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D. **Administrators** 针对项目行政人员的访谈

1. What is your understanding of the quality of doctoral education?  
你怎么看待博士教育的质量?
2. In your work in the position, have you encountered different understandings concerning the quality of the program between both institutions? What are the major differences? How do you handle the differences in the program?  
在你的工作中, 是否遇到过中欧双方成员对项目的质量管理的理解不同的情况? 举例说明。
3. What are the quality assurance approaches employed in the DMH program? How have they come into being? Please give some examples.  
项目目前有哪些质量保障的举措? 为什么会这么做? 举例说明
4. How would you evaluate the quality of the program? If possible, in what aspects do you think the quality assurance system can still be improved?  
你如何评价项目目前的质量? 是否有哪些方面, 你希望能有所改进的?

---

Thank the interviewees for participating in the interview. Assure him or her of the confidentiality of responses and potential future interviews.

---

## Interview protocol for Sub-study VI

- Time of interview:
  - Date:
  - Place:
  - Interviewer:
  - Interviewee:
- 

### Short description

Guided research question:

How has the context of socialization influenced the socialization experiences of doctoral candidates who are based in Finland funded by the China Scholarship Council (CSC)?

Expected to collect data concerning: doctoral candidates' anticipation of their doctoral education before beginning their doctoral study, and their perception of their doctoral experiences and their identities.

---

### Outline of interview 访谈提纲

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- **Interviewee background** 访谈者背景
    1. What's your discipline?  
您的专业是
    2. When do you start your doctoral study?  
您是哪一年开始读博
    3. When do you start to receive a CSC grant?  
同一年开始用CSC的经费吗?
    4. Do you complete your master's study in China?  
您的研究生是在国内完成的吗?
    5. Is the CSC the sole funding resource you have gotten thus far?  
在读博过程中, CSC是您唯一的经费来源吗? 还有其他的吗? 比如, 学院和学校有没补贴?
    6. Are you doing a monograph-based dissertation or article-based dissertation?  
您的博士论文是 Monograph-based? 还是Article-based?
    7. Your academic achievement thus far?  
到目前为止, 您在学术上都取得了哪些成果?
  - **Beginning** 开始
    1. How did you come to undertake doctoral education in Finland?  
可以谈下, 当时您是怎么申请的学校?
    2. Why did you choose to apply the CSC scholarship to your doctoral study? Have you considered other funding possibilities?  
怎么会想到申请CSC奖学金作为经费支持来芬兰读博吗? 有没有考虑过其他的funding?
-

- **Doctoral experiences** 读博体验和支持
3. What do you think about the supervision and training that you received during your doctoral study? From your supervisors, research teams, faculty, and university? Are there differentiations towards doctoral students with different funding sources? Is there anything you hope to improve?  
读博过程中, 你的导师、研究组、学院、大学分别给予了你哪些研究支持? 有哪些方面希望能有改进的? 和其他经费来源不同的学生有没有什么不同?
  4. Are you satisfied with your doctoral experiences? If given chances to improve, what would you want to change?  
你对目前的读博体验满意吗? 如果希望改善, 希望会有哪些?
  5. Have you participated in any teaching and management activities in your research group or faculty? Personally, do you want or not want to participate?  
在读博过程中, 你是否需要承担教学、项目管理甚至学院管理工作? 您是否希望有这些体验?
- 

- **Anticipation before Ph.D.** 和个人预期和国内读博比较
6. Did your doctoral experience match what you expected for being a doctoral student? What are the matched and unmatched aspects?  
你在国内读完硕士, 出来读博, 有没有觉得和自己当初的预期不一样? 哪些不同?
  7. What do you think about the differences between doing a Ph.D. in China and that in Finland?  
您觉得国内和国外读博的区别在哪里?
  8. What are the most satisfactory aspects of doctoral experiences?  
你觉得哪些在芬兰的读博体验是你更喜欢的?
  9. Are there any doctoral experiences you expected when you were a master's student in China, but did not take place in Finland and you hoped it would take place?  
哪些国内的读博的好处是你也希望在芬兰能实现的?
- 

- **读博成就感满意度 Self-satisfaction and achievement**
10. Thus far, what do you think about your doctoral research? Do you feel satisfied with your academic achievement?  
你怎么评价自己的博士研究? 你对目前所取得的学术成就, 有没有成就感?
  11. Could you describe an ideal doctoral study experience, in your opinion?  
你觉得理想的博士生活应该是怎样的?
  12. Could you describe your perceptions of academic life, in your opinion? Will you continue with an academic career in the future? Why?  
目前, 你觉得学术对你来说是怎样的? 毕业后你会选择从事学术职业吗? 为什么?
- 

- **Recommendations** 改善建议
13. If given opportunities to improve the current situation of CSC doctoral students in Finland, what would you like to improve? Can be suggestions for the CSC, the Chinese Embassy, universities, faculties, supervisors, and students themselves.  
如果让你对改善在芬公派博士生现在的生存工作状态提供建议, 你会有哪些建议? 可以分开对学校? 对CSC? 对大使馆?
- 

Thank the interviewees for participating in the interview. Assure him or her of the confidentiality of responses and potential future interviews.

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## Appendix 5.2 Observation protocol

### Observation protocol for Sub-study III

- Time of observation:
- Date:
- Place:
- Observant:
- Target for observation:
  - A. Classroom
  - B. Supervision meeting
  - C. Thesis seminar

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- **Field notes**

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Descriptive note

Reflective note

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Informal discussion with participants at the site

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Appendix 5.3 Research permission form

RESEARCH PERMISSION

I am aware that Gaoming Zheng’s research interest lies in \_\_\_\_\_.  
I give my permission to use textual and audio materials produced during the interview.

PERMISSION FOR RESEARCH DATA ARCHIVING

I give my permission to use textual and audio materials for archival and research uses.  
I understand that data protection covers, for example, personal details deleted from files and research publications.  
I know that it is possible to cancel permission for research data archival with a written announcement to the researcher.

\_\_\_\_\_ (place), \_\_\_\_\_ (date)

\_\_\_\_\_  
Signature, respondent

\_\_\_\_\_  
Signature, researchers

## Appendix 5.4 Peer review information on published articles

Below are the review details on the articles included in this dissertation:

Publications	Submission review process
Publication 1	<p><b>Article title:</b> Institutional logics of Chinese doctoral education system  <b>Journal title:</b> <i>Higher Education</i> (ISSN 0018 1560 [print] 1573 174X [online]).            First version submitted on July 24, 2017            First revised version, based on the reviewers' and editor's comments, submitted on December 20, 2017            Accepted-for-publication and to-be-published version submitted on February 5, 2018            Published online on February 14, 2018            Published in November 2018.</p>
Publication 2	<p><b>Article title:</b> Towards an analytical framework for understanding the development of a quality assurance system in an international joint programme.  <b>Journal title:</b> <i>European Journal of Higher Education</i> (Special Issue) (ISSN: 2156 8235 [Print] 2156 8243 [Online])            First version submitted on December 10, 2015            First revised version, based on the reviewers' and editor's comments, submitted on March 6, 2016            Second revised version submitted on November 27, 2016            Third revised version submitted on December 27, 2016            Accepted-for-publication and to-be-published version submitted on January 30, 2017            Published online on March 1, 2017</p>
Publication 3	<p><b>Article title:</b> Collaboration between Europe and China in doctoral education: Historical development and future challenges  <b>Book title:</b> <i>International Status Anxiety and Higher Education: Soviet Legacy in China and Russia</i> (ISBN 978 988 14241 6 7)            Abstract submitted on March 6, 2015            Abstract accepted on December 16, 2015            First version submitted on February 12, 2016            First revised version, based on reviewers' and editor's comments, submitted on October 15, 2016            Second revised version submitted on October 25, 2016            Third revised version submitted on August 14, 2017            Accepted-for-publication and to-be-published version submitted on February 12, 2018            Published in September 2018.</p>
Publication 4	<p><b>Article title:</b> Comparing doctoral education in China and Finland: An institutional logics perspective  <b>Book title:</b> <i>Nordic-Chinese Intersections on Education</i> (ISBN 978 3 030 28588 3)            Abstract submitted on April 1, 2016            Abstract accepted on April 30, 2016            First version submitted on October 21, 2016            First revised version, based on the reviewers' and editor's comments, submitted on January 23, 2017            Accepted for publication on January 21, 2019            To-be-published version submitted on August 13, 2019            Published on November 14, 2019</p>
Publication 5	<p><b>Article title:</b> Deconstructing doctoral student socialization from institutional logics perspective: A qualitative study of socialization of Chinese doctoral students in Finland  <b>Journal title:</b> <i>Frontier of Education in China</i> (ISSN 1673 341X [Print] 1673 3533 [Online])            First version submitted on January 31, 2019            First revised version, based on reviewers' and editor's comments, submitted on April 7, 2019            Accepted-for-publication and to-be-published version submitted on April 12, 2019            Published in June 2019.</p>

## Appendix 5.5 Responsibilities for authorship in published articles

Article	Sequence of authorship	Name of co-authors	Responsibilities for authorship				
			Writing/editing the text	Research conception design	Producing research material	Analysis/inter presentation of material	Other contribution, specify
Article 1	1	Gaoming Zheng	x	x	x	x	
	2	Wenqin Shen	x	x	x	x	
	3	Yuzhuo Cai		x		x	Doctoral supervisor
Article 2	1	Gaoming Zheng	x	x	x	x	
	2	Yuzhuo Cai	x	x		x	Doctoral supervisor
	3	Shaozhuang Ma	x		x	x	
Article 3	1	Gaoming Zheng	x*	x	x	x	
	2	Yuzhuo Cai	x	x		x	Doctoral supervisor
Article 4	1	Gaoming Zheng	x	x	x	x	
	2	Jussi Kivistö	x	x	x	x	
	3	Wenqin Shen		x	x	x	
	4	Yuzhuo Cai		x		x	Doctoral supervisor
Article 5	1	Gaoming Zheng	x	x	x	x	

\*x=The person has made a contribution in this aspect.

## Appendix 5.6 Subjectivity statement

In the process of conducting and presenting this research, I recognized my subjectivities. I am a 31-year-old, middle-class (Han) Chinese female conducting doctoral research in Finland, Europe. I also interpreted my personal background and beliefs in relation with the research subject.

First, the research subject concerns doctoral education, and I realize that I am a doctoral candidate in a doctoral education system in Finland. While this insider viewpoint allows me to more closely examine the research subject, it requires me to balance my dual role of a doctoral candidate in a doctoral education system and a researcher on the subject of doctoral education and to avoid biases associated with a doctoral candidate perspective.

Second, my mobile life experiences between China and Europe, which have shaped my view of European-Chinese higher education cooperation, should be bracketed to the study. I have been living and pursuing my master's and doctoral degrees consecutively in Europe for about eight years. I completed my basic and undergraduate education in Mainland China, during which I spent half a year in Taiwan as an exchange student. I earned an Erasmus Mundus Joint Master Degree between Europe and China. During my master's, I studied in Austria, Finland, Germany, and China and worked as a research intern in the Netherlands. Evidently, my academic life has been internationally mobile. About five years ago, I began my doctoral study in Finland with joint financial support from organizations in Finland and China, including the Finnish National Agency for Education (formerly known as CIMO), the China Scholarship Council (CSC), and Tampere University. I have also participated in several European-Chinese higher-education cooperative activities including projects, seminars, and research. I greatly benefited from the European-Chinese higher education cooperation and later became an avid promoter of the program.

Third, in addition to educational and professional experiences, my family and personal background played an instrumental role in my self-exploration as an interpretivist and institutionalist. As a child, I changed several schools because my parents desired a better learning environment. As a result, I took notice of the distinctions in school environments and their influences on student behaviors. I came to believe that human perceptions and activities as well as the organization of society are closely related with their societal and cultural settings. In this sense, my view of the world is more qualitative, and I share the same beliefs as those of most qualitative researchers. For instance, events or phenomena cannot be fully interpreted without observing and understanding them in their context (Chen, 2000). I also believe that human perceptions and activities are largely subjected to (institutional) environmental influences. This is aligned with the assumption that institutional theory, to a large extent, motivates me to consider the research subject from an institutional theory perspective.

In conclusion, by reflecting on my personal background and experiences, I hope to identify their influence on my research approach and choices and help readers better understand my adoption of an interpretive lens.



## Original publications



# PUBLICATION

I

## **Institutional logics of Chinese doctoral education system**

Gaoming Zheng, Wenqin Shen, Yuzhuo Cai

*Higher Education*, 76(5), 753-770. doi:10.1007/s10734-018-0236-3

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# Institutional logics of Chinese doctoral education system<sup>1</sup>

Gaoming Zhng<sup>2</sup>, Wenqin Shen<sup>3</sup>, Yuzhuo Cai<sup>4</sup>

## Abstract

As Chinese doctoral education has grown dramatically in the past four decades and developed into one of the largest doctoral education systems in the world, it has become one significant and integral part of the global doctoral education landscape. However, in the literature there is a lack of both a comprehensive understanding of the Chinese doctoral education system and of generic frameworks for understanding doctoral education in a global context, with an emphasis on the underlying value systems. This may not only hamper the research on doctoral education in China but also affect international comparison and collaboration with Chinese doctoral education. Using the theory of institutional logics, this study tries to bridge the gap by identifying the complex value systems underlying the context of the Chinese doctoral education system, through a qualitative study mainly based on interview data and complemented by documentary data. The interview involves 135 participants, including 45 university academic leaders, 33 doctoral supervisors and 56 doctoral students from 17 research universities, as well as one government policy-maker. We found that the context of Chinese doctoral education system consists of multiple logics of state, profession, family, market and corporation. The special constellation of institutional logics has shaped the current Chinese doctoral education system as a state-led model but meanwhile incorporating family characteristics, market orientation and regulated academic autonomy. The study also showed that Chinese doctoral education has been developing in line with international academic norms and global marketization trends, and has also been shaped by China's socio-cultural tradition and the strong state regulation. In addition to the institutional logics analysis of the Chinese doctoral education system, this study paves the way for developing a novel framework for analysing doctoral education systems in other contexts and for comparative purposes.

**Keywords:** Doctoral education, Higher education, China, Context, Institutional logics

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## Introduction

In recent years, China's rising position in the global doctoral education landscape makes the Chinese experience particularly salient (Yang 2012). The system has experienced dramatic development since its establishment in the 1980s, in response to both societal demands (Ma 2007) and governmental mandates (Zhao and Shen 2013; Yang 2012), and now it has become one of the largest doctoral education systems in the world, with 342,000 doctoral students enrolled in 2016 (MoE 2017). Meanwhile, some challenges are also recognised in the fast development process, such as the decline of quality in doctoral training (Yang 2012), conflicts between the differing needs of academia and the market (Gu and Luo 2016), and lack of resilience due to centralised control by the state (Ma 2007). These challenges are not unique in China, but also exist in other systems in the world. Recently, there have been emerging interests and needs around the world, particularly Europe, to enhance the understanding of the Chinese system (Bao et al. 2016; Zhu et al. 2017), which also calls for research attention to the contextual factors affecting the Chinese doctoral education.

In the previous studies, there has been an increasing awareness of the importance of the context in comparative education research and international development (Crossley 2009; Crossley and Jarvis 2001; Crossley 2010), the analysis of higher education systems and universities (Välmaa 2008), and the studies of Chinese education (Hayhoe 1996; Gu 2004; Cai 2010, 2012; Yang 2011, 2017; Hawkins 2013). A recent study on doctoral supervision for Pacific Islanders in New Zealand particularly suggested that cultural context matters and empowers supervision practices (Carter et al. 2017). However, the research on the cultural context of the Chinese doctoral education system is lacking in both the Chinese and the English literature.

In the Chinese literature, Chinese doctoral education has been well documented, and many studies have to varying extents contributed to our current understanding of the system. However, their focus has mostly remained on the description or analysis of one or more specific issue(s), e.g. the system's expansion (Zhao and Shen 2013; Guo 2009), supervision mode (Shen and Fan 2013; Shen et al. 2017), financial aid for doctoral students (Peng 2009) and graduate employment (Liu and Luo 2015; Gao and Shen 2016). Quality issues have by far attracted the greatest attention in the literature. Evaluation of quality (Shen 2009; Chen et al. 2011; Fan et al. 2011), mechanisms to enhance quality (Chen et al. 2016; M. Wang et al. 2016) and factors influencing quality (Chen 2010) are all heated topics under discussion. Furthermore, few of these have employed any specific theoretical framework to enhance the analysis of the issues addressed, especially in dealing with contextual issues. Nevertheless, some studies have attempted to narrow the gap in this regard. For instance, Guo (2009) understood the expansion of the Chinese system from the perspective of institutional theory and explained the impact of international normative influence and the national regulative force on the expansion process. Wu (2013) analysed the institutional pressure that may result in the current challenges for Chinese doctoral

students. Unfortunately, neither of them has identified what exactly the contextual elements are in the institutional environment.

The literature published in English has not provided useful tools to analyse the contexts of Chinese doctoral education, either. The most relevant literature in one way or another touching upon the topic can be categorised into three groups, namely system overviews, quality issues and international perspectives. Ma (2007) and Yang (2012) presented an analytical overview of the Chinese doctoral education system from the perspective of historical development with different highlights. On the quality issue, Gu et al (2011) concentrated on the quality of doctorates and indicated that the academic origin of doctoral graduates and supervisors' academic status had a significant impact on the research performance in doctorates. Siu (2011) examined the quality of joint supervision and identified it as a double-edged sword. A recent study by Gu et al (forthcoming) explored the relation between students' career choices and the quality of supervision from the perspective of career development theory. From an international (comparative) perspective, some researchers explored the experiences and performance of Chinese doctoral students or Chinese-foreign doctoral programmes in an international context from different theoretical approaches. These included epistemological development theory (Zhu 2017), world system theory (Kim and Roh 2016), the institutional logics approach (Zheng et al. 2017) and the socialisation model (Wu 2017). Others paid more attention to the comparison between China and other systems on a certain issue, such as the trend of reform and development (Bao et al. 2016), professional doctorates (Wildy et al. 2015) and the doctoral experiences from the theoretical lens of organisational socialisation (Rhoads et al. 2016).

Hence in both the Chinese and the English literature, there is a research gap concerning exploring the contextual factors of Chinese doctoral education system particularly in terms of a well-developed analytical framework and rich empirical evidence. The great challenge to fill the gap lies in how to conceptualise the abstract term of context in a more concrete way. As commented in previous study (Cai 2015) regarding studies dealing with contextual issues, 'while scholars are aware of the importance of context effect, few have attempted to make explicit what the context is'. Indeed, this is also a research challenge in higher education research in general. Many educationalists refer by 'context' to social, cultural, economic and political contexts (Yang 2011) or understand elements of context to include political, linguistic, cultural, economic and geographical factors (Bray and Gui 2001). In this respect, they largely concur with the insights of institutional theory, which treats the context as the institutional environment, referring to rules, norms, understandings, beliefs and taken-for-granted assumptions about what constitutes appropriate or acceptable organisational forms and behaviours (Meyer and Scott 1983). Even in the field of institutional analysis, one challenge is to render the institutional environment concrete.

One solution to this challenge is the institutional logics approach (Cai 2015; Cai and Mehari 2015), which is able to concretize the very abstract concept of the institutional

environment by identifying a set of organising principles that imbue actions and conflicts with meaning (Thornton and Ocasio 1999). Institutional environment is constituted by institutional logics/orders, which are ‘the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality’ (Thornton and Ocasio 1999, 804). Furthermore, given a widely accepted claim on the complexities and ambiguities of the higher education system (Clark 1983; Pinheiro 2011), there has also been an emerging awareness that the institutional logics approach is influentially useful in higher education studies (Lepori 2016; Cai and Mehari 2015; Bleiklie et al. 2017). Previous studies either on various themes of higher education (Cai 2014; Cai and Zheng 2016) or more specifically on the topic of doctoral education (Mars et al. 2014; Gu and Luo 2016; Zheng et al. 2017) all have proved the explanation power of institutional logics to grasp the context of a doctoral education system.

Therefore, by using the institutional logics approach, this paper tries to fill the aforementioned knowledge gap through answering the research question: What are the institutional logics underlying the context of the Chinese doctoral education system? To answer this question, we will first construct an analytical framework from an institutional logics perspective and then use the framework to guide our qualitative analysis of both primary data of interviews and secondary data of academic literature and policy documents.

## Institutional logics as an analytical framework

When applying an institutional logics approach to higher education studies, ideal types of institutional logics (Thornton et al. 2012) have become a frequently used tool to understand the institutional complexity (Bleiklie et al. 2017). Thornton et al (2012) identified seven ideal types of societal-level logics, and suggested that logics at the organisational and field levels are subject to the societal-level logics. We define the seven ideal types of logics based on a review of the literature:

*State logic:* State is a redistribution mechanism (Thornton et al. 2012). Therefore, the focus of state logic is to convert diverse issues into the basis for routine official decisions that can be made either by consensus or majority vote (Thornton et al. 2012; Friedland and Alford 1991). As such, state logic entails rationalisation and the regulation of human activities by legal apparatus and bureaucratic hierarchies (Friedland and Alford 1991).

*Profession logic:* Following profession logic, a person’s reputation is connected to the quality of their craft, and actors all seek to improve their personal expertise and thus enhance their status in the professional community (Thornton et al. 2012).

*Family logic:* ‘Families attempt to convert all social relations into reciprocal and unconditional obligations oriented to the reproduction of family members’ (Friedland and Alford 1991, 249). In family logic, patriarchal power dominates in society, and actors as family members seek to increase their families’ honour (Thornton et al. 2012).



**Market logic:** Market logic attempts to convert all human activities into the transaction of commodities that have a monetary price (Thornton et al. 2012; Friedland and Alford 1991). It emphasises a strategy of increasing profits and efficiency (Thornton et al. 2012).

**Corporation logic:** The actors in a society/organisation of corporation logic become employees under the control of corporate managers (Blau and Scott 2003). Corporation logic emphasises efficiency in managerial practices (Thornton et al. 2012).

**Religion logic:** The logic of religion ‘attempts to convert all issues into expressions of absolute moral principles accepted voluntarily on faith and grounded in a particular cosmogony’ (Friedland and Alford 1991, 249). Actors seek to increase the religious symbolism of natural events (Thornton et al. 2012).

**Community logic:** Community is constituted by a common group boundary and by social action that is driven by the satisfaction of common economic needs, and value systems that influence its economy (Thornton et al. 2012). Members of a community try to cover each other’s losses and increase the honour and status of group members (Thornton et al. 2012).

When examining the doctoral education system in China, we mainly focus on the following dimensions: admission, doctoral training, quality assurance, graduation, governance and funding, which have been commonly discussed in the literature on the Chinese doctoral education system (CQAGDE 2010; Yang 2012).

Therefore, by combining the ideal types of institutional logics (X-Axis) with the dimensions of a doctoral education system (Y-Axis), we develop an analytical framework for the study (see Table 1). By cross-examining the Y-Axis and the X-Axis, we can identify the institution logics in the context of a doctoral education system and analyse their reflections/impacts on each dimension. Nevertheless, although we list all the seven ideal types in the framework, some of the logics may be less relevant or noticeable in the context.

**Table 1 Analytical framework**

		X-Axis: Ideal types of institutional logic							
Y-Axis: dimensions of a doctoral education system		<i>State logic</i>	<i>Profession logic</i>	<i>Family logic</i>	<i>Market logic</i>	<i>Corporation logic</i>	<i>Religion logic</i>	<i>Community logic</i>	
	<i>Admission</i>								
	<i>Doctoral training</i>								
	<i>Quality assurance</i>								
	<i>Graduation</i>								
	<i>Funding</i>								
	<i>Governance</i>								

## Research methods

This study employs a qualitative research method mainly based on primary data and complemented by secondary data. The primary data as our main data sources are from our interviews about different stakeholders' perceptions of Chinese doctoral education. We conducted 70 interviews involving 135 participants from 17 research universities and the China Academic Degrees and Graduate Education Development Center under the Minister of Education and State Council jointly (CADGEDC), from 2004 to 2015. Among them, 53 were individual interviews, involving one university vice rector, 13 deans of university graduate schools, 14 deans of faculties, 24 supervisors, and 1 officer in CADGEDC. Seventeen were focus-group interviews covering 82 participants, with a size ranging from 3 to 17, involving all together 56 students, 9 supervisors and 17 university administrators. All the interviews were in Chinese, recorded and transcribed. The secondary data cover academic literature related to Chinese doctoral education, including 92 Chinese academic papers and 12 English academic papers, and the state government's policy documents concerning doctoral education and doctoral degrees in China available by 2017 on the official website of the CADGEDC (CADGEDC 2017).

When it comes to data analysis, first, on the basis of the analytical framework constructed, we developed 13 categories for coding, including the six dimensions of doctoral education (see Y-Axis of Table 1) and the seven ideal types of institutional logics (see X-Axis of Table 1). Second, we examined and coded the collected data (both primary and secondary data) in the coding categories developed, by considering which dimension the text was concerned with, whether they reflected the ideal types of logics, and which logics they were representing. Some texts were coded into more than one category where appropriate. Third, after finishing the coding, we generated the coding matrix by cross-examining the codes on each dimension of doctoral education and those on each category of ideal types of logics, selected out the codes that were present on both a dimension and in a logic, and placed them in the coding cell of the matrix. Then we analysed and summarised the content of coded texts in each cell of the coding matrix and came up with our findings.

## Analysis

Based on the analysis of data, we identify five underlying logics in the context of Chinese doctoral education, including state logic, profession logic, family logic, market logic and corporation logic. Religion logic and community logic were hardly perceptible and the reasons for this remain uncertain. However, we assume it may be associated with a relatively weak religion logic in Chinese society as well as the fact that most universities offering doctoral education in China are under the direct administration of governmental ministries or provincial governments and thus seldom involved with local communities. Next we explain each of the five logics, which are evidenced by the data, along the six dimensions of doctoral education system.

### *State logic*

The evidence supporting the state logic in Chinese doctoral education are primarily from the secondary data. State logic has long been embedded in Chinese educational system since Keju, i.e. the Chinese national civil servants' selection examination, was adopted in the year 607 or even earlier. The main purpose of education was to cultivate qualified civil servants for the government (Gu 2004). Hence we were not surprised to discover the state logic when analysing the data. In fact, the developmental path of Chinese doctoral education indicates strong promotion and tight control by the central government (Yang 2012). The system was supposed to represent the will of the state and '*contribute to the enhancement of our nation's international competitiveness and the improvement of the nation's economy*', as the policy-maker from CADGDC stated. The state logic is reflected in all the six dimensions of doctoral education.

### *Admission*

Influenced by the state logic, the Ministry of Education (MoE) regulates admission to doctoral education by setting the general recruitment criteria and planning the number of students admitted. Although today universities have more autonomy in designing the means of admission, all doctoral applicants still need to participate in a national graduate entrance examination and pass in some subjects required by the state. The government is involved in deciding the annual intake, including the ratio of internal and external candidates in order to curb nepotism (MoE 2014). The expansion of the system since the 1990s has been driven and regulated by the national government (Zhao and Shen 2013). The process of planning and distributing the enrollment quota is a reflection of state logic in regulating and distributing public resources.

### *Doctoral training*

Analysis of the literature and interviews both showed that the government plays a weaker role as regulator in training activities, mainly in outlining the goals and the scope of doctoral education. Within the state-set framework, universities further design their own curricula.

### *Quality assurance*

Both the documentary and interview data suggested that the state is currently the gatekeeper and external quality assurer of the system in China. First, the government has the authority to decide which universities are eligible to provide doctoral education and which doctoral programmes can be opened for student recruitment (Guo 2009). Through this, as well as planning the annual intake, the government controls the scale of the doctoral education system in China (Yang 2012). Second, the approved doctoral programmes and

the doctoral dissertations completed are under the state's external assessment. Four doctoral programmes were cancelled in 2014 after the assessment (MoE 2016). If dissertations are deemed inadequate for graduation, the candidates' doctoral degrees will be recalled and their supervisors will face a temporary suspension of their supervision rights (CADGEDC 2016c). Third, interviews with supervisors and students showed that a strict quality evaluation system of the process of completing doctoral dissertation has been established, which is also a reflection of state logic (Zheng et al. 2017). A doctoral candidate in China is required to pass the research proposal presentation, mid-term assessment, double-blind peer review, pre-defence evaluation and finally the official defence in order to get his/her dissertation submitted.

### *Graduation*

A doctoral degree in China is a 'state qualification' (Chen et al. 2016), which was also mentioned repeatedly in the interviews by different stakeholders. It must meet the standards stipulated by the state and can only be conferred by those institutions which are authorised by the government (CADGEDC 2016b). Besides, in relation to the dimension of doctoral training, the government also outlines the basic graduation criteria.

### *Funding*

The literature shows that when the doctoral education system was established, it was fully financed by the government (Peng 2009). Nowadays, although government support is not the sole financial source, the central government remains the major financial supporter and the resource distributor. The government allocates funding to doctoral students according to their merits and needs, and to universities by considering the annual student intake and the research capacity (university ranking, research labs and facilities, etc.) of universities and supervisors (MoE 2005, 2014).

### *Governance*

As noted, the state wields strong power in the system-level governance. It acts as the gatekeeper of the system, controls external quality assurance and is the major funder. Moreover, through multiple policies and regulations, such as Project 985 and Project 211, the development of graduate schools in some selected universities, the Key Disciplines Policy and the most recent 'Double First-class University' policy, the Chinese government has developed a hierarchy within the Chinese higher education system (Cai and Yan 2015). Top universities receive more financial support from the government and enjoy greater autonomy (Wang 2008). Parallel to this, a hierarchical national-provincial-institutional academic degree management system had been established to regulate the conferring of academic degrees in China (CADGEDC 2016a).

Moreover, the interviews with stakeholders in universities suggested that the state logic is also reflected in the strong bureaucratic power inside universities. One prime example is the decision-making power of the graduate school in deciding how the state-approved intake shall be distributed among the faculties. Some interviewees suggested that even though autonomy has been devolving from government to universities, the power mainly falls into the hands of the administrators rather than the hands of academics. Meanwhile, because of the heavy bureaucracy, many supervisors need to fulfil some administrative tasks. During the interview, a student complained to us and said *'I feel that I need to compete with the administrative power for my supervisor's time'*.

## Profession logic

As doctoral students are the next generation of academics (Austin 2002), and most of them complete their anticipatory socialisation to the academic profession during their doctoral studies by learning about academics in their disciplines and in the profession (Tierney and Rhoads 1993), naturally profession logic is embedded in the field of doctoral education. The Chinese doctoral education system is no exception. Both primary and secondary data demonstrated a strong profession logic in China's doctoral education in all the six dimensions:

### *Admission*

Driven by profession logic, students' research expertise is the major recruitment criterion, and this was largely supported by the interviews with supervisors. Many of the supervisors interviewed maintained that recruiting excellent students is vital to ensuring the quality of doctoral education. By 'excellent students', they refer to students with capacity for critical thinking and research. Regarding the question of how to recruit excellent students, supervisors argued that more autonomy should be devolved from the government. For instance, *'cultivating research talents through the master-doctoral consecutive programmes is beneficial, but it is uncourageous in the current recruitment policy as it would occupy the quota of intake twice. Once in master's admission, and another time in doctoral admission'*, as stated by a supervisor from Peking University. Many other supervisors shared his opinion, and they hoped the university could have more power in deciding the structure of the annual intake. For another example, one supervisor from Fudan University mentioned there should be more flexibility in choosing candidates for interview, which many supervisors believed was crucial to determine students' research capacity. As he maintained, *'Currently the rate of the recruited candidates versus potential candidates who can attend for interview in my faculty is strictly 1: 1.2. For me, it does not really matter whether the rate is 1: 1.2 or 1: 2. Allowing more candidates attend the interview component can allow me to have more choices for selecting the excellent students'*.

### *Doctoral training*

In consonance with the international norms, the enhancement of doctoral students' research capacity and the production of new knowledge is the core goal of doctoral training activities in China, which is indicated in the policy documents and also taken for granted by the interviewees. For instance, in our interviews, Chinese doctoral supervisors showed their encouragement for students to get involved in the international academic community through all kinds of academic activities, and students also expressed their strong interest to do so.

### *Quality assurance*

The majority of the doctoral supervisors interviewed saw quality as 'Excellence 1', which implies recruiting the right students and providing the right environment to give opportunities for students' development (Harvey and Green 1993). Analysis of interviews showed that Chinese supervisors and students shared the common values of academia that 'quality (of academic work) is assured by peer review and academic freedom' (Enders and Musselin 2008, p. 145), and doctoral dissertations are all submitted for peer review.

### *Graduation*

Related to the evaluation standard of quality, the analysis of policy documents indicated that the graduation criteria in China are set to ensure that Chinese doctors can be recognised as qualified academics. In line with this thinking, the supervisors interviewed also expected doctors to continue in their academic careers. When nowadays more and more doctoral graduates enter industry, some supervisors expressed their regret in our interviews.

### *Funding*

Also in association with the quality evaluation, both in policies and practices, research capacity is recognised by all interviewees as the major consideration factor for research resource distribution. For instance, the government allocates more funding to the universities at the top of the system hierarchy for doctoral research, and many interviewees believed this is because these universities have superior research capacity. Many interviewees also suggested that those supervisors who enjoy high reputations also get more research funding and are allowed to recruit more doctoral students. Some students and administrators interviewed suggested that students' scholarships were awarded to students mainly based on their academic performance, and it was fair.

## *Governance*

Doctoral supervisors who are superior in research expertise play a decisive role in the supervision process (CQAGDE 2010). This is common in traditional apprenticeship and widely accepted by most of the supervisors interviewed. However, in the Chinese context, this is also related to family logic, which will be explained next.

## Family logic

Family logic has not been discussed much in the literature, and in our study, we mainly see it from the interview data. Yet if we trace its origin in the literature, we find that it comes from the taken-for-granted family values in Chinese traditional education. Traditionally in China, teachers were regarded as important as parents (Gu 2004). The relationship between teachers and students was considered a parent-child relation (Gu et al. forthcoming). Under the impact of such strong family values, a *shimen* culture was nourished in the Chinese doctoral education system. Literally, *shi* (Chinese) is teachers and *men* (Chinese) is family. A doctoral *shimen* is a research family, consisting of a doctoral supervisor and all his/her supervisees. In China, doctoral education is carried out within a *shimen*, inside which, in addition to the supervisor, the elder academic siblings also provide guidance for the younger academic siblings. *Shimen* culture bears strong family characteristics and can be observed in all the six dimensions of Chinese doctoral education.

## *Admission*

Under its impact, almost all supervisor interviewees preferred to recruit doctoral students from among their master's and bachelor's supervisees. One supervisor interviewed argued that this is because the supervisors know those students from their *shimen* better, and they can select the most suitable students. Hence, they argued for bigger quotas to recruit students from their *shimens*.

## *Doctoral training*

Interviews with students and supervisors showed that the doctoral supervision in China extends from academic issues to all kinds of non-academic issues in students' lives. For instance, one professor from Peking University said, '*Sometimes when they have relationship problems, I even need to comfort them. This really makes me like their parent outside their home*'. Interviews with supervisors and students showed that this to some extent enhanced the trust between supervisors and students and thus enhanced the quality of supervision. However, some supervisors also felt pressed by this '*family responsibility*'.

### *Quality assurance*

Theoretically, the concept of quality of doctoral education does not entail family logic (Zheng et al. 2017). When we noticed its influence in the Chinese context, we also found its impact was rather negative. Supervisors in the interviews suggested that they felt pressured about failing their substandard students, particularly when these substandard students pushed their supervisors to think about them as their children and to approve their dissertations without sticking strictly to the academic standard. This ‘family pressure’ was one of the reasons behind the high completion rate in the Chinese system.

### *Graduation*

Except for what was mentioned about the high completion rate, a recent study showed that many Chinese supervisors recommend their students for work opportunities where they have connections (Gu et al. forthcoming), which, as our interviews indicated, was also expected by students. A student from Nankai University claimed, ‘*supervisors should also help students develop their career path...I hope supervisors can think of our future as our parents do*’.

### *Funding*

The interview data also indicated that the reputation of the *shimen* has influenced the research resource allocation. For instance, some interviewees maintained that in the previous competition for the National Excellent Doctoral Dissertation Award, not only the contribution of the students’ doctoral research, but also their supervisor’s and *shimen*’s reputations were considered, even though the latter factor was not stipulated in the evaluation documents.

### *Governance*

Supervisors’ and students’ perceptions of the supervisor-student relation in the interviews showed that, together with profession logic, family logic affirms the dominant role of supervisors in the *shimen*’s governance. Almost all supervisors and students thought a doctoral supervisor in China is a patriarchal leader of a *shimen*, and the relationship between a supervisor and his/her supervisee is one of patronage, in which the supervisor takes care of his/her students within a hierarchical governance mode. ‘*Relations between us (students) and supervisors...are a hierarchical relation. It is not equal at all*’, according to a student interviewee and supported by many other interviewees. Some student interviewees were worried about their supervisors’ overwhelming power. ‘*Supervisors have the ultimate power to decide whether we can graduate. There could be more approaches to ensure the justness of their decisions.*’, as a student from Nanjing University stated.



## Market logic

Both the documentary and interview data suggested that the impact of market can be seen in the aspects of doctoral training, graduation and funding. Market logic was introduced into the Chinese educational system in the 1980s, when the market forces were allowed to enter into the system (Cai 2010).

### *Doctoral training*

The literature shows that project-based doctoral supervision is becoming popular in China. For instance, by 2010, 85.6% of the doctoral students in China had participated in research projects during their doctoral studies, of which 88% were related to their doctoral research (CQAGDE 2010). However, the supervisors interviewed also expressed their concern about project-based supervision. For instance, '*In research projects, doctoral students are just doing what is required by their supervisor without their own thinking...actually it (project-based supervision) is not beneficial for students*', according to a supervisor.

### *Graduation*

Many student interviewees suggested that they have to begin their jobseeking very early. And a recent study also showed that Chinese graduates were increasingly choosing non-academic professions (Gu et al. forthcoming). The students interviewed explained that the reasons were threefold: First, an academic career is very competitive nowadays. Second, project-based supervision increased the opportunities to collaborate with non-academic organisations and attracted more graduates to work outside the academic field. Third, the salaries in industry are usually higher than in universities.

Besides, some interviewees mentioned that to some extent a doctoral degree becomes a profitable asset for social and economic status enhancement. '*Actually what they want is not the enhancement of research capacity, but the title of a doctor!*' as one supervisor criticized. Nevertheless, such a phenomenon does not solely result from market forces, but is also connected to the Chinese tradition; because of which, a higher academic degree means a higher position in the government and higher social status (Gu 2004).

### *Funding*

Similarly, some interviewees also indicated that the right to offer doctoral education became a profitable asset for universities. A prominent professor from Shanghai Jiao Tong University explained the phenomenon, '*Many universities asked me to recommend them (for the right to offer doctoral education)... actually, it is all because the government connects funding allocations to doctoral education provision. Universities that have that right can apply for more funding, research projects...eventually every university wants to become a research university...but we don't need all universities to be research universities!*'. Besides, aligned

with the global trend, the literature shows that the funding sources for doctoral education in China have been under diversification (CQAGDE 2010).

## Corporation logic

The corporation logic was introduced into China's system together with the market logic since the marketization of Chinese higher education in the 1980s (Cai 2010). The impact of cooperation logic is mainly seen in the analysis of the interview data. It is rather weak in the Chinese system, which can be observed in the dimensions of doctoral training, funding and graduation.

### *Doctoral training*

From the interviews it seems it was common in some disciplines that supervisors 'hired' students to complete research projects for them and a quasi-corporate employment relationship between supervisors and students develops. Many students called their supervisor 'boss' in our interviews.

### *Graduation*

Driven by the corporation logic, academic publication, a visible indicator of efficiency and effectiveness of resource investment becomes a graduation criterion. However, this criterion was heavily discussed in many interviews and was not accepted by many supervisors and students. Most of the supervisors interviewed believed the quality of research work, instead of the quantity of publications should be considered as a graduation criterion. A professor from a research institute in Shanghai explained, *'Completion of a piece of academic work does not tell a student's research capacity. Those published papers are usually quite small-scale studies (compared to doctoral dissertations). A student's research capacity is shown in the process when he/she complete his/her doctoral research independently'*.

### *Funding*

Even though it was not widely adopted, it seems in some interviewees' universities they awarded students based on the quantity of academic publication. This was a reflection of cooperation logic on performance-based management.

## Discussion

After our analysis of the underlying logics in the Chinese doctoral education system, we try to come up with more generic descriptions of these logics as follows, which may have potential to be applied to understand the field of doctoral education.

**State logic:** with respect to state logic in the field of doctoral education, actors with bureaucratic power, such as state governments and university administrators, exert the greatest influence. They intend to construct a hierarchical doctoral education system through government policies and regulations, routine administration and the redistribution of resources. Doctoral education is deemed a public good and should represent the interests of the state government.

**Profession logic:** driven by profession logic, a person's status in doctoral education rests on his/her personal expertise in disciplinary research. Doctoral supervisors who have more advanced expertise in the discipline enjoy a higher reputation in the academic community and have more authority in doctoral education. Actors in the field including both doctoral supervisors and doctoral students seek to enhance their personal expertise, gain recognition among their peers and enhance their status in the academic community.

**Family logic:** in the context of doctoral education driven by family logic, a research group consisting of a supervisor and his/her supervisees becomes a family unit, called a supervision family, in which the doctoral supervisor acts as the patriarchal leader, and the supervisees become children. The relationship between a doctoral supervisor and his/her supervisees is a patronage relationship based on reciprocity. Doctoral students and doctoral supervisors behave like family members, express their unconditional loyalty towards their supervision family and seek to enhance the family honour together.

**Market logic:** according to market logic, doctoral education, doctoral degrees and doctoral graduates become profitable commodities and valuable assets in the market. The pursuit of a doctoral education is driven by the intention to increase the stakeholders' profits. Market and market-like activities are introduced, which increases competition in the context of doctoral education and favours applied doctoral research, especially industry-collaborative research.

**Corporation logic:** driven by corporation logic, the efficiency of doctoral education is emphasised, and performance-based management is implemented in the organisation of doctoral education. Hence, on-time graduation, academic publication and other activities that can demonstrate the effectiveness and efficiency of doctoral education management are encouraged. An employment relationship between universities and doctoral students is established as part of the process of managing doctoral education.

Furthermore, by tracing the origins of the identified logics in history as shown in the analysis, we found that the true inner forces behind the underlying logics are the state power, international academic norms, market influence and Chinese cultural tradition. The inner forces for the identified logics are almost aligned with the Clark's triangle of coordination in the higher education context (Clark, 1983), as state logic is imposed by the state authority, the profession logic by the academic oligarchy and the market logic and corporation logic by the market (Bleiklie et al. 2017). However, what is missing in earlier studies based on the realities of Northern America and Europe (Bleiklie et al. 2017; Clark 1983) is the discussion about the family logic from the Chinese cultural tradition. Our analysis results regarding family logic provide direct evidence of the strong influence from cultural tradition on the field of doctoral education in China and highlight the importance of considering Chinese higher education in the light of Western values together with the

Chinese socio-cultural context (Yang 2017). Such finding also manifests a mismatch between western theoretical frameworks and China's higher education context as already indicated in some earlier research (Wang 2010).

## Conclusion

The study, from the institutional logic perspective, for the first time provides a comprehensive analysis of the context of the Chinese doctoral education system. In summary, the development of the Chinese doctoral education system has adopted the international academic experiences and put them to work in the Chinese socio-cultural context under strong regulation by the state and increasingly strong market forces. As a result, currently the institutional environment for doctoral education in China consists of the logics of state, profession, family, market and corporation. Influenced by such a constellation of logics, the current Chinese doctoral education system has developed its distinctive features:

- (1) As addressed in many previous studies (Yang 2012; Guo 2009), the system is strongly regulated by the state and meanwhile highly dependent on the state's support.
- (2) Norms and values of the international academic world are shared and even taken for granted by supervisors and students in China.
- (3) Chinese doctoral supervision is characterised by strong family values, which has not been, but actually should have been thoroughly addressed in earlier research.
- (4) The identities of doctoral students in China are complex. They are not only academic apprentices and junior research workforce, but also academic children.
- (5) The relation between supervisors and students is not only professional ties, but also a parent-child relation. In most cases, it is hierarchical.
- (6) At institutional level, a strict and systematic quality management process has been developed to ensure quality.
- (7) While a low completion rate has been a concern for many universities in the West and been related to the performance of universities and students (Ghignoni 2017; Robinson 2004), this is not the case in China. On the contrary, the completion rate has been high in China, which has been one of the major concerns in ensuring quality.

The features of Chinese doctoral education mentioned above are interrelated, and all lead us to think about an issue causing widespread concern, that is, the quality of doctoral education. Based on the study of underlying logics, we propose that to enhance the quality of doctoral education in China, the professional identity of doctoral students in China should be further developed and their social and economic status should be enhanced. The process of doctoral training is a socialisation process of doctoral students to become academics, in which only by identifying the professional identity of doctoral students can they develop

into competent scholars with the capacity for independent thinking. In order to do so, first, the impact of family logic should be restricted and profession logic should always be given a prominent place in doctoral training. For instance, doctoral supervision should mainly concern academic issues. Second, the power of the influence of state logic should be further decentralised regarding funding. To be an independent academic, a doctoral student should be financially independent as well. For instance, external funding resources, such as funding from research councils, various foundations and industries should be open for doctoral students to apply directly to support their doctoral research, through which can the funding pressure on the government be relieved, and the income for doctoral students be increased. Third, to reduce the impact of family logic on quality evaluation, international experts could be invited to participate in the peer review of doctoral students' dissertations. In so doing, Chinese doctorates can also gain increasing recognition by the international academic world. Last but not the least, considering the strong state logic in the Chinese system, to implement the aforementioned suggestions, it would be more effective if they could be implemented with support from government policy.

In addition to the added value for research and practices in Chinese doctoral education, the significance of our study also lies in contributing to the knowledge pool by identifying and defining the logics in the field of doctoral education and proposing a generic analytical framework to understand the field. While the framework has proved useful in the Chinese context, it is expected also to be applicable to doctoral education systems elsewhere and for purposes of comparative research. For instance, in a follow-up study, we together with our colleague (Zheng et al. forthcoming) applied the framework to compare the Finnish and Chinese systems. We first identified the underlying logics in both systems and investigated similarities. Even influenced by the same logics, we compared the similarities and differences of the reflections/influences of the underlying logics. Through this approach, we discussed the compatibilities and challenges in developing cooperation between the two systems. Such an approach can also be applied to other doctoral education systems, thereby providing a much more applicable and analytical perspective to compare different systems.

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# PUBLICATION

## II

**Towards an analytical framework for understanding the development of a  
quality assurance system in an international joint programme**

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# Towards an analytical framework for understanding the development of a quality assurance system in an international joint programme<sup>1</sup>

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## Abstract

This paper intends to construct an analytical framework for understanding quality assurance in international joint programmes and to test it in a case analysis of a European-Chinese joint doctoral degree programme. The development of a quality assurance system for an international joint programme is understood as an institutionalization process of an organizational innovation, and the institutionalization process is also interpreted as a process of reconciling different institutional logics in the institutional changes. Based on these understandings, in the paper we construct an analytical framework by combining insights on conceptions of quality, the institutional logics perspective, and organizational innovation studies. The framework constructed aims mainly to tackle two issues: first, changes in multiple institutional logics underlying the quality assurance system, and second, factors facilitating/impeding the logics changes in the institutionalization process.

In the empirical analysis, we take an international joint doctoral programme between a Chinese university and a Portuguese university as an example to analyse the initiation and implementation of a quality assurance system in the programme. While developing a system accommodating the traditions and needs of both sides is not an easy task, we found that several factors, namely profitability, compatibility and the agency of institutional entrepreneurs, may facilitate the process.

**Keywords:** quality assurance, Europe, China, Portugal, doctoral education, international joint programme, organizational innovation, institutional logics

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## Introduction

Developing international joint programmes is one important strategy to develop and enhance collaborative partnerships between higher education institutions (HEIs). Based on a literature review (Aerden and Reczulska 2013; Knight 2008; Kuder, Lemmens and Obst, 2013), we define an international joint programme (also called international collaborative degree programme), as a programme that is coordinated and offered jointly by different HEIs and/or research institutes from different countries leading to a (single or joint or double/multiple or combined) degree. International joint programmes 'are built on the principles of international academic collaboration and can bring important benefits to individuals, institutions and national and regional education systems' (Knight 2011, 299). While the benefits of international joint programmes are many and varied (Knight 2008), quality assurance (QA) is recognized as a significant challenge to tackle in organizing international joint programmes (Aerden and Reczulska 2013; Knight 2008; Tauch, Rauhvargers, and European University Association 2002). By definition, 'Quality assurance is about ensuring that there are mechanisms, procedures and processes in place to ensure that the desired quality, however defined and measured, is delivered' (Harvey and Green 1993, 19). However, so-far the research focus in analysing international joint programmes has been mainly on classifying the relevant concepts or mapping the practices (Aerden and Reczulska 2010, 2013; Knight 2008, 2011; Kuder and others 2013; Michael and Balraj 2003; Obst and Kuder 2009; Tauch, Rauhvargers, and European University Association 2002; Waterval et al. 2015). There has been only little research focusing on enhancing theoretical understandings of QA of international joint programmes, and this has impeded the development of research on and practices of QA in international joint programmes.

Meanwhile, with the launch of the EU-China Comprehensive Strategic Partnership in 2003, the collaborative partnership between Europe and China in higher education (HE) enters into a massive development stage (Cai 2013). Against this background, both Europe and China have articulated their firm intention to develop European-Chinese collaborative partnership in the field of doctoral education (EUCNDOC 2016). By 2016, six international joint doctoral programmes were established due to the joint effort of European and Chinese HEIs and approved by the Chinese government (Ministry of Education of China 2016). Quality remains a key issue for stakeholders in Europe and China to address in the joint provision of doctoral education. In contrast to the increasing popularity of European-Chinese joint doctoral programmes, there is little research on the QA of such programmes. It is even rare to see QA studies of cross-border education provision in general (QACHE 2016; Stella 2006; Stella and Bhushan 2011; Zwanikken et al. 2013). We consider that one barrier constraining the development of this research area is the lack of pertinent theoretical or analytical frameworks for understanding the QA of international joint programmes.

Therefore, to bridge the knowledge gaps mentioned above, we raise two research questions in this paper: (1) how can the initiation and implementation of a QA system in an international joint programme be conceptualized in an analytical framework? (2) How can such a framework be applied and tested for analysing the development of a QA system in a European-Chinese joint doctoral programme? In line with this thinking, this paper consists of two parts: analytical framework construction and empirical case analysis. Through these two research questions, we endeavour to address three key issues, namely the nature of the development of QA in international joint programmes, the complexity of the QA system, and factors facilitating/impeding the QA system's development.

## Analytical framework

### *Conceptions of quality in HE*

To develop a framework for understanding QA in international joint programmes, we start with the concept of quality, as actors' shared conceptions of quality determine their judgement and choice of QA approaches.

It is difficult to define quality in HE, as quality is an 'elusive' (Green 1994, 22) and ambiguous concept (Harvey and Knight 1996). It has 'been defined with different perspectives and orientations, according to the person, the measures applied and the context within which it is considered' (Sahney, Banwet, and Karunes 2004). What has nevertheless been commonly cited is a classic definition of quality in HE developed by Harvey and Green's (1993), in which five categories of the conceptions of quality are distinguished and described as follows:

- (1) Quality as exception: A traditional concept of quality in relation to the concept of 'excellence', including three notions: 1) the traditional notion of quality as distinctive, 2) a view of quality as embodied in excellence, 3) a weaker notion of exceptional quality, as passing a set of required/minimum standards.
- (2) Quality as perfection: A concept concentrating on process. The concept of perfection is related to the ideas of zero defects and getting things right first time. It is bound up with the notion of a quality culture, which refers to one in which everyone in the organization, not just the quality controller, is responsible for quality.
- (3) Quality as fitness for purpose (FFP): Quality is judged by the extent to which a product or service meets its stated purpose. The purpose may be (1) FFP1: customers' specifications, defined by customers, or (2) FFP2: institution's mission, defined by institutions or external professional body.
- (4) Quality as value for money: Quality is equated with level of specification and related to cost. This notion assesses quality by return on investment or expenditure.

- (5) Quality as transformation: A notion seeing quality as a transformative process, which in HE adds value to students through their learning experiences.

Srikanthan and Dalrymple (2003) argued that Harvey and Green's fifth interpretation of quality, quality as 'transformation' is a meta-quality concept, which subsumes the other ones, thus being excluded in their categorization. Actually Harvey and Knight (1996) also maintained that the other four concepts of quality are rather possible operationalizations of transformative processes than ends in themselves. Thus, in our categorization of conceptions of quality we only consider the first four categories of quality defined by Harvey and Green (1993).

In addition, Harvey and Green's (1993) understandings of quality entails two orientations: 'outcome orientation' and 'process orientation'. Quality is either concerned with outcome, the final product/service, or the process of producing these (Harvey and Green 1993; Sahney, Banwet, and Karunes 2004).

### *Quality of HE from the perspective of institutional logics*

We believe each conception of quality is associated with certain institutional logics, and hence the aforementioned concepts of quality can be understood from that perspective. Institutional logic is defined as 'a set of material practices and symbolic constructions' that constitute an institutional order's 'organizing principle' and are 'available to organizations and individuals to elaborate' (Friedland and Alford 1991, 248). The primary motivations for institutionalists to develop the institutional logics approach are twofold (Cai and Mehari 2015): one is to use institutional logics to concretely define the content and meaning of institutions (Thornton and Ocasio 2008); the other is to better explain the process of institutional changes (Thornton, Ocasio, and Lounsbury 2012). Such a perspective sees institutionalization as a process of reconciling different or even competing institutional logics and draws particular attention to institutional compatibility and the role of agency in the process of institutional changes. Hence, it is particularly useful for understanding the development of a QA system in a joint programme offered by HEIs from different contexts and traditions.

Thornton, Ocasio and Lounsbury (2012) proposed a typology of seven ideal types of logics at societal level, including logics of state, market, family, profession, religion, community and corporation. While the concept of institutional logics was originally developed for a better understanding the institutional contexts of our societies (Alford and Friedland 1985; Friedland and Alford 1991), these logics can also be available at the level of organizational field (Greenwood et al. 2011) and organizations (Cai and Zheng 2016).

Next we relate the categorization of the conceptions of quality (Harvey and Green 1993) to outcome/process-orientation and the typology of institutional logics (Thornton, Ocasio, and Lounsbury 2012) as shown in Table 1.



*Table 1. Concepts of quality in HE: Aligning approaches and logics*

Concepts	Key notions of the definition	Outcome/process-orientation	Underlying logics
Exception	(1) Traditional notion of quality: distinctiveness (2) Exceeding high standards (excellence 1) (3) Checking standards	Outcome-orientation	Profession logic
Value for money	(1) Accountability (2) Customer's charter		Market logic
Fitness for purpose (FFP)	(1) FFP1: customer specification (2) FFP2: institution mission		Market logic and bureaucratic state logic
Perfection (consistency)	(1) Zero defects (excellence 2) (2) Getting things right first time (3) Quality culture	Process-orientation	Democracy logic and corporation logic

To facilitate the understanding of the table, we first describe the definition of the relevant logics that have been mentioned:

- (1) **Profession logic:** Profession is understood as a relational network on the basis of actors' personal expertise, and following profession logic, organizations/actors seek to enhance its status and reputation by increasing personal expertise (Thornton, Ocasio, and Lounsbury 2012).
- (2) **Market logic:** Actors in a society of market logic are like shareholders in a free market. Following market logic, actors act to pursue their own profits and interests, and emphasize efficiency in gaining return on investment (Thornton, Ocasio, and Lounsbury 2012).
- (3) **Corporation logic:** Actors in a society of corporation logic becomes employees under the control of corporate managers (Blau and Scott 2003). Following corporation logic, all employees are expected to conduct standardized corporate practices (Thornton, Ocasio, and Lounsbury 2012). Similar to market logic, corporation logic also emphasizes efficiency, but its focus is on efficiency in managerial practices (Thornton, Ocasio, and Lounsbury 2012).
- (4) **Bureaucratic state logic and democratic logic,** are two variants of a logic of state, which is understood as a redistribution mechanism (Thornton, Ocasio, and Lounsbury 2012). Friedland and Alford (1991) distinguish between bureaucratic state logic and democracy logic. Following bureaucratic state logic, actors attempt to convert diverse individual situations into a basis for routine official decisions that can be made by consensus (Friedland and Alford 1991). Moreover, bureaucratic state logic entails rationalization and the regulation of human activities by legal and bureaucratic hierarchies (Friedland and Alford 1991). Following democracy logic, actors attempt to convert diverse issues into decisions that can be made by majority vote.

Next we elaborate the alignment between conceptions of quality and institutional logics in Table 1.

- (1) Quality as exception is aligned with profession logic. 'Exception' entails an elitist view of high quality in a product or service in terms of its reputation (Harvey and Green 1993), which reflects a profession logic. The notion rests on the idea of 'providing a product or service that is distinctive and special' (Green 1994, 13), in which sense, its perception of quality is outcome oriented.
- (2) Quality as value for money is aligned with logic of market. Harvey and Knight (1996) perceive 'value for money' as a 'market view of quality' (7). This notion sees education as a commodity available at a price (Harvey and Green 1993), which is a reflection of market logic. The notion also stresses return on investment or expenditure (Harvey and Green 1993), thus naturally revealing its outcome orientation.
- (3) Quality as fitness for purpose reflects market logic and bureaucratic state logic. First, fitness for customers' specifications (FFP1) is concerned with satisfying customers' various needs, and encourages the pursuit of market niche and competition (Harvey and Knight 1996). In this sense, it indicates a logic of market. Second, similar to FFP1, fitness for institutions' mission (FFP2) indicates a logic of market, as the notion subsumes fitness for 'the market as perceived by the institution' (Harvey and Green 1993, 19) and stresses efficiency in resource utilization to fulfil an institution's mission (Green 1994; Sahney, Banwet, and Karunes 2004). However, in contrast to FFP1, besides market logic, FFP2 also indicates a logic of bureaucratic state, as FFP2 encourages external QA approaches, which are usually related to government policies or mandates and the redistribution of the HE budget (Harvey and Knight 1996). In either FFP1 or FFP2, quality is judged by the extent to which a product or service eventually meets its stated purpose, clearly reflecting an outcome-orientation.
- (4) Quality as perfection is aligned with democracy logic and corporation logic. The concept stresses standard managerial behaviours in the quality management process, which reflects a logic of corporation. Further, quality culture, a bounded concept of this notion, entails a logic of democracy, by emphasising 'democratising quality by making everyone involved in a product or process responsible for quality at each stage' (Harvey and Knight 1996, 16). The notion focuses on the process of producing products/services, which is naturally a process-orientation.

Although the four concepts are associated with different logics and different orientations, they are not mutually exclusive (Harvey and Knight 1996). In practice, people may switch from one perspective/approach to another without being conscious of any conflicts (Harvey and Green 1993, 28).

### *The QA system in an international joint programme as an organizational innovation*

We consider a QA system in an international joint programme as an organizational innovation, which is defined as ‘any departure from the traditional practices of an organization’ (Levine 1980, 4), on the grounds that the QA system in an international joint programme has departed from any QA systems in the partner organizations. Since there may be different understandings (and underlying logics) of quality between educational providers in an international joint programme, the institutionalization process is also a process of reconciling different and even competing institutional logics.

An organizational innovation goes through four stages in its institutionalization process: Stage 1, recognition of need for change; Stage 2, planning and formulating a solution to satisfy the recognized need; Stage 3, implementation of a plan as a trial-and-error process; Stage 4, institutionalization or termination (Levine 1980). Correspondingly, we distinguish four phases in the development of a QA system in an international joint programme, as follows:

- (1) Preparation phase, from Innovation Stage 1 (Recognition of needs for change) to Stage 2 (Planning and formulating a solution), when the actors identify the need for a QA system and plan for its establishment.
- (2) Initiation phase, the beginning of Innovation Stage 3 (Implementation), the initial moment when the actors establish the QA system.
- (3) Implementation phase, the later part of Innovation Stage 3 (Implementation). This phase begins immediately after the QA system is established and lasts until the QA system becomes institutionalized or is terminated.
- (4) Institutionalization/Termination phase, when the innovation has been institutionalized/terminated.

Levine (1980) also suggested that the extent to which an innovation is institutionalized depends on two factors, namely profitability and compatibility. Profitability is about how an innovation satisfies the needs of the host organization (called general profitability) or the needs of the individual members or sub-groups within the hosts (called self-interest profitability) (Levine 1980). The higher level of profitability perceived either by the hosts or their sub-groups, the more likely it is that the innovation will be institutionalized. Compatibility refers to ‘the degree to which the norms, values, and goals of an innovation are congruent with those of the host’ (Levine 1980, 17). While it is expected that higher degree of compatibility leads to greater extent of institutionalization of the innovation, the innovation by reason of departing from traditional practices often challenges the traditional norms and values of the host organization (Levine 1980).

Cai and co-authors (Cai, Zhang, and Pinheiro 2015; Cai et al. 2016) further improved Levine’s conceptualization by using the insights of institutional theory. First, they enhanced Levin’s concept of institutionalization of innovation by explicitly using the definition of

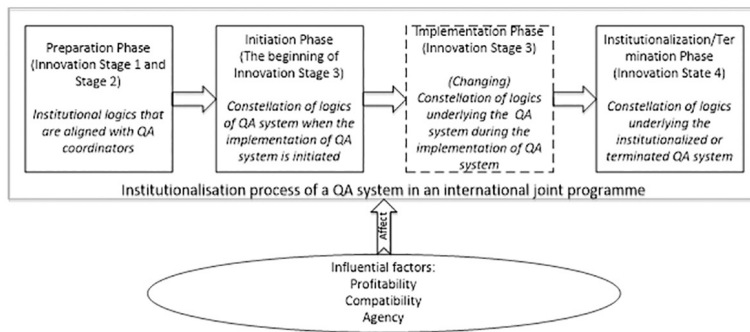
institutionalization by Selznick (1957, 16); institutionalization is an inherently historical process:

*It is something that happens to an organization over time, reflecting the organization's own distinctive history, the people who've been in it, the groups it embodies and the vested interests it has created, and the way it has adapted to its environment.*

Second, by criticising Levine for only looking at institutional compatibility from an intra-organizational perspective (Cai, Zhang, and Pinheiro 2015), they draw attention to the external dimension of compatibility because the survival of an organization depends largely on how it conforms to external social legitimacy (Meyer and Rowan 1977). More importantly, they add agency as a key factor affecting the institutionalization of an innovation (Cai et al. 2016). Agency refers to the actions conducted by institutional entrepreneurs (Battilana, Leca, and Boxenbaum 2009), who have the resources and interest to implement institutional changes (Thornton and Ocasio 2008), to change the existing institutional orders/logics in order to facilitate innovation. Agency can affect the institutional changes by exerting influence on the actors' focus of attention (Cai and Liu 2015).

Therefore, profitability, compatibility and agency are three key influential factors in developing the QA system. More specifically, in the context of international joint programmes, the profitability of the QA system refers to both the economic and non-economic benefits available for the joint programme (general profitability) and partner institutions (self-profitability), for example, the prestige and growth of the programme and its partner institutions, efficiency of management, improvement of quality of the programme, etc. Compatibility refers to the congruence of values, goals and norms of the different partner institutions in the QA system of the joint programme (intra-organizational compatibility), as well as the congruence of values, goals and norms of the joint programme with those of partner institutions (external compatibility). Agency in this case refers to actions for developing a QA system that are undertaken by those programme coordinators with the resources and interest and also involvement in the development of the QA system. The key programme coordinators are the institutional entrepreneurs of the QA system. We refer to them here as 'QA coordinators'.

The theoretical propositions mentioned above are illustrated in Figure 1, which includes a few key elements, namely the stages of institutionalization of a QA system as an organizational innovation, (mingling) institutional logics associated with each stage of the institutionalization process, and factors affecting the institutionalization process.



*Figure 1. Institutionalization process of a QA system in an international joint programme*

When applying the analytical framework to understand QA system development in an international joint programme, answers are sought to the following questions:

- How did the key QA coordinators in the case articulate their conceptions of quality? And what are the underlying logics and approach-orientation?
- What is the constellation of the institutional logic in the Initiation Phase? How has the QA system been initiated?
- What changes in institutional logics have occurred since the Initiation Phase? How has the QA system been adjusted during the Implementation Phase?
- How have the influential factors, namely profitability, compatibility and agency, affected the institutionalization process of the QA system?

## Empirical case analysis

For our empirical study, we choose the Doctoral Programme of Management in Healthcare (DMH), an international joint programme between the Southern Medical University of China (SMU) and the ISCTE-University Institute of Lisbon (ISCTE-IUL). We evince two reasons for this choice: First, it is an international joint programme, which is suitable for us to test the analytical framework. Second, it is a representative case of a European-Chinese joint doctoral programme, which can enhance our scholarly understanding of European-Chinese joint doctoral programmes. This case programme reflects the main characteristics of existing European-Chinese joint doctoral programmes: (1) Most of them are in the fields of business administration and management; (2) the education is provided in China and the students are Chinese; (3) in the majority of the programmes, graduates receive European partner institution's degrees on graduation; (4) most European partner institutions are from Southern Europe.

The DMH programme was established on the basis of the partner institutions' common interests. SMU is one of the leading medical universities in China, which has trained

numerous medical professionals for the country. In recent years, SMU has recognized the growing need to provide high-quality professional education for senior managers in the healthcare industry to cope with the healthcare reform in China. ISCTE-IUL is a public Portuguese university with near 30 years' experience of co-operating with Chinese universities. It is extremely interested in bringing its relevant expertise to bear in the Chinese healthcare reform. In light of common interests, the programme was first established and approved by the Ministry of Education of China (MoE) for student recruitment for a two-year trial in 2010. In 2012, the DMH programme passed the MoE's accreditation and began to recruit students nation-wide. Currently the programme enrolls 20-25 Chinese students per year. Successful graduates will receive their doctoral degrees from ISCTE-IUL.

The empirical fieldwork was carried out from September 2014 to May 2015 through the authors' visits to the field. The empirical data were collected by classroom observation, participation in thesis seminars and student-supervisor meetings, interviews with key QA coordinators and supervisors, and informal communication with students and administrators in the programme. In this case, two academic directors of the programme (A<sub>1</sub>, B<sub>1</sub>), one administrative director (A<sub>2</sub>) and one programme coordinator responsible for the QA of students' theses (B<sub>2</sub>) are identified as the key QA coordinators. We managed to talk to all of them, three (A<sub>1</sub>, A<sub>2</sub> and B<sub>1</sub>) by interview, and one (B<sub>2</sub>), as a co-author of the article, who participated in the study and shared his experiences of the development of the programme. Table 2 summarizes the case study participants' information.

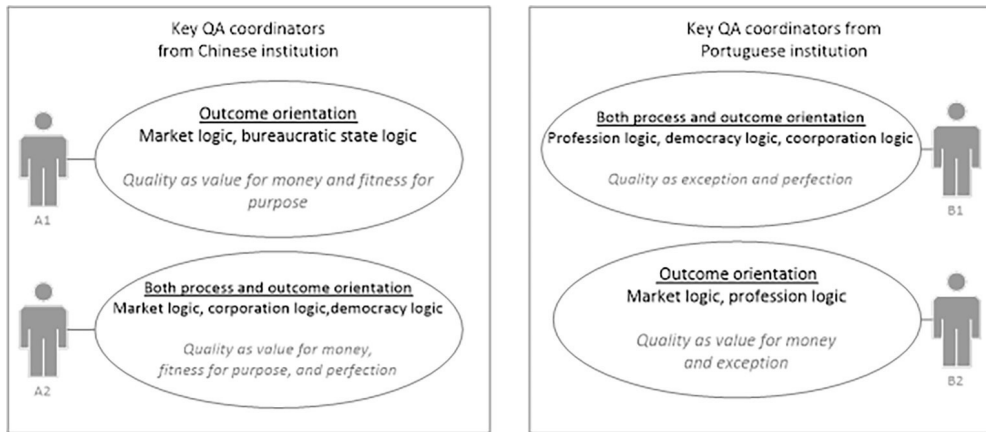
*Table 2 Participants' information*

No.	Interviewee	Role of interviewees	Method of data collection	Date of data collection
1	A1	QA coordinator; academic director of the DHM programme, dean of School of Humanity and Management in the SMU	Interview	17.09.2014
2	A2	QA coordinator; administrative director of the DMH programme and head of the International Affairs Office in the School of Humanity and Management in the SMU	Interview	17.05.2015 and 19.05.2015
3	B1	QA coordinator; professor, academic director of China's programmes in the ISCTE-IUL	Pair interview (together with B3)	15.04.2015
4	B2	QA coordinator; programme coordinator who is responsible for the QA of students' theses in the ISCTE-IUL	Co-authoring	-
5	B3	Senior professor from the ISCTE-IUL	Pair interview (together with B1)	15.04.2015
6	B4	Supervisor and lecturer	Interview	17.05.2015
7	B5	Supervisor and lecturer	Interview	17.05.2015
8	A3	Administrator, deputy head of the International Affairs Office	Informal communication	17-19.05.2015
9	A4	Administrator in the International Affairs Office	Informal communication	17-19.05.2015
10	S1	Programme student	Informal communication	17-19.05.2015
11	S2	Programme student	Informal communication	17-19.05.2015
12	S3	Programme student	Informal communication	17-19.05.2015

We coded and analysed the collected data on the basis of our theoretical interpretation and the analytical framework proposed above, with an assistance of Nvivo software. Next, based our data analysis, we will directly respond to the aforementioned four questions.

***How did the key QA coordinators in the case articulate their conceptions of quality? And what are the underlying logics and approach-orientation?***

Our data analysis reveals that the four key QA coordinators in the case, namely A1, A2, B1, B2, understood quality in the case programme in different ways. There are even differences between coordinators from the same institutions, and their perceptions reflect the corresponding institutional logics and orientation of QA approaches (see Figure 2).



*Figure 2. Logics and approaches orientation as articulated by the key QA coordinators of the case programme*

First, we look at the Chinese QA coordinators. The Chinese QA coordinators' perceptions of quality of the case programme reflected a mixture of logics of market, bureaucratic state, corporation and democracy, but to varying extents. They also had different views regarding outcome or process orientation in QA.

For instance, A1's perceptions entailed a mixture of market logic and bureaucratic state logic. In our interview, A1 clearly linked quality to the concept of 'value for money', and believed that the education provided in the case programme would provide students with what they pay for. This indicates a market logic. Further, A1 supported the view of quality as fitness for the institution's mission (FFP<sub>2</sub>), and stressed the significance of the external accreditation of the case programme, which was associated with the Chinese government regulation and entailed a bureaucratic state logic. In addition, A1 highlighted the importance of learning outcome and the result of programme accreditation, which explicitly reflected his outcome orientation regarding QA.

The perceptions of A1 were to a large extent shared by A2, hence A2's perceptions also reflected market logic and bureaucratic state logic. A2 contended that the network provided in the case programme itself was indeed what students pay for, which may be taken as an expression of quality as value for money and reveals a logic of market. Further, A2 saw quality as fitness for customers' specifications (FFP<sub>1</sub>) as she maintained that the purpose of her job was to satisfy and coordinate students' and supervisors' needs. The emphasis on FFP<sub>1</sub> and the value of the programme as an affordable commodity revealed A2's outcome orientation regarding QA. But A2's approaches are not solely outcome-oriented. She also saw quality as perfection concerning process, which entailed the logic of corporation and democracy. For example, her claim that QA should be a standardized process revealed a logic of corporation. Further, she demonstrated a democracy logic by stressing the quality



culture. She maintained that the key to the success of this programme is that everyone feels responsible for quality and is involved in the process.

To some extent, the Portuguese QA coordinators articulated some perceptions of the quality of the case programme similar to those of the Chinese QA co-ordinators. These included seeing it as value for money and perfection, but they differed in seeing quality as exception. Their perceptions were underpinned by a mixture of logics of profession, democracy, cooperation and market. However, there were also differences between the Portuguese QA coordinators (B<sub>1</sub>, B<sub>2</sub>), in terms of aligning logics as well as in QA approaches orientation.

For instance, B<sub>1</sub>'s perceptions were driven by the logics of profession, corporation, and democracy. B<sub>1</sub> stressed the importance of meeting the academic standard in ISCTE-IUL. It demonstrated her view of quality as exception, and entails a logic of profession. On the other hand, B<sub>1</sub> believed that QA is relevant to the standardized process and perceived quality as perfection. Her assertion of giving structure to the QA process demonstrated her support for standardized process management and reflected a logic of corporation. She stressed quality culture, which was underlined by a democracy logic. For instance, she stated that 'we grow with these students, not only the supervisors, including myself, the academic director, administrative director. So everybody is taking care of each student in particular'. Similar to A<sub>2</sub>, B<sub>1</sub> associated QA with both outcome and process. For instance, her statements, such as 'because we give the degrees, we must control the quality', explicitly manifested her outcome orientation to QA, but meanwhile her emphasis on standard process management revealed her process orientation.

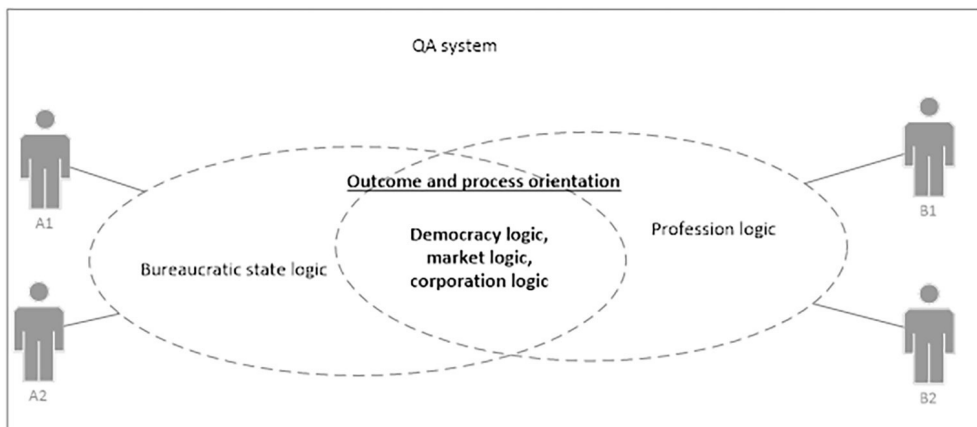
Similar to B<sub>1</sub>, B<sub>2</sub>'s perception also entailed a logic of profession. B<sub>2</sub> emphasized that students should follow the academic rules and standards of ISCTE-IUL, which reveals his perception of quality as meeting a specific standard. He also held an elitist view of quality and often associated quality with a programme's reputation. His perceptions in this respect reveal a clear profession logic. However, in contrast to B<sub>1</sub>, B<sub>2</sub>'s perceptions also reflect a logic of market. Driven by market logic, he implies that the quality of the case programme is the added value for students' investment. He even explicitly supported the idea of introducing market logic into the QA system of the case programme. All his perceptions, such as meeting a certain standard, reputation, and added value of investment in learning, all indicate an outcome orientation to QA.

Thus the logics and approaches to QA as articulated by A<sub>1</sub>, A<sub>2</sub>, B<sub>1</sub>, B<sub>2</sub>, differs from person to person, although there are some commonalities. In general, we can conclude that market logic, corporation logic and democracy logic existed in both institutions. Moreover, outcome and process orientation to QA were also apparent. With the establishment of the QA system in the case programme, these different logics and approaches in orientations were introduced or reinforced in the QA system. Next we will describe the establishment of the QA system and the initial constellation of the logics of the system.

*What is the constellation of the institutional logic at the Initiation Phase? How has the QA system been initiated?*

Soon after the establishment of the case programme, the QA coordinators identified a need for a new QA system tailored for the programme for the following reasons: (1) the existing QA systems at partner institutions cannot comply with the national policies and institutional regulations on both sides, nor can they reflect mutual understandings and acceptance. (2) Both institutions needed to accommodate the new stakeholders, the students and staff members in the case programme, who are different from those in their home institutions. (3) There was also a need for a new QA system to overcome practical problems in administration and ensure efficient management. (4) Professional education in the field of management called for a new QA programme. Given the increasing demand in China for professional education in the field of management, competition in China's education market is fierce. The QA coordinators in the case programme believed that the quality of the programme is the key to success in this competitive market. For the QA coordinators, a new QA system that addressed all the needs mentioned above was needed, but no such system was available in either institution.

To satisfy the need for a new QA system, a QA team consisting mainly of the four key QA coordinators was established in the case programme. The QA team drew up a plan for the QA system and soon implemented it. In so doing, the logics of QA behind coordinators' articulated conceptions, mentioned in Section 3.1, came to form the initial constellation of logics of the QA system at Initiation Phase (see Figure 3). There may be some other institutional logics in the institutional environment of the QA system, stemming from the institutional environment of the programme or introduced into the QA system by other actors. However, as the QA coordinators were the institutional entrepreneurs in the QA system with the main resources, and were also those who took the leading role in developing the QA system, we believe that the institutional logics in keeping with their conceptions had the most significant impact on the development of the QA system.



*Figure 3. Underlying logics of the QA system at the Initiation Phase*

As Figure 3 shows, democracy logic, corporation logic and market logic, as the common logics accepted by both institutions, dominated the QA system in the Initiation Phase. Other logics, bureaucratic state logic from Chinese QA coordinators and profession logic from Portuguese QA coordinators, affected different aspects of the QA system. Both outcome and process orientation in approaches to QA were adopted in the QA system. Driven by this constellation of institutional logics and approach-orientations to QA, several QA approaches have been implemented in the case programme.

First, driven by a logic of democracy, efforts have been made to enhance democratic participation. For instance, a special programme office in SMU was established to be a 'hub' to connect different stakeholders. Meanwhile, a Chinese office was established in ISCTE-IUL. In addition, a QA coordinator from ISCTE-IUL, namely B<sub>1</sub>, was appointed to SMU as the representative coordinator of ISCTE-IUL, and worked constantly with Chinese stakeholders.

Second, motivated by a logic of corporation, A<sub>2</sub> and B<sub>1</sub> tried to improve the efficiency of management and standardize the managerial practices in the QA process by adopting corporate practices. For instance, personnel training, such as administrators' training and supervisors' training, was the main tool to standardize actors' QA approaches in the case.

Along with the reinforcement of corporation logic and democracy logic, process-oriented QA approaches were implemented. A<sub>2</sub>'s and B<sub>1</sub>'s approaches of widening of stakeholder participation and standardizing managerial practices were all intended to be implemented in the QA process. For instance, B<sub>1</sub> maintained that she endeavoured to involve supervisors and students in the QA process.

Third, motivated by a market logic, the Chinese QA coordinators made full use of their personal networks and applied a 'Star Student Strategy' to open the programme's market in China. Strategically they enrolled all well-known professionals in the healthcare industry in the region as their first and second cohorts of students. These students became star students to attract more students to the programme later. Also, through these students, the programme gradually attained its market position. Further, following the logic of market, the Chinese QA coordinators also tried to identify the diverse needs of their customers (mainly students), and to communicate proactively with students to meet students' needs.

Fourth, bureaucratic state logic and profession logic, on the part of the Chinese QA coordinators and Portuguese QA coordinators influenced the respective approaches to QA coordinators. Guided by bureaucratic state logic, the Chinese QA coordinators took full responsibility for conducting routine administrative practices and getting approval for the external quality accreditation of the programme in China.

Meanwhile, driven by a profession logic, the Portuguese QA coordinators tried to ensure that students met the academic standards of the programme. The academic standard for the programme mainly followed that of ISCTE-IUL, including graduation criteria, thesis requirements, and supervision and lecturing requirements, which were described in a programme handbook. Besides a double-supervisor approach, one local Chinese professor

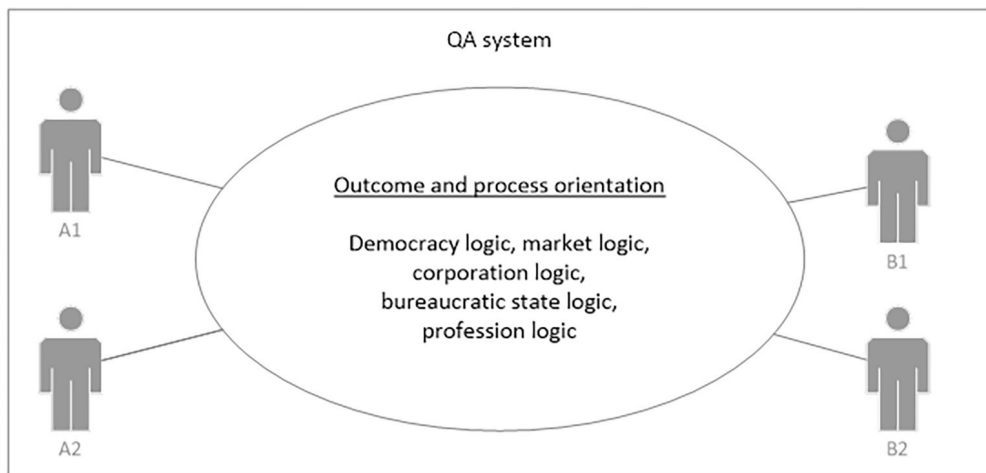
and one Portuguese supervisor were designated in the Initiation Phase to ensure full utilization of the expertise available in the two institutions.

Outcome-oriented QA approaches were implemented along with the enforcement of market logic, bureaucratic state logic and profession logic. The approaches mentioned above, such as getting approval in the external accreditation, increasing student numbers, enhancing the programme's market position and ensuring that students met the academic standards of ISCTE-IUL, all manifest QA coordinators' emphasis on study outcomes.

In the Initiation Phase, the development of the QA system was guided by the constellation of logics of market, democracy, corporation, bureaucratic state and profession. Nevertheless, this constellation of logics was not yet completely integrated. Common logics that were widely accepted by both sides affected the QA system by mutual enforcement from both institutions. The logics that were not widely accepted affected the QA system in some particular aspects where the logics were accepted. In both cases, the process and outcome orientation of QA approached were adopted.

*What are the changes in institutional logics since the Initiation Phase? How has the QA system been adjusted during the Implementation Phase?*

Given that the completion of one cohort's studies required at least four years, the implementation of the QA system took years and was an on-going continuous improvement process. In the last five years the constellation of institutional logics in the Initiation Phase have further interacted and become reconciled with each other, gradually becoming an integrated constellation of logics (See Figure 4).



*Figure 4 Institutional logics of the current QA system*

Even so, the democracy logic, corporation logic, market logic remained the dominant logics, and had a significant impact on the development of the QA system: (1) under the impact of democracy logic, a quality culture was embraced and developed in the programme. Br suggested that because of the strong quality culture, the quality control in the programme was much stricter than that in their home institutions. (2) With the support of corporation logic, a standardized QA process management was adopted and reinforced in the last five years. In the process of standardization, the programme management handbooks were written and continuously improved. (3) Driven by market logic, the QA coordinators tried to attract more students from diverse backgrounds and to enhance the market position of the programme. The range of target students for the programme was changed from provincial to national, from the healthcare industry to the healthcare sector and its related areas.

In addition, the dominant logics competed and interacted with profession logic and influenced the modification of academic requirements and standards of the programme: (1) our data showed that democracy logic reconciled with profession logic and changed the supervision mode in the programme. As a result, the supervision for doctoral students in the programme changed from the traditional relationship involving only supervisors and students, to a new supervision mode, involving supervisors, students, programme coordinators, administrators and translators/interpreters. (2) Profession logic was also influenced by corporation logic, which led to the standardization of the thesis supervision process. A checklist system for monitoring thesis process was established, following which students and supervisors were required to complete a certain task at each checkpoint and this was monitored by the programme coordinators, instead of relying solely on supervisors' and students' own communication and interaction. 3) Along with the interaction of market logic with profession logic, the curriculum and supervision policy on the programme were adjusted to satisfy students' needs. The dual supervisor policy was adjusted to be a double supervisor approach together with sole ISCTE-IUL supervisor approach.

Unfortunately, the interaction of bureaucratic state logic with other logics was not so noticeable in the last five years. Nevertheless, driven by bureaucratic state logic, the QA coordinators stressed the government's accreditation and adjusted the QA system according to the external evaluation results every two years.

The underlying institutional logics of the QA programme have been in a state of dynamic change for the last five years, which has led to the development of the programme QA system. Next we will continue to explore why the QA system developed in such a direction.

*How have the influential factors, namely profitability, compatibility and agency, affected the institutionalization process of the QA system?*

Our data analysis confirmed our theoretical assumption that profitability, compatibility and agency are three possible influential factors that affect the institutionalization process of the QA system:

Our case analysis indicates that when different logics are in competition, if an institutional logic's impact can lead to higher profitability, the logic will therefore remain/become dominant. For instance, in our case, the market logic remained dominant in the QA system, mainly because the impacts, such as revising the recruitment policy to attract students from diverse background and enhancing market position and reputation of the programme, have increased the benefits for the case programme. Profitability enhancement is an effective factor for guiding the development of a QA system as it strikes at the heart of what those involved in innovation really care about - the ability of the innovation to satisfy the needs of the organization and innovation itself.

Our data analysis also showed that in the institutionalization process of the QA system, institutional logics change towards higher compatibility of the QA system. In our case, democracy logic and corporation logic were found to dominate the QA system, because they can reinforce and enhance the compatibility of the QA system with the programme and home institutions. For instance, following democracy logic, quality culture was well developed in the case. It encouraged stakeholders in the programme to communicate and collaborate for QA, and established a common value and goal for stakeholders in the QA system. It also enhanced the mutual understanding and culture acceptance of different stakeholders. The same applies to the standardization of the QA process, which was a reflection of corporation logic. Driven by corporation logic, the stakeholders followed standardized practices in the QA process, which minimized conflicts of behaviours in the QA system and enabled the norms and values of actors in the QA system to be more congruent. Compatibility enhancement is an effective mechanism for transforming institutional logics as it can enable institutional logics to become more congruent with or even dominant in the institutional environment.

Agency is the third key influential factor. In our case, various QA approaches (agency) were implemented by the QA coordinators (A<sub>1</sub>, A<sub>2</sub>, B<sub>1</sub>, B<sub>2</sub>) and affected the changes in institutional logics in the QA system. For example, democracy logic and corporation logic were reinforced by A<sub>1</sub>'s efforts to develop a quality culture and standard process management, such as organizing supervisors' training, leading managers' meetings and offering students consultancy services. Because these actions drew other actors' attention to democracy logic and corporation logic, they to some extent influenced other actors' behaviours directly. Agency is one key mechanism for changes in institutional logics. It can affect the changes in institutional logics by influencing other actors' attention and actions.

## Discussions and Conclusion

This study contributes to the existing body of knowledge by developing an analytical framework for understanding the institutionalization process of a QA system in an international joint programme and applying it to a European-Chinese joint doctoral programme. In so doing, we largely rely on institutional theory, particularly the

institutional logics perspective. We also relied on the theory of organization innovation and the literature of quality in HE.

By applying the analytical framework to a concrete case, this paper is also an initial attempt to conduct an empirical study on QA in European-Chinese joint doctoral programmes, specifically the development of a QA system in a Portuguese-Chinese joint doctoral programme. The QA system in the case was institutionalized in keeping with the changes in institutional logics. In the last five years, logics of market, corporation and democracy in the QA system remained dominant and reinforced quality culture, standard process management and marketing approaches in the programme. The dominant logics also enacted the impacts of other logics and resulted in changes in certain aspects of the QA system. Changes in institutional logics in the QA system are affected by the QA system's profitability, its compatibility and the agency of key institutional entrepreneurs (i.e. QA coordinators). Besides, contrary to our common perception that democracy logic is usually weak in Chinese society, our study indicates that democracy logic is consonant with Chinese QA coordinators' conceptions and actions. This may imply that even though democracy logic is weak in the Chinese social and political sphere, it may have a stronger foothold in academia.

Although the empirical case analysis has to some extent verified the usefulness of the analytical framework, increasing the theoretical understanding of a QA system in an international joint programme requires more empirical studies.

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# PUBLICATION III

**Collaboration between Europe and China in doctoral education: historical development and future challenges**

Gaoming Zheng, Yuzhuo Cai

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# Collaboration between Europe and China in Doctoral Education: Historical Development and Future Challenges<sup>1</sup>

Gaoming Zheng<sup>2</sup> and Yuzhuo Cai<sup>3</sup>

## Abstract

This chapter answers two research questions: (1) How has collaboration between Europe and China in doctoral education developed since the 1980s? and (2) What are the challenges of collaboration between Europe and China in the area of doctoral education? By answering these questions, the chapter explains how China, after moving away from the Soviet model of higher education, developed its cooperation with Europe in doctoral education in recent decades, along with the changes in interests and needs of both sides toward mutuality and respect. The chapter also provides recommendations to increase collaboration between Europe and China in the future. The study applies a qualitative method mainly by analyzing secondary data, such as the academic literature, government policy documents, and strategic documents.

## Introduction

From 1949 to the present, China's international cooperation strategy for educational development has shifted from working closely with the Soviet Union to cooperating with multiple international actors, such as Europe and the United States (US). When a new education system was established in China in the 1950s, the main strategic approach was to learn from the Soviet Union's experience (Gu, 2003). For instance, Soviet textbooks were introduced and adopted at Chinese universities after direct translation, and the entire higher education system was reformed to follow the Soviet model (Gu, 2003). From 1949 to 1960, 861 educators from the Soviet Union were employed in China, working as advisers for the Ministry of Education (MOE) and universities as lecturers, postgraduate

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supervisors, and researchers. Also, at least 200 students per year were sent abroad to study in the Soviet Union (Gu, 2003).

In 1960, these friendly relations between China and the Soviet Union were terminated. With the experts and research resources withdrawn from China, China started to move away from the Soviet model. At that point, the Soviet model of education was severely criticized in China. Even so, from the 1960s until the mid-1970s, the entire Chinese education system was still under the influence of the experience of the Soviet Union (Li, 2006).

The turning point came in 1978, when the market economy was introduced in China. Policymakers turned their gaze farther afield – for instance, to Europe, North America, and Australasia – for cooperation. Since then, Europe has become one of China's most important strategic partners in the field of education cooperation, even though it has not been China's sole partner. For instance, in 1978, the Chinese government signed agreements with several European countries, including Germany, the United Kingdom (UK), Italy, the Netherlands, and Belgium, to enhance mutual cultural and student exchanges (X. Chen, 2004).

Before we continue with our argument, we wish to first explain one important term in our study: *Europe*. On the one hand, we are aware of the diversity among European countries. It seems unreasonable to use one word, either *Europe* or *European Union* (EU), to represent all European countries. On the other hand, European countries engaging in doctoral education collaboration with China are mainly EU member states, and the European Commission (EC) plays an increasingly important role as a coordinator, and the EU as an entity, in their cooperation with China in recent years. Thus, it seems reasonable to study the cooperation between China and Europe as a whole unit, rather than focusing on the cooperation between China and any selected, single European country. For instance, cooperation between China and the EU as an entity is taken into consideration when both the EC and the Chinese government develop their strategic plans, such as the EU 2020 Strategy and China's Five-Year Plans and Two Centenary Goals (European Commission & Ministry of Education of China, 2013), as well as when they hold sectoral policy dialogues in the field of education, such as the EU-China Comprehensive Strategic Partnership, issued in 2003 (Cai, 2013).

However, as a result of Brexit, the UK, which is also an important cooperation partner with China, may soon leave the EU. In such a complicated case, we believe the concept of *Europe* should be considered in the context of this study. Hence, when we discuss cooperation with China at the national, institutional, and program levels, we consider all European countries geographically. *Europe* refers to all European countries (including the UK, regardless of Brexit). When we consider the concept of *Europe* at the supranational level, we usually refer to the EU as an entity coordinated by the EC.

Further, to be more specific, in this chapter, when we refer to China, our study focuses mainly on mainland China and leaves out the situations of Hong Kong, Macau, and

Taiwan; their cooperation with Europe in the de-Sovietization era is different, and that can be another topic to discuss in the future. After the classification of concepts, we return to our explanation of the research background.

Previous studies show that China and Europe have much in common, such as strategic objectives in conducting business in international affairs, the belief in non-interference, and a commitment to international institutions that shape normative behaviors (Zyla, 2008). This constitutes a solid foundation for the development of European-Chinese collaboration in various ways. While, in recent years, efforts have constantly been devoted to reinforcing Europe-China collaboration in various areas, international collaboration in higher education, particularly in doctoral education, has only slowly attracted attention from the general public. In the global context, along with the fast-growing role of the university in economic development in the knowledge-based society (Etzkowitz, 2004; Lundvall, Jurowetzki, & Lema, 2014) and the more internationally connected value chain (Lundvall et al., 2014) and innovation system (Kautonen & Raunio, 2014), the internationalization of higher education has become more important than ever in fostering innovation and enhancing economic competitiveness in the global market (Shumilova & Cai, 2016).

One important dimension in the internationalization of higher education is international collaboration in research and teaching, which has gained a central place in the internationalization strategies of both Chinese and European higher education (Cai, 2005, 2013, 2014). Doctoral education, which is embedded in both research and teaching, has gradually become the policy focus for both China and Europe. In fact, studies (H. Chen, Zhao, Shen, & Cai, 2011; B. A. Kehm, 2007; B. M. Kehm, 2006; Rosa, 2008, 2010; Sun & Liang, 2009) show that to meet the industry's demands for creative knowledge and global talent, doctoral education in both Europe and China is undergoing profound reforms to enhance its quality through closer collaboration with international partners and industries.

In contrast to the growing collaboration in doctoral education between Europe and China, little research has been conducted on the topic. Even studies on collaboration between Europe and China in higher education are scarce. Nevertheless, some useful sources can be identified (Cai, 2013; GHK Consulting & Tsinghua University, 2010; Hong, 2014; Pinna, 2009). For instance, Pinna (2009) explored the evolution of EU-China relations in higher education, with a focus on Chinese international strategies. Cai (2013) analyzed the historical development of EU-China relations in higher education from the standpoint of the EU, taking as a case in point the Erasmus Mundus joint master's degree between European partners and a Chinese university. Hong (2014) provided a review of EU-China relations from a broader perspective and also included the educational dimension by examining the effectiveness of two key initiatives of strategic approaches: the Erasmus Mundus funding scheme and the Chinese Government Scholarship Programme. The GHK consulting team and Tsinghua University team (2010), supported by the EC and the MOE, researched the education and training system in Europe and China, respectively,

and discussed opportunities and obstacles in the area. However, none of them specifically addressed EU-China collaboration in doctoral-level education. Our study is an attempt to somewhat reduce the research gap by providing an overview of the historical development of European-Chinese collaboration in doctoral education.

Specifically, we raise two research questions: (1) How has collaboration between Europe and China in doctoral education developed since the 1980s? and (2) What are the challenges of collaboration between Europe and China in the area of doctoral education? After answering these questions, we will make recommendations for ways in which both Europe and China can increase collaboration in the future. This study applies a qualitative method mainly by analyzing secondary data, such as the academic literature, government policy documents, and strategic documents.

## Analytical Framework

In line with the overall analytical structure consistently used in the book, our chapter attempts to understand the development of European-Chinese doctoral education collaboration from a matrix of two analytical perspectives. On the horizontal dimension, we will investigate the development of European-Chinese doctoral education collaboration from a historical perspective. On the vertical dimension, we will examine the development from the analytical perspective of multi-level stakeholders, as proposed by Clark (1983).

From the historical perspective, we will explore the developmental path of European-Chinese doctoral education collaboration by analyzing the events unfolding from the earliest phase to the present. It should be noted that the development of European-Chinese doctoral education collaboration can be dated back only to 1980, when China for the first time identified academic degrees to include three levels – namely, bachelor’s, master’s, and doctorate – and the term *doctoral degree* came into official use in China (Editorial Board of *Academic Degrees & Graduate Education*, 1984). Based on this development, we divide the historical path of European-Chinese doctoral education collaboration into different phases: Phase I (1980–1989), Phase II (1990–2009), and Phase III (2010–present); these will be further described in the analytical part of the chapter.

By *multi-level stakeholder analysis*, we refer to the analysis of the macro- (suprastructure), meso- (middle structure), and micro- (understructure) levels (Clark, 1983). *Macro-level analysis*, in our study, refers to the analysis of the development of European-Chinese collaboration at the supranational and national levels, and concerns strategies and policies put forward by both supranational and national agencies, such as the EC and national agencies. *Meso-level analysis* refers to analysis related to the middle structure, “the university or college in its entirety” (Clark, 1983, p. 205). Here we will mainly discuss the approaches related to institutional-level collaboration, such as bilateral and/or multilateral institutional partnership and joint institutions. *Micro-level analysis* refers to the understructure, “essentially disciplinary” level (Clark, 1983, p. 5). Here we focus on collaboration at the



level of the academic unit, such as joint education and/or supervision provision and joint doctoral programs.

Our analysis of European-Chinese doctoral education collaboration is structured basically in accordance with the three developmental phases. In the first and the second phases, we focus only on the macro-level analysis because initiatives promoting doctoral education collaboration between Europe and China in these periods are mainly concerned with building infrastructure at the national level. Nevertheless, there may be some meso-level and micro-level collaborative initiatives or actions already taking place in the first two phases, although we find hardly any data in existing resources. As the substantial doctoral education collaboration between Europe and China has flourished in the third stage, a multi-level analysis of the development is relevant and is therefore provided here.

What anchors our discussion on doctoral education collaboration between Europe and China is the perspective on how the needs and/or goals of Europe and China for doctoral education collaboration can be made to fit each other (named the “fit perspective,” for short), which has been accentuated in numerous earlier studies (Cai, 2011a, 2013; Cai & Hölttä, 2014; Zha, 2011) on international higher education cooperation between China and other countries. The different characteristics of the three development stages are associated with changes in the interests and needs of China and Europe regarding international collaboration on doctoral education.

## Development of European-Chinese Doctoral Education Collaboration

As mentioned, we divide the entire history of cooperation (1980–present) into three phases. The first phase, from 1980 to 1989, is named the Underdevelopment Phase, in which the development of European-Chinese collaboration in doctoral education was fragmentary. The second phase, called the Preparation Phase, runs from 1990 to 2009. In that period, with multiple European-Chinese collaborative initiatives undertaken in higher education, collaboration in doctoral education received increasing attention, and gradually gained a central place in policy focus. The third phase, the Development Phase, runs from 2010 to the present. In the past few years, European-Chinese collaboration in doctoral education has been developing at a very fast pace. In this section, we will follow the analytical matrix constructed and describe the development in detail.

### *Phase I (1980–1989): The Underdevelopment Phase*

Even though, since 1978, international collaboration between China and other countries in the education sector has progressed rapidly (GHK Consulting & Renmin University, 2011), cooperation on doctoral education was rather limited until the beginning of the 1990s. The peripheral position of doctoral education in European-Chinese higher education collaboration reflects the interests of both Europe and China at that time.

The Chinese doctoral education system was reestablished in 1980. There were very few doctoral students enrolled in the Chinese higher education system at that point. In 1981, the first cohort of doctoral candidates in the Chinese doctoral education system, consisting of six doctoral students, defended their dissertations (Editorial Board of *Academic Degrees & Graduate Education*, 1984). By 1983, there were only 18 doctoral candidates in the Chinese doctoral education system (Editorial Board of *Academic Degrees & Graduate Education*, 1984). Thus, in that period, international collaboration was not yet the major objective; rather, the main task was to establish a doctoral education system in the country by making full use of the limited number of national experts, including returnee scholars from overseas and those who had received high-level training before the Cultural Revolution (Yang, 2012). Meanwhile, for Europe, the main goal was to learn more about China rather than to be involved in higher-level education. Nevertheless, some of the initial collaborative activities focused on staff and student exchanges in higher education, even though this was not specifically at the doctoral level.

### *Phase II (1990–2009): The Preparation Phase*

A dramatic change in European-Chinese doctoral education collaboration took place in the 1990s, as some developmental objectives and needs of the countries concerned began to coincide. On the European side, EU member states expressed their intention to strengthen collaboration with China, and since the mid-1990s, they have all made some sort of cooperation agreement with China. Multiple initiatives, such as scholarships, institutional cooperation, and educational program exports, have been implemented by the member states to enhance learning mobility between Europe and China (GHK Consulting & Renmin University, 2011). One significant change after the 1980s was that the EC assumed a coordinating role in developing strategies and frameworks for collaboration with China (Pinna, 2009). Multiple approaches to cooperating with China in higher education were initiated by the EC from the 1990s to the 2000s. Although not specifically concerned with doctoral education, all these initiatives enhanced mutual understanding between Europe and China, which greatly contributed to a solid foundation for the flourishing of European-Chinese collaboration in doctoral education in the next phase.

Meanwhile, along with the expansion of the doctoral education system, the Chinese government became more interested in emulating the foreign experience and importing advanced educational resources from Europe to develop doctoral education in China. In the 1990s, to meet the great need for well-trained, high-level professionals, China's doctoral education system grew rapidly (Ma, 2007). Especially after 1999, in line with the expansion of the Chinese higher education system, the population of enrolled doctoral students increased, from about 67,000 in 2000 to about 246,300 in 2009 (Ministry of Education of China, 2001, 2010). While the doctoral education system gradually expanded, quality enhancement became a significant issue, and internationalization was deemed an important means to achieve this. In general, one big motivation for China to internationalize its higher

education was to learn from or emulate successful and advanced international practices (Cai, 2010). Europe was regarded as “an excellent partner for learning from practice” (GHK Consulting & Tsinghua University, 2010), and this increased China’s interest in collaboration.

In addition to the transformation of the doctoral education system, a significant change influencing European-Chinese doctoral education collaboration on China’s side was the legislative development related to China-foreign cooperation in running schools in China. In 2003, the State Council of China issued the Regulations on Chinese-Foreign Cooperation in Running Schools to provide a clear policy for regulating China-foreign cooperation activities. As a result, to enhance the quality of education and to import excellent overseas educational resources to local institutions, the Chinese government encouraged Chinese universities to collaborate with renowned universities around world by launching joint academic programs (Yang, 2008).

Against this background, several approaches were undertaken to promote European-Chinese collaboration in doctoral education. For example, the China Scholarship Council (CSC) established the CSC Doctoral Students Scholarship in 2007 to support Chinese doctoral students in pursuing their studies abroad. This scholarship supported not only doctoral students in Europe for three to four years, but also short-term exchange students to Europe for 6 to 12 months. Usually, students going abroad for short-term exchange are under the joint supervision of experts in their research fields in the host institution, together with their supervisors in the home institution. From 2007 to 2011, the scholarship supported, on average, 5,000 Chinese doctoral students to go overseas every year (He, Hu, & Jia, 2012). Even though this initiative and its policy focus did not specifically target European countries, it did enhance the doctoral students’ mobility between Europe and China. From 2007 to 2009, approximately 4,193 Chinese students studied in Europe with the support of the CSC Doctoral Students’ Scholarship (China Scholarship Council, 2014).

Another measure taken by the CSC in this phase was the establishment of the National Excellent Self-Paid Overseas Student Award. Statistics showed that with the turn of the millennium, self-financing students were in the majority of Chinese students studying in the EU. In France, Germany, and the UK, about 80% to 90% of students were self-financing (GHK Consulting & Renmin University, 2011). The award was established in 2013 to reward excellent self-financing Chinese doctoral students abroad. In 2009, 193 self-financing students studying in Europe were granted the Award (China Scholarship Council, 2010).

These measures greatly enhanced doctoral students’ mobility between Europe and China. By 2010, the total number of Chinese students in Europe was around 120,000 (GHK Consulting & Renmin University, 2011). Although the percentage of doctoral students among total students was less than 10% (GHK Consulting & Renmin University, 2011), it does indicate the dramatic increase in Chinese doctoral students in Europe. Regarding mobility from Europe to China, in 2009, there were over 22,600 European students in

China (GHK Consulting & Renmin University, 2011). However, the population of European doctoral students in China is unknown. Statistics suggest that European students in China generally take language courses and courses on economics and business (GHK Consulting & Renmin University, 2011), implying that the population of European doctoral students in China might be relatively small.

### *Phase III (2010 to the Present): The Development Phase*

The substantial development of European-Chinese doctoral education cooperation at all levels was only beginning in the early 2010s. With an enriched understanding of higher education, enhanced trust between stakeholders and actors on both sides, and growing economic cooperation between them, Europe and China have more shared interests than ever before in collaboration at the level of doctoral education.

In China, doctoral education has taken center stage in the internationalization of higher education because the new governmental strategy is aimed at developing an innovative country and thus requires more high-level professionals with more innovation capacity and global perspectives (Cai & Liu, 2015). Internationalization has been an approach to supplementing domestic higher education and cultivating talent. China has considered using advanced education resources in Western countries as an important strategy for developing its own human capital, or talents (Yang, 2011). One approach to utilizing advanced resources is to send students to study in the West and then attract them to return (Pan, 2011; Shumilova & Cai, 2016), as is thoroughly discussed in chapter 12 in this volume.

Another approach is to attract quality higher education institutions to provide joint education in China (Cai, 2011b). In addition, China has become keen to attract international students to study in China (Cai, 2013). Nevertheless, international students are mainly seen as a means to enhance mutual awareness and understanding between China and their home countries (Gill & Huang, 2006), rather than as an important human resource that can contribute to China's economic development (Shumilova & Cai, 2016). Furthermore, recent policies for educational reform, such as the Outline of China's National Plan for Medium and Long-Term Education Reform and Development (2010–2020), imply that the government has shifted its focus in developing doctoral education from quantity expansion to quality enhancement. This new policy also encourages universities to diversify doctoral training models, including establishing joint degree programs with international partners.

In Europe, doctoral education reform has been taking place in recent years across European universities with the aim of developing a common European Research Area (European University Association, 2010). A set of principles for innovative doctoral training has been proposed by the EC as a tool for guiding doctoral education reforms at European universities (ERA Steering Group Human Resources and Mobility, 2014; European Commission, 2011), in which the doctoral education provision is proposed to follow a "Triple I" approach, meaning that, to be more innovative, a doctoral program should be international, interdisciplinary, and inter-sectoral (Vitorrio, 2015). To internationalize

doctoral education, European universities are encouraged to internationalize an institution's profile at home by attracting international doctoral students, staff, and visiting researchers, and organizing international events and to enhance European doctoral students' and supervisors' outward mobility, including geographical, interdisciplinary, and intersectoral mobility (European University Association, 2010).

In terms of geographical mobility, European students' mobility is more widespread than ever, but almost exclusively to other European countries (Wächter, 2013). European universities are motivated to enhance their students' mobility from Europe to China as, in the future, such students should know more about China, soon to be the largest economy in the world (Wächter, 2013). The importance of diversity is also emphasized in the recent doctoral education reforms so as to underpin the quality of doctoral education. European universities are encouraged to maintain the diversity of their doctoral programs – for example, by providing joint doctoral programs and cultivating joint doctoral programs (European University Association, 2010).

When it comes to collaboration with Chinese stakeholders, in particular, apart from enhancing student and staff mobility and promoting teaching and research cooperation, which have been discussed above, European countries' interest lies in exporting education (Cai & Hölttä, 2014). As China is now becoming the largest education market in the world, European countries are keen to export their European educational resources to China by providing cross-border education (Cai & Hölttä, 2014). In addition, Europe wants to enhance the visibility and knowledge of European higher education for Chinese actors (EU-China DOC, 2013), thereby increasing mutual understanding between Europe and China. Nevertheless, Europe has quite a diverse profile; thus, even though the identified expectations and objectives of internationalization are promoted by the EU and European international associations such as the European University Association, it should be noted that the extent of individual European countries' alignment to the proposed objectives may vary, and there may even be conflicts between individual countries and the EU as a supranational entity (Hoslag, 2011).

Table 13.1 summarizes the matching interests between Europe and China in collaborating on doctoral education. Driven by a common objective of promoting the internationalization of doctoral education, European-Chinese doctoral education collaboration tends to focus on quality enhancement in addition to quantity expansion. Next, we present a detailed analysis of the development at three levels, namely the macro, meso and micro levels.

*Table 13.1. Interests in and Needs of Europe and China in International Collaboration in Doctoral Education*

Europe	China
Internationalize doctoral education (Vitorrio, 2015)	Internationalize doctoral education (Cai & Liu, 2015)
Enhance understanding and knowledge of Chinese society and Chinese higher education (Wächter, 2013)	Enhance the visibility and understanding of European higher education
Export education resources (Cai & Hölttä, 2014)	Use advanced education resources in the Western country (Cai, 2013)
International joint doctoral education provision (Cai & Hölttä, 2014)	Attract high-quality institutions to provide joint doctoral education (Cai, 2011b)
Attract international doctoral candidates, staff and guest researchers to Europe (European University Association, 2010)	Send doctoral students to study abroad and then attract them to return (Pan, 2011; Shumilova & Cai, 2016)
Enhance students' outward mobility to China (Wächter, 2013)	Attract international doctoral students to study in China (Cai, 2013; Gill & Huang, 2006)
Enhance the diversity of doctoral education (European University Association, 2010)	Diversify forms of doctoral education (Ministry of Education of China, 2000)

*Source:* Authors' compilation.

## Macro-Level Collaboration

At the supranational level, the EC and the Chinese government remain the most crucial parties in the collaboration discourse. Following the EU Strategy 2020 and China's 12th and 13th National Five-Year Plans, as well as policy dialogues involving both sides, several collaborative programs have been launched with a specific focus on collaboration in doctoral education.

On the European side, the EC now has more leadership capacity than ever to act as a coordinator and an independent entity to reinforce collaboration between Europe and China. It has initiated several scholarship programs and collaborative projects concerning doctoral education to promote European-Chinese doctoral education collaboration. For instance, the Erasmus Mundus Joint Doctorate (EMJD) program was launched in 2010. The EMJD Scholarship supports recruited students by covering tuition fees, providing a monthly subsistence allowance, and contributing to travel and settling-in costs and medical insurance (Hong, 2014). Between 2010 and 2013, 42 Chinese candidates were selected to participate in the EMJD program and benefit from the scholarship (Hong, 2014). In 2014, the program was closed down, but the Marie Skłodowska-Curie Actions now supports joint doctoral programs. This initiative supports doctoral candidates mainly through two projects: the Innovative Training Networks (ITN) and the COFUND project (European Commission, 2016). By 2014, the ITN had supported 404 Chinese doctoral candidates

under five different projects to undertake their doctoral research in Europe and one European doctoral candidate to study in China (European Commission, 2014).

In addition to scholarship programs, the EC is building up a communications platform between the EU and China in the area of doctoral education by launching the EU-China DOC project in 2013. With the aim of enhancing the visibility of European higher education and strengthening dialogue and cooperation between European and Chinese stakeholders in the field of doctoral education, six workshops and interactive seminars were organized within the framework of this project. They brought together a number of Chinese and European participants, including policymakers, practitioners, researchers, and doctoral students, to discuss issues related to European and Chinese doctoral education as well as possible opportunities and challenges in European-Chinese collaboration. Although these activities are initiated and mainly funded by the EC, they usually involve multiple stakeholders, institutions, and national governments from both Europe and China.

For its part, the Chinese government continues to enhance the mobility of doctoral students and academics between the two partners mainly through the CSC Doctoral Students' Scholarship Programme, which enables Chinese doctoral students to study in Europe, and the Chinese Government Scholarship (EU Window), which allows European doctoral students to study in China. From 2010 to 2014, about 10,960 doctoral students studying in Europe had benefited from the former scholarship (China Scholarship Council, 2014), and 561 European students studying in China had received the latter (EU Window) (Mission of the People's Republic of China to the European Union, 2015). The CSC also continues to grant the National Excellent Self-Paid Overseas Student Award to support excellent, self-financing Chinese students studying abroad, and in 2015, awards were given to 500 self-financing doctoral students studying abroad, about 33% of whom were studying in Europe (China Scholarship Council, 2015). In addition, since 2010, a Doctoral Supervisor Exchange Program has been operated by the CSC to improve the expert skills of doctoral supervisors and enhance the quality of doctoral education. Every year, about 200 doctoral supervisors are selected and sent abroad for short-term exchange.

## Meso-Level Collaboration

The profound development of European-Chinese collaboration in doctoral education at the macro-level has led to the proliferation of actions and initiatives at the institutional level. This meso-level collaboration takes place mainly in the form of establishing joint ventures between European and Chinese institutions. Usually, the joint institutions offer education at the bachelor's and master's levels, but recently, a tendency has emerged for the participating institutions to develop joint doctoral programs and recruit doctoral students from both Europe and China. At the university level, among the very few participating universities in Europe and China, only University of Nottingham Ningbo China and Xi'an Jiaotong Liverpool University provided doctoral education.

At the department or college level, the number of joint doctoral programs in the cooperating institutions is also small. For example, the Sino-Danish College was established by the University of the Chinese Academy of Sciences and the Danish Ministry of Science, Technology and Innovation in 2013 to provide a joint master's program for both Chinese and Danish students (SDC, 2016). In 2014, the Sino-Danish College started its joint doctoral program (SDC, 2016). It is currently exploring a new joint supervision mode, whereby supervisors, one from a European institution and one from a Chinese institution, participate together in a single research project and jointly supervise doctoral students to complete their project-based doctoral research. In another example, the Chinese-German College was co-established by Tongji University and the German Academic Exchange Service in 1998 (Zhou, 2013). The college has been providing international bachelor's and master's double-degree programs since its establishment. Only in recent years has it started to recruit and supervise doctoral students, with two German doctoral students successfully graduating by 2013 (Zhou, 2013).

Moreover, there is an exceptional case in which two partner universities first collaborated on joint doctoral programs and then developed a joint college together. In 2002, the East China Normal University and École Normale Supérieure in Paris established the Master's Programme in Sino-French Education for Research in China and recruited 19 Chinese students (Q. Chen, 2014). Students in this program have the chance to continue their doctoral studies under the joint supervision of supervisors from both partner universities after graduation, if they are qualified (Graduate Enrolment Office of East China Normal University, 2015). Two years later, 12 out of the first cohort of master's graduates were selected to continue their studies as doctoral students, and thus the Doctoral Programme of Sino-French Education for Research was launched (Q. Chen, 2014). Later, in 2005, the Sino-French Graduate School was established to manage the two programs (Q. Chen, 2014). By 2015, the Sino-French Graduate School had recruited 115 doctoral students and 63 had graduated with double degrees (Wang, 2015).

Another significant development at the meso-level is the establishment of bilateral agreements between European higher education institutions and the CSC. By 2016, the CSC had signed bilateral agreements with 63 European higher education institutions to educate Chinese doctoral students (both degree and exchange students) jointly with the support of the CSC Doctoral Students' Scholarship (China Scholarship Council, 2016).

In addition, in recent years, several Chinese research universities, such as Tsinghua University, Xian Jiaotong University, and Beihang University, have established specific funding schemes to support their doctoral students for three- to six-month study periods abroad or to participate in international conferences (Graduate School of Beihang University, 2014; Tsinghua University Graduate School, 2014; Xian Jiaotong University Graduate School, 2014).



## Micro-Level Collaboration

Collaboration in doctoral education at the micro-level is mainly in the form of joint degree programs and joint supervision of doctoral students.

For instance, the first European-Chinese doctoral degree program was launched in the field of management in 2011. It was co-established by the ISCTE-University Institute of Lisbon in Portugal and the University of Electronic Science and Technology of China. By 2017, seven European-Chinese joint doctoral degree programs had been approved by the MOE and were open for student recruitment, and one is being assessed by the government (see table 13.2). The European-Chinese joint doctoral degree programs cover different disciplines, including management, business administration, health care, etc.; among them are two interdisciplinary programs. Among European partner institutions in the joint programs, French institutions are the most active, followed by Portuguese institutions.

*Table 13.2. EU-China Collaborative Doctoral Degree Programs*

No.	Name	Chinese participant	European participant	Start year
1	UESTC-ISCTE joint program in Doctor of Management	University of Electronic Science and Technology of China	ISCTE – University Institute of Lisbon, Portugal	2011
2	SJTU-MoU joint Doctor of Business Administration Programme	Shanghai Jiaotong University	University of Manchester, UK	2012
3	SMUC-ISCTE-IUL Doctor of Management in Healthcare Programme	Southern Medical University	ISCTE – University Institute of Lisbon, Portugal	2012
4	GSCACS-UoL Doctor of Agricultural Sciences and Biological Engineering Program	Graduate School of Chinese Academy of Agricultural Sciences	University of Liege, Belgium	2013
5	French Doctor of Clinical Medicine Program	Shanghai Jiaotong University	Université de Strasbourg, France	2013
6	CQU joint program, Doctor of Business Administration	Chongqing University	Grenoble Ecole de Management, France; Scuola Superiore Sant’Anna at Pisa, Italy	2013
7	SYSBS-GEdM joint program Doctor of Business Administration	Sun Yat-Sen University	Grenoble Ecole de Management, France; Scuola Superiore Sant’Anna at Pisa, Italy	2016

*Source:* Ministry of Education of China (2017).

Meanwhile, more and more collaboration in the supervision of doctoral students has been undertaken between Europe and China. With the internationalization of doctoral education, collaboration among institutions in different regions and countries in the supervision of doctoral students has become more important over the years (Siu, 2011). On both sides, doctoral supervisors take part in the joint supervision of their students both at macro- and micro-levels (e.g., through the EMJD and the CSC's and individual universities' funding schemes for doctoral students to study abroad for short-term exchange under joint supervision). Furthermore, all the European-Chinese joint doctoral programs mentioned above are jointly supervised programs. In addition, as mentioned in chapter 12, the increase in English-taught doctoral programs in Europe has encouraged student mobility between both sides.

## Challenges in European-Chinese Doctoral Education Collaboration

After nearly four decades of effort, European-Chinese doctoral education collaboration has made significant progress; this is mainly reflected in enhanced student mobility, diversified joint education provision, more structured policy dialogues, and capacity-building platforms. This boom in collaboration (e.g., in Phase III) is driven by a closer match between the interests and needs of both sides. Thus, more profound development in European-Chinese doctoral education collaboration can be expected. Regardless of a promising future, it is important to be aware that there are also challenges ahead.

The main challenge concerns how to align the expectations of international collaboration and the practices of that collaboration. On China's side, for example, one dilemma in joint institutions and programs is that of an imbalance between Chinese institutions and their foreign partners. Most Chinese universities involved in international collaboration are upper-echelon or elite universities, while most foreign partners are from lower echelons in their own systems (Cai, 2011b; Zha, 2011). It may be Europe's desire to build a stronger partnership with China mainly out of economic interests (Pinna, 2009), which leads European stakeholders to operate programs or institutions at a minimum cost and low standard (Zha, 2011). Although the situation has improved since 2010, China is still striving to create an optimal framework to ensure good matches (Cai, 2011b; Cai, Hölttä, & Lindholl, 2013).

On Europe's side, there is a discrepancy between its expectation of being a privileged partner in China's educational market and the fact that it is facing competition with the US, other Asian countries, and beyond, who have already entered the market to their advantage (Wächter, 2013). In particular, the US has already recognized the importance and benefit of education exchanges with China, while Europe is just beginning to comprehend the significance of such an approach (Cai & Hölttä, 2014). Besides, in practice, Chinese stakeholders tend to use the global university rankings to facilitate their decision-making in education, which is not to the advantage of many European universities (GHK

Consulting & Renmin University, 2011). Fortunately, some European countries, such as the UK, Germany, France, and the Netherlands, have become aware of the situation and launched relevant marketing campaigns targeting Chinese stakeholders (Wächter, 2006).

The second crucial challenge lies in the lack of mutual understanding and trust between European countries and China. Even though European-Chinese collaboration in doctoral education has made vast progress in the past decade, a lack of mutual understanding, empathy, and, especially, trust remains the fundamental obstacle to intensifying the collaboration (Burnay, Hivonnet, & Raube, 2014). Fortunately, this problem has been recognized by both sides. For instance, the EU-China-DOC project is a good effort at creating more channels and opportunities for the stakeholders of European and Chinese doctoral education to communicate with and understand each other, and to develop their cooperation capacity.

The third challenge is related to the difficulties in harmonizing two different systems of higher education into joint programs, including doctoral degree programs included. The two systems have different legislative oversight, institutional regulations, languages, communication channels, and scholarship schemes. For instance, the differences between legislation and institutional regulations in the Chinese and European systems have resulted in difficulties in offering joint degree diplomas and in recognizing learning outcomes (Cai, 2013). The language barrier is likewise an impediment to more profound collaboration. However, with more and more programs offered in English in Europe and China, and the improvement of Chinese teachers' and students' English proficiency, the language gap is becoming narrower (GHK Consulting & Renmin University, 2011).

Partly due to the language barrier and partly due to the limited application of information communication and technology (ICT) resources in education, the different communication channels in the two systems have resulted in a lack of easily accessible and easily comprehensible information on study and funding opportunities (GHK Consulting & Renmin University, 2011); this also impedes progress in student and researcher mobility and collaboration with more stakeholders. Fortunately, the EC and some European universities have started to tackle this problem by developing their English websites (Wächter, 2006), and the same approach can be observed in China. In fact, not only the lack of easily accessible information on funding opportunities, but also the lack of funding opportunities themselves, is a significant challenge for Europe and China in enhancing students' mobility (GHK Consulting & Renmin University, 2011).

The fourth factor is that, besides the differences between the European and Chinese systems, it is a challenge for European countries to reconcile different national legislation, interests, and practices in doctoral education when they cooperate with China (GHK Consulting & Renmin University, 2011). There are also differences between the interests of the EU as a supranational entity and the interests of the member states (Hoslag, 2011). While the EC is trying to take the leading role in developing a coherent cooperation framework with China, the EU member states and their higher education institutions

may encounter challenges in balancing the interests and regulations of the different parties concerned.

Readers may notice that the discussion on the challenges of collaboration between the Europe and China in doctoral education mainly focuses on the macro-, or systemic, level. We believe that development at the systemic level would influence institutional and disciplinary development. Even though challenges at the meso- or micro-level may vary from institution to institution and from discipline to discipline, due to the differences in institutions and disciplines, they can eventually all be traced back, or related, to the obstacles and challenges at the systemic level. Hence, due to the constraints of space, we do not elaborate on the challenges at the meso- and micro-levels here.

## Conclusion and Recommendations

With the implementation of multiple collaborative initiatives by both Europe and China, as well as the development of policy dialogues and collaboration between them, collaboration in doctoral education between the two sides has entered a fast-growing stage in the 2010s. The development is taking place at multiple levels (national, institutional, and program), reflected not only in the growing numbers of joint institutions, joint programs, and students studying in other countries, but also in the quality of doctoral education. The flourishing European-Chinese doctoral education cooperation is driven by the common interests of both sides and facilitated by policies, cooperation platforms, and funding schemes. However, the advancement of doctoral education collaboration between the two sides has not been without its problems. What underlies the challenges are mismatches between collaboration intentions and practices, between the European and Chinese systems of doctoral education, and between the interests and strategies of the EU as an entity and those of its member states.

In light of the aforementioned analyses, we make several policy recommendations for both Europe and China to tackle the challenges and intensify collaboration in doctoral education.

First, both Europe and China should recognize the mismatches in their expectations and practices and adjust their strategies for collaboration accordingly. For instance, Europe, for its part, should reconcile its objectives with China's expectations so as to derive maximum support from its Chinese stakeholders in collaborative activities. A communications strategy could be developed to promote the advantages of doing doctorates in Europe and participating in European-Chinese joint doctoral programs in China. For China's part, to correct the imbalance among universities and enhance the quality of collaborative education, a quality assurance system for China-foreign institutions and programs should be established to check the quality of imported educational resources in China.

Second, to enhance mutual knowledge, understanding, and trust in collaboration, more communication opportunities and collaborative activities, with joint efforts from

both Europe and China, are needed. This also requires more financial support, more easily accessible information to engage more stakeholders, and more dissemination channels to share that information.

Third, to tackle the challenge of harmonizing their higher education system structures, Europe and China should cooperate and improve the compatibility of their systems. On China's part, the national legislation governing joint and dual degrees should be reviewed to facilitate China-foreign collaboration. In addition, China should adapt its regulations related to the credit system and develop a unified, comparable, transferable national credit system. In this respect, China can learn from Europe's approaches in developing the European quality framework and the common credit transfer system. European countries, as many of them have more institutionalized and mature higher education systems, should try to help China reform its system by sharing successful practices and advanced educational ideas and technology. In so doing, the European countries can also enhance the visibility and influence of European higher education in China. More research on improving the compatibility between the Chinese and European higher education systems should also be conducted.

Fourth, to reconcile the differing needs of member states in the EU in international doctoral education collaboration, especially with China, the EC should first be aware of the different needs of its member states. Along with the development of the European Research Area and the European Higher Education Area, a more structured European doctoral education system can be established. The EU should also strengthen the dialogue and cooperation in doctoral education among its member states, and between the EC and the member states, by organizing relevant academic events, launching cooperative initiatives, and establishing policy dialogues at the European level.

In sum, there is still much work to be done to promote European-Chinese collaboration in the field of doctoral education, and endless efforts are needed from both Europe and China.

Besides the aforementioned practical implications, the chapter has contributed to the knowledge pool by reducing the research gap with a comprehensive study of the development of collaboration between Europe and China in the field of doctoral education. The study employed a multi-level stakeholder analytical perspective (Clark, 1983) to interpret the recent development of European-Chinese doctoral collaboration; this not only provided a detailed picture of collaboration development on multiple levels but also demonstrated the usefulness of multi-stakeholder analysis in understanding the structure and dynamics of higher education issues. Nevertheless, as Clark (1983) pointed out, the three levels often have different directions, sources, and vehicles of change, and future studies can focus on the relations and tensions between different levels of European-Chinese doctoral education collaboration and the rationales behind the relations.

Furthermore, the study examined the development of European-Chinese doctoral education collaboration from the perspective of how the interests and needs of Europe and

China can fit with each other in the collaborative discourse, based on which key challenges and recommendations to tackle the challenges have been identified. This “fit perspective” approach has proved to be a useful and rational perspective for understanding the changes in European-Chinese doctoral education collaboration and also interpreting how the systems, institutions, and even individual stakeholders in different disciplines react in a globalized environment to reconcile global and local needs. However, as this is still a relatively preliminary study, more empirical studies, especially those on the institutional and disciplinary levels, should be conducted in the future to further examine the applicability of the approach.

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# PUBLICATION IV

## **Comparing doctoral education in China and Finland: an institutional logics perspective**

Gaoming Zheng, Jussi Kivistö, Wenqin Shen, Yuzhuo Cai

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# Comparing doctoral education in China and Finland: an institutional logics perspective<sup>1</sup>

Gaoming Zheng<sup>2</sup>, Jussi Kivistö<sup>3</sup>, Wenqin Shen<sup>4</sup>, Yuzhuo Cai<sup>5</sup>

## Abstract

This chapter explores and compares the institutional logics of Chinese and Finnish doctoral education systems through on-desk research of secondary data. Findings show that in both Chinese and Finnish doctoral education systems, there are five underlying institutional logics, namely state logic, profession logic, family logic, market logic and corporation logic; however, the differences lie in which of them are more dominant, and how they interact with each other. Findings also indicate that, to a large extent, the logics underlying Finnish and Chinese systems are compatible, and can serve as a solid foundation for developing cooperation between both countries. Based on the findings, we contend that in cooperation practice, stakeholders and practitioners in the cooperation need to be aware of the differences of logics.

**Keywords:** doctoral education, institutional logics, Finland, China, comparative study, cooperation

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## Introduction

Although higher education cooperation between China and Finland has, in recent years, strengthened due to reciprocal interests (Cai & Hölttä, 2014), it is still at a very preliminary stage, and cooperation at the doctoral level is even less developed. It has been argued that, in general, educational cooperation at the doctoral level between China and European countries is rather limited (Zheng & Cai, 2018). Some comparative and international education studies (e.g. Bray & Qin, 2001; Crossley & Jarvis, 2001; Yang, 2011) suggest that one key motive for comparing education systems is to enhance an understanding of the contexts of educational systems, which will contribute to cooperation development between the systems. While such a point can be easily assumed, the difficulty in research lies in the lack of an appropriate theoretical framework with which to analyse and to concretise the context of education systems, particularly in the field of doctoral education.

Some comparative research on Chinese and Finnish higher education systems (Cai & Kivistö, 2011; Cai & Kohtamäki, 2014) has shed light on our understanding of the doctoral education systems of both countries; however, among these collections of academic papers, none have ever adopted a consistent analytical framework for comparison. Meanwhile, the existing studies on either Chinese doctoral education (e.g. Ma, 2007; Wang, 2008; Yang, 2012) or Finnish doctoral education (e.g. Ahola, 2007; Hakala, 2009; Kivistö, 2011; Nummenmaa, Pyhältö, & Soini, 2008) have rarely explored the social and cultural contexts of each system. Rather, they deal mainly with the activities and functions of doctoral education.

According to institutional theory, the context of the higher education system is seen as an institutional environment (Cai & Mehari, 2015), which is composed of various aspects of institutions. 'Institutions can be generally understood as social orders, social rules, or taken-for granted norms and beliefs, which are seen by actors as natural, rightful, expected, and legitimate' (Cai, 2013, p. 462). With an aim to concretise the very abstract concept of institution, an institutional logics perspective (Thornton, Ocasio, & Lounsbury, 2012) was developed which identifies a set of supra-organisational patterns that provide meaning to actions and conflicts, largely reflecting the nature of institutions (Cai & Mehari, 2015). An institutional logic can be defined as 'a set of material practices and symbolic constructions' that constitute an institutional order's 'organising principle' and are 'available to organisations and individuals to elaborate' (Friedland & Alford, 1991, p. 248).

To fill the aforementioned knowledge gap, our chapter systematically compares the Chinese and Finnish doctoral education systems, with a focus on their institutional contexts and their underlying institutional logics in particular. The primary research questions are the following: 1) *From the perspective of institutional logics, to what extent can the Chinese and Finnish doctoral education systems be compared?* 2) *To what extent are they compatible?*

To answer the research questions, we employed the perspective of institutional logics to make the institutional context of both doctoral education systems tangible through on-desk research of second-hand data, including relevant academic literature concerning

doctoral education and higher education in China and Finland, government policy documents related to doctoral education reforms in both countries, some university strategy documents, news and the like.

The chapter is structured as follows. An introduction of the theoretical framework of the study, the institutional logics perspective, is followed by a brief description of the Chinese and Finnish doctoral education systems. Next, it respectively examines the underlying institutional logics of each of these doctoral education systems. It continues with an analysis of the compatibilities and differences of both systems from the institutional logics perspective and finally provides implications for cooperation between Finland and China in the field of doctoral education.

## Theoretical framework: the institutional logics perspective

The institutional logics perspective, a recent development in institutional theory, was introduced in the works of Alford and Friedland (1985) and Friedland and Alford (1991). The concept has become more popular in organisational studies, with contributions from Thornton and his co-authors (Thornton, 2004; Thornton et al., 2012; Thornton & Ocasio, 1999). There has been a recent trend in applying the institution logics perspective in higher education research (Cai & Mehari, 2015; Lepori, 2016), as well as in the context of Chinese higher education (Cai & Zheng, 2016) and in settings for comparing Chinese and European experiences (Zheng, Cai, & Ma, 2017).

In this chapter, we applied the framework developed by Zheng, Shen and Cai (2018), who used a typology of societal institutional logics proposed by Thornton, Ocasio and Lounsbury (2012), including logics of state, market, family, profession, religion, community and corporation, to identify multiple institutional logics in the field of Chinese doctoral education. This is also consistent with the argument of Thornton et al. (2012), which maintains that the actions and interactions at the organisational field level are subject to societal-level logics. An analysis of the extent to which these logics are reflected in Chinese doctoral education focused on the following six dimensions: admission, doctoral training, quality assurance, graduation, governance and funding; these dimensions have been commonly discussed in the literature on doctoral education systems (e.g. China's quality assessment group for doctoral education, 2010; Yang, 2012). Zheng, Shen and Cai (2018) also suggested that five logics (i.e. state logic, profession logic, family logic, market logic and corporation logic) are particularly relevant for understanding doctoral education systems, such as the Chinese system, while the religion and community logics are less salient.

By combining the five logics and the six dimensions of the doctoral education system, we constructed an analytical framework for understanding the institutional logics underlying the Chinese and Finnish doctoral education systems (see Table 9.1). Following the framework, by cross-examining each dimension of the doctoral education systems (Y-Axis) with the type of institutional logics (X-Axis), it is possible to identify the reflections of

the underlying institutional logics in each dimension of a doctoral education system. As the framework was originally modified based on the Chinese context, when conducting a comparative analysis in this chapter, we paid special attention to its relevance to other contexts, such as the Finnish context.

*Table 9.1. Analytical framework for understanding institutional logics in doctoral education systems*

	X Axis: Ideal types of institutional logics					
		State logic	Profession logic	Family logic	Market logic	Corporation logic
Y Axis: dimensions of doctoral education systems	Admission					
	Doctoral training					
	Quality assurance					
	Graduation					
	Funding					
	Governance					

Source: Modified from Zheng, Shen and Cai (2018)

In addition to proposing the two-dimensional framework, Zheng, Shen and Cai (2018) interpreted the five logics in the context of doctoral education. As these are crucial for the analysis of the current study, each of the doctoral education logics is explained in the following paragraphs.

### *State logic*

According to Thornton et al. (2012), the state is understood as a redistribution mechanism. With respect to state logic in the field of doctoral education, actors with bureaucratic power, such as state governments and university administrators, have the dominant influence. They intend to construct a doctoral education system through government policies and regulations, routine administration and the redistribution of resources. Doctoral education is deemed a public good and should represent the interest of the state government.

### *Profession logic*

Driven by profession logic, a person's status in doctoral education is built on his/her personal expertise in disciplined research. Doctoral supervisors who have more advanced expertise in the discipline enjoy a higher reputation in the academic community and have more authority in doctoral education. In terms of profession logic, actors in the field of doctoral education, both doctoral supervisors and doctoral students, seek to enhance their



personal expertise, get recognised by their peers and enhance their status in the academic community.

### *Family logic*

In the context of doctoral education driven by family logic, a supervision group, which comprises a supervisor and his/her supervised doctoral students, becomes a family unit in which the doctoral supervisor acts as the patriarchal leader, and the supervised students become sisters and brothers. The relationship between a doctoral supervisor and the supervised doctoral students is a patronage relationship based on reciprocity. Doctoral students and doctoral supervisors behave like family members, express their unconditional loyalty towards their supervision family and seek to enhance the family honour together.

### *Market logic*

According to the market logic, doctoral education, doctoral degrees and doctoral graduates become profitable commodities and valuable assets in the market. The pursuit of a doctoral education is driven by the intention to increase the stakeholders' profits. Market and market-like activities are introduced, which increases competition in the context of doctoral education and promotes applied doctoral research, especially industry-collaborative research.

### *Corporation logic*

Driven by corporation logic, the efficiency of doctoral education is emphasised, and performance-based management is implemented, in the organisation of doctoral education. Hence, on-time graduation, academic publication and other activities that can manifest the effectiveness and efficiency of doctoral education management are encouraged. An employment relationship between universities and doctoral students is established as a part of the process of managing doctoral education.

## The Chinese and Finnish doctoral education systems

The sections below present a brief introduction of the doctoral education systems in China and Finland, which will facilitate the readers' understanding of the analysis that follows.

### *The Chinese doctoral education system*

The Chinese doctoral education system was established in 1981 (China Academic Degrees and Graduate Education Development Center, 2014). During the nearly four decades since its inception, it has developed into one of the largest doctoral education systems in the world (Yang, 2012). By 2015, out of the 1,129 Chinese universities that provide higher

education offering degrees (Ministry of Education of China, 2016), 335 universities have been granted the authority to provide doctoral education and to confer doctoral degrees. According to the latest statistics (2015), the Chinese doctoral education system as a whole had 326,600 doctoral students, with 53,000 outgoing doctoral graduates and 74,400 newly-recruited doctoral students (Ministry of Education of China, 2016).

In alignment with the Chinese educational system's examination tradition, doctoral students in China are recruited mainly through entrance examinations. However, the admission system has been under reform in recent years and now allows more diverse means for recruiting students, such as application materials, constituted mainly of candidates' research proposals (Ministry of Education of China, National Development and Reform Sector of China, & Ministry of Finance of China, 2013). More and more universities are adopting this means for recruiting students. The duration of doctoral study in China, usually 3 to 4 years, has recently extended to a maximum of 8 years.

The state plays a decisive role in the system's governance by approving the universities' applications to offer doctoral education, being involved in deciding the annual recruitment number of doctoral students and acting as the major funder of the doctoral education system (Zheng et al., 2018). Nevertheless, with the launch of the 'Supervisors' Accountability Policy' and the 'Supervisors' Financial Support Policy' in 2006 (China's quality assessment group for doctoral education, 2010), more autonomy has been given to doctoral supervisors and universities. Currently, in many Chinese universities, doctoral supervisors act as the decision makers and quality assurers (J. Guo, 2009); this includes deciding whom to recruit, approving doctoral students' research plans, evaluating their performance, examining their dissertations, allocating financial resources and even arranging for their employment after graduation (Zheng et al., 2018).

Further, a unique *shi-men* phenomenon can be observed in current Chinese doctoral education. Literally, *shi* translates from Chinese as 'a supervisor' or 'a teacher', and *men* translates as 'group' or 'family'. A *shi-men* is a supervision family that includes a doctoral supervisor and his/her supervised (doctoral/master's/bachelor's) students. Within a Chinese *shi-men*, the relations between doctoral supervisors and their supervised students are patronage relationships, which means that as the group leader, the supervisor 'takes care of the group within a hierarchical governance mode' (Leisyte & Dee, 2012, p. 157).

Since 2014, Chinese universities have begun to charge doctoral students tuition fees (maximum 10,000 RMB per year; Ministry of Education of China, 2014; Ministry of Finance of the People's Republic of China, 2013). Nevertheless, through a national postgraduate student financial-support system, the government financially supports individual doctoral students with various subsidies, grants and scholarships (Ministry of Finance of the People's Republic of China, 2013). For instance, the state government subsidises each individual doctoral student with a minimum of 10,000 RMB per year (Ministry of Finance of the People's Republic of China, 2013), which means that eventually the tuition fees of doctoral students are covered by the state government. The state government also funds

the universities based on the annual number of full-time doctoral students (Ministry of Education of China, 2014) with an amount of 28,000 RMB per student per year.

In recent years, Chinese doctoral training activities have transformed under the impact of internationalisation and marketisation. Doctoral students are encouraged to participate in all kinds of international doctoral training activities, such as international conferences, student exchanges and international publications, to gain advanced knowledge in research areas and to become involved in the international academic community (Sun & Liang, 2009). Meanwhile, along with the marketisation of higher education in China, the funding structure of doctoral education has been diversified, and one of its increasingly important resources has been funding from industry. As a result, more applied doctoral research has been conducted in doctoral training in close collaboration with industry. Changes can also be seen in the career choices of doctoral graduates. In the 1980s, 80% of doctoral degree holders entered into academic careers; however, in the 21st century, only around 40% of doctorates are expected to continue with academic careers after graduation even though an academic career remains the main career choice for doctorates (Z. Liu & Luo, 2015).

### *The Finnish doctoral education system*

Currently, there are 14 research universities (including one university of arts) in Finland that have been granted the authority to offer doctoral training and to award doctoral degrees. Annually, Finnish universities award 1,800 to 1,900 doctoral degrees, which is about 5%–6% of all the degrees granted (Vipunen Education Statistics Finland, 2016).

Doctoral students are recruited into the Finnish doctoral education system through application, a process which assesses the applicants' research proposals, academic transcripts, application letters, etc. The target duration established for each doctoral programme is 4 years; basically, however, doctoral students have an almost unlimited right to continue their studies longer if necessary (cf. Ahola, 2007). Doctoral students do not pay any tuition fees, but the national student aid system does not offer coverage as wide as that offered for bachelor's- and master's-level students.

Universities are highly autonomous in terms of how they organise their doctoral training with respect to government steering. More importantly, universities are able to determine their enrolment numbers, contents of the curriculum and fields and programmes of doctoral training (within the pre-determined disciplinary fields in which a university has the right to offer its degrees). However, the government rewards universities with a funding formula that includes the number of doctoral degrees awarded. Currently, the formula is 9% of the core funding allocated to universities (Ministry of Education and Culture of Finland, 2015). In their performance negotiations, which take place every 4 years, universities and the Ministry of Education and Culture agree on the specific degree targets for each of the universities. These negotiations are one of the few instruments available to the government in steering doctoral training in Finland.

There is no accreditation required for the doctoral programs. Instead, quality assurance processes are integrated into the institutional quality assurance systems of the universities, which are subject to external reviews (quality audits) conducted by the Finnish Education Evaluation Centre, the national quality assurance agency responsible for evaluations of higher education, every 6 years.

Traditionally, doctoral training in Finland follows the form of supervisor–student individual apprenticeships. To internally coordinate their doctoral education more effectively, over the past 5 years, most universities have established ‘graduate’ or ‘doctoral’ schools that are based partly on the example offered by the graduate school model of U.S. universities. In many universities, this has resulted in stricter internal rules for admission criteria, supervision of doctoral theses, designing of curricula and grading of the completed doctoral theses. The current trend in many universities is to emphasise ‘quality over quantity’ with respect to the admission and supervision of doctoral students.

## Analyses

Our data analysis reveals that both Chinese and Finnish doctoral education systems are underlined by the multiple logics of state, profession, family, market and corporation even though the extent of the logics’ impacts varies with respect to the different dimensions of doctoral education in each system. In the next section, we first present the reflections and impacts of the five underlying logics, one by one, for both doctoral education systems and then compare the findings of the two systems, analyse their similarities and differences and explore the possible reasons behind these.

### *Institutional logics of Chinese doctoral education*

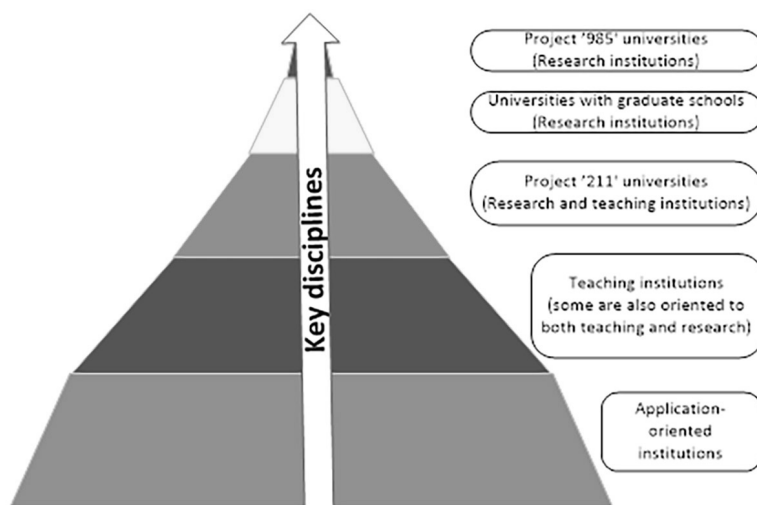
As Zheng, Shen and Cai (2018) have provided vivid illustration on the institutional logics of the Chinese doctoral education system based mainly on their interview data, our chapter will further testify to and enrich the findings based on a review of literature.

#### *State logic*

The state logic of the Chinese doctoral education system stems from the historical development of the system, which was established for the development of the socialistic modernisation of the country (Office of the State Council Academic Degrees Committee of China, 1980); its developmental path also indicates strong promotion and tight control by the Chinese central government (Yang, 2012). Currently, the impact of state logic is reflected largely in the government’s stringent control of the system’s size through a series of admission and external quality assurance policies, the government’s role as the decision maker in the system’s governance and financial resources distribution and, to a lesser extent, in the regulation of doctoral training and graduation requirements.

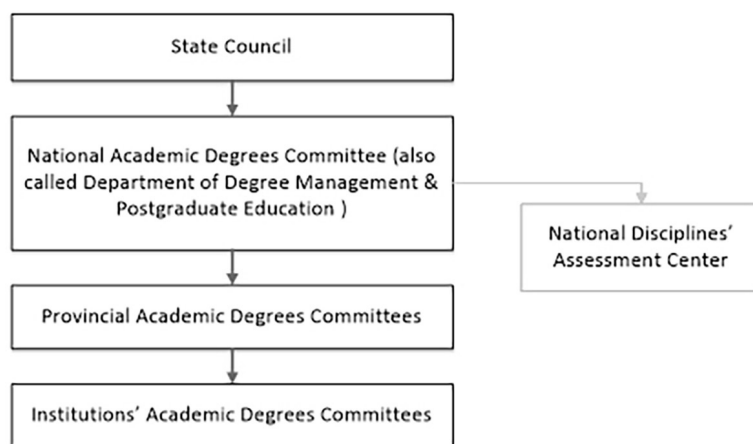
The state controls the size of the doctoral education system strictly by deciding which institutions are qualified to offer doctoral training and the enrolment scale to which the universities can admit students (Yang, 2012). Since 2005, institutions that were approved to offer doctoral education were also under the state's regular evaluation every 6 years (Ministry of Education of China, 2005). Further, the expansion of the system since the 1990s has also been driven and strategically planned by the state government (Zhao & Shen, 2013). Most universities still utilise entrance examinations to recruit students, which is also a reflection of the state logic in doctoral student admission. Except for the strong regulation of entrance of the doctoral education system (for both students and institutions), the state tries to externally assure the quality of the outcomes of doctoral education. For example, a random assessment of doctoral dissertations at the national level is conducted annually by the National Academic Committee; if any dissertations are found to be unqualified, the degree holders lose their degrees, and their supervisors and institutions lose their supervisory rights (China Academic Degrees and Graduate Education Development Center, 2016b).

The state government not only acts as a gatekeeper or external quality assurer of the doctoral education system, but it is also a system scenario designer. On one hand, through the promotion of the elite universities policy, such as Project 985 and Project 211, the development of graduate schools in some selected universities and the implementation of the key disciplines policy, the Chinese government has constructed a hierarchical pyramid of the Chinese higher education system. As Figure 9.1 shows (Cai & Yan, 2015; X. Guo, 2003), universities at the top receive more government financial support and enjoy more autonomy (Wang, 2008). On the other hand, following the guidance of the State Council of China, a national-provincial-institutional three-layer governance structure of the Chinese degree management system was established, as Figure 9.2 shows (China Academic Degrees and Graduate Education Development Center, 2016a). In so doing, the state government has extended its influence on doctoral education from system governance to institutional governance.



*Figure 9.1. Pyramid of the Chinese higher education system*

Source: Cai & Yan (2015), X. Guo (2003)



*Figure 9.2. Governance structure of Chinese academic degree management*

Source: China Academic Degrees and Graduate Education Development Centre (2016a)

Further, through providing special funding to universities via Project 985 and Project 211, research project funding to supervisors and financial support to doctoral students directly through the national financial support system and indirectly through support universities based on doctoral students numbers, the state government influences the doctoral education system as a major funder and resources redistributor, which is also a reflection of state logic. In addition, the impact of state logic can be discerned in the state's promotion

of international doctoral training activities (Han, 2010) and its general requirement of politics education.

### *Profession logic*

Like state logic, profession logic has been embedded in the context of Chinese doctoral education since the system's establishment, which lies at the base of doctoral education, i.e. scientific research (European University Association, 2010). The impact of profession logic in Chinese doctoral education is seen in all the dimensions of its system. Mainly, it is reflected in the emphasis on research capacity in the whole life-cycle of doctoral education from admission to graduation, the development of a strict quality assurance process and strong academic power in terms of institutional governance.

Driven by profession logic, the majority of doctoral supervisors in China understand the quality of doctoral education to be exceptional (China's quality assessment group for doctoral education, 2010; Zheng et al., 2017). Underlined by this concept, a doctoral candidate's research capacity is regarded as the main indicator of the quality of a doctoral education programme (China's quality assessment group for doctoral education, 2010), and it is highlighted in the whole life-cycle of doctoral education in China. For instance, during doctoral admission, many doctoral supervisors in China prefer to enrol students based on evaluations of the candidates' research outputs and their performance in personal interviews (China's quality assessment group for doctoral education, 2010). As mentioned, more and more universities are recruiting students based on the evaluation of an applicant's research proposal, which is an indicator of the applicant's research capacity. When it comes to doctoral training, enhancement of the research capacity of doctoral students is deemed the core of doctoral training. Doctoral students in China are seen as both students and junior academics (China's quality assessment group for doctoral education, 2010). In order to upgrade the research capacity of Chinese doctoral candidates and get them recognised by international academic peers, doctoral training activities in China have been internationalised in recent years; for instance, doctoral candidates are encouraged to participate in international conferences, to publish in international peer-reviewed journals and to be involved in international projects (Sun & Liang, 2009). Accordingly, academic publication in peer-reviewed journals is seen as an important performance indicator of doctoral candidates, and doctoral dissertations must be sent to external reviewers for evaluation before final submission (China's quality assessment group for doctoral education, 2010).

Meanwhile, driven by profession logic together with state logic, the deans of graduate schools, the government and some doctoral supervisors, see quality as perfection/consistence (China's quality assessment group for doctoral education, 2010; Zheng et al., 2017). Hence, process-oriented quality assurance approaches have been adopted in China, and a strict procedure of quality assessment (starting with doctoral admission and continuing with research proposal defence, midterm examination, pre-defence, external review and public

defence, and ending with the random quality assessment of doctoral dissertations after graduation) has been well established in the Chinese doctoral education system (China's quality assessment group for doctoral education, 2010).

In the last decade, along with the implementation of the Supervisors' Accountability Policy, the autonomy of doctoral supervisors has been gradually increased within institutions, especially concerning academic issues. For instance, doctoral supervisors in China are fully responsible for selecting doctoral students among applicants and for evaluating their performances via the established quality assessment procedure. With the Supervisors' Financial Support Policy, project funding allocated by supervisors has been an increasingly important funding source for doctoral study, which has strengthened the influence of doctoral supervisors.

With the exception of that which has been discussed here, the impact of profession logic can also be observed in the fact that an academic career is still the main career choice among doctoral graduates and that some national scholarships are merit-based, that is, allocated based on the evaluation of a doctoral candidate's research capacity.

### *Family logic*

Family logic has a long history in the Chinese education system. As the old Chinese saying, 'one-time teacher, life-long father', indicates, in Chinese tradition, the relationship between teacher and student is similar to that between parents and children (Li, 2002). Under the influence of this tradition, along with its embedded family logic, the unique *shi-men*, or supervision-family culture, is formed in the Chinese doctoral education system, which affects the practices of doctoral education, including admission, supervision, quality evaluation, graduates' employment choices and the institutional governance of supervision groups.

Driven by family logic, supervisors in China are patriarchal leaders of their supervision families, and the relationship between supervisors and students is hierarchical (Yue & Zhou, 2008). Even the relationships between different cohorts of the supervised students are hierarchical. For instance, latecomers to the supervision groups call the older cohorts *shi-xiong* or *shi-jie*, which literally means 'elder academic siblings', and respect them as their seniors. Supervisors have the full autonomy to decide how to supervise students (Yue & Zhou, 2008), and the supervision is not limited to academic issues; it may also include life guidance (Zhou, 2009). Further, driven by family logic, nepotism can be observed in the admission process of doctoral students in China (Yue & Zhou, 2008) even though, in recent years, it has been reduced due to state interference. The same phenomenon can be seen in the employment of doctoral graduates who wish their supervisors to act as their sponsors in the academic labour market and to help them with employment issues, as parents help their children in China. The impact of family logic can also be seen in the quality evaluation process. In the last decade, the reciprocity between supervisors and students has affected the quality of the evaluation process of doctoral student performance; as a result, some



supervisors have lowered their academic standards to allow students to pass even though the students are not sufficiently qualified (Yue & Zhou, 2008), which contributes to the high completion rate of doctoral education in China.

### *Market logic*

Market logic and corporation logic, in conjunction with the global trend of academic capitalism, were introduced into the Chinese doctoral education system in the mid-1990s (Slaughter & Leslie, 2001). This market logic has mainly affected Chinese doctoral education in the aspects of its funding system, doctoral training and the employment of doctoral graduates. Driven by market logic, financial resources for doctoral education have been diversified in recent years. Industry and the private sector in general have become important stakeholders for doctoral education, as they are now allowed to financially support doctoral education, especially in applied sciences, through research projects led by related supervisors (Peng, 2009). Through the implementation of the Supervisors' Financial Support Policy in 2006, supervisors can directly financially support their doctoral students through their project funding (China's quality assessment group for doctoral education, 2010); this means project funding has gradually become an important financial resource for doctoral students (Peng, 2011a). In return, the doctoral students participate in the supervisors' research projects as research assistants and improve their research expertise through the projects' work (Peng, 2011b). This has led to the reform of doctoral training from traditional apprenticeships to project-based supervision. Further, in response to the needs of markets, knowledge production in universities has been transforming from 'Mode 1' to 'Mode 2', which diversifies the profiles of doctoral degrees and encourages the development of professional doctoral degrees (Chen, 2010). Along with the change in the knowledge mode and the diversification of funding, more connections with industry have been established in the process of doctoral training and have transformed the ways of doctoral training (Chen, 2010). With the changes in doctoral training, both students and supervisors realise and expect that continuing with an academic career is not the only option for doctoral employment (Chen, 2010). More and more graduates enter the non-academic market (Z. Liu & Luo, 2015).

Another reflection of market logic in doctoral education is that the doctoral degree is regarded as a profitable asset in career development, thus devaluing its academic essence. In some extreme cases, the doctoral degree has become a 'visa' through which politicians advance their political careers. Since most of these politicians do not have the interest in or capacity for doing proper academic research, they plagiarise the work of others (X. Liu, 2016). This no doubt distorts the academic value of a doctoral degree. Similarly, the establishment of a doctoral programme is regarded as a valuable and profitable asset for universities, which enables them to gain more research funding from the state. As a result, many universities, even those that are not research institutions, have attempted various means to gain the government's approval to provide doctoral education (Gu & Chen, 2007).

### *Corporation logic*

Compared to other logics, the impact of corporation logic on doctoral education in China is rather limited and is focused mainly on doctoral training and graduation. Driven by corporation logic, the relationship between supervisors and students is changing towards one of quasi-employment (Yue & Zhou, 2008). Doctoral students get paid for their work on their supervisors' research projects and even call their supervisors 'boss' (Yue & Zhou, 2008). Nevertheless, as the state remains the main funder of doctoral education, the management of universities has never been fully corporationalised, and a real employment relationship between institutions/supervisors and doctoral students has not been established in Chinese universities (Yue & Zhou, 2008). The nature of the relationship between supervisors and students remains one of patronage based on reciprocity. Further, under the impact of corporation logic, efficiency and performance management are increasingly emphasised in China's doctoral education. As a result, students are encouraged to have at least one published academic paper before graduation, and most doctoral students want to graduate and enter the labour market as soon as possible (Zheng et al., 2018). Supervisors also hope that their students will graduate within the expected duration, without any delays.

Table 9.2 summarises the key points of reflections of institutional logics of the Chinese doctoral education system.

Table 9.2. Institutional logics in the Chinese doctoral education system

		X-Axis: ideal types of institutional logics				
		state logic	profession logic	family logic	market logic	corporation logic
Y-Axis: dimensions of doctoral education system	admission	state's regulations regarding admission: entrance examination system, decision-making power regarding number of enrolled students	emphasis on research capacity in recruitment of students	nepotism phenomenon	(no obvious reflection)	(no obvious reflection)
	doctoral training	state's support of international training activities state's requirements for politics and ideological philosophy courses	emphasis on enhancement of research capacity in doctoral training internationalisation of doctoral training activities	supervision of doctoral training + life guidance	(applied) project-based doctoral supervision	quasi-employment relation between supervisors and students
	quality assurance	state's regulation over which institutions can provide doctoral education and regular evaluations of approved institutions random checks of doctoral dissertations	seeing quality as exception and perception research capacity as the major performance indicator of doctoral students the establishment of strict quality assurance procedures	possibility of supervisors lowering their academic standards in the quality evaluation	(no obvious reflection)	(no obvious reflection)
	graduation	state's general regulations for graduation requirements	graduates' entry into academic careers	supervisors as sponsors in the academic labour market nepotism phenomenon	doctoral degree = a profitable asset in career development increase of graduates in non-academic sectors	academic publication as a graduation criterion graduation as a general plan without postponement
	funding	the state as the major funding resource	(no obvious reflection)	(no obvious reflection)	increase of research funding from industry-collaborative research projects doctoral education = a tool for gaining financial resources	(no obvious reflection)
	governance	state as the gatekeeper and scenario designer of the system represents the will of the state and serves the socialistic modernisation	strong academic power in institutional governance	supervisors' strong academic power in institutional governance, especially within supervision group: supervisors = patriarchal leaders; doctoral students = family members (children) hierarchical relation in supervision groups	(no obvious reflection)	(no obvious reflection)

Source: The authors

# Institutional logics of Finnish doctoral education

## *State logic*

For many years in Finland, the state's approach to doctoral education has been strongly characterised by certain founding principles rooted deeply in the Humboldtian tradition and the Nordic welfare state model (Ahola, 2007). This includes free tuition, substantial autonomy of universities to arrange their doctoral training in a way they deem appropriate and a high overall emphasis on equality (Hölttä, Jansson, & Kivistö, 2010). The state plays a minor role in regulating and governing doctoral education compared to the level of regulation they perform at the undergraduate level. National level legislation sets a very broad and loose regulative framework, which universities then supplement with their own internal rules and policies. Current legislation regulates doctoral education only by prescribing minimum admission qualifications (applicants for doctoral studies need to hold applicable types of master's degrees), what elements are needed for completion of a doctoral degree and details related to the student's right to appeal during the grading process of a doctoral dissertation (Universities Act 558/2009; Government Decree on University Degrees 794/2004). Moreover, the legislation prescribes that universities must participate in external evaluations of their activities and quality assurance systems on a regular basis, but it does not include any specifications about what these evaluations should contain and how they should be performed.

The state, however, has a strong role in funding doctoral education. This is realised through the national funding model, which is heavily performance-driven (currently 75% of the state funding is performance-based) (Ministry of Education and Culture of Finland, 2015). Universities are able to generate more state funding mainly by awarding more doctoral degrees but also by producing more highly-rated publications and accumulating more competitive research funding, which are all measurable performance indicators included in the funding formula. Moreover, the state has indirect and non-binding means of influence through information steering by publishing policy documents (e.g. reviews and evaluation reports, planning documents and strategies) and by offering recommendations for ways in which to develop doctoral education, especially with respect to its labour market relevance.

## *Profession logic*

According to the principles of the Humboldtian tradition, academics, most specifically professors, are considered to be the guardians of academic quality. This is particularly evident in admission practices, where the professor's judgement of an applicant's quality plays a key role. Admission processes vary to some extent among universities; in most cases, however, central criteria for admitting students are the quality and relevance of a research proposal. This proposal is reviewed and approved/rejected by the professor or other senior academics in charge of the field of study. The academic power also extends to the final

stages of the doctoral training; the supervising professors have traditionally played a role—sometimes stronger, sometimes weaker—in grading the theses they have themselves supervised.

Finnish doctoral education still follows the ‘dissertation-centred model’ originating from the German-based Humboldtian tradition in contrast to the American tradition, which is characterised by an emphasis on systematic training based on coursework. For this reason, doctoral students are considered primarily as junior members of the academic profession rather than as students to be educated. A student’s main task is to work on his or her dissertation under the supervision of one or more senior academics, thereby forming a kind of master-apprentice relationship (Hakala, 2009). However, disciplinary differences also have an influence on supervisory relationships. In the natural sciences, the novice researcher is a part of a hierarchically organised research group; however, in the social sciences, doctoral students are often given more freedom and are treated more strongly as colleagues (Delamont, Atkinson, & Parry, 2000; Hakala, 2009).

Even though students are required to complete courses as a part of their training, most of their time is dedicated to writing their dissertations and to other publishing activities. In addition, many full-time doctoral students work as graduate assistants in those cases in which the academic units do not have enough senior staff to fulfil all the teaching responsibilities. While doing this, the students learn a wide variety of skills and gain confidence and independence. This approach continues the Finnish tradition of unstructured research training, which places a high level of emphasis on individual capability and self-initiative (Hakala, 2009). At the same time, professors and other supervisors can benefit by having extra workforce for easing their teaching loads.

The format of the doctoral dissertation has changed over the years. Dissertations consisting of articles published in international refereed journals or of book chapters (typically 3–5) and an integrating summary became almost the norm in the 1980s and 1990s in ‘hard sciences’ such as medicine (Hakala, 2009). Now, 20–30 years later, this practice has also become an accepted alternative to the monograph-type of dissertation in the social sciences and humanities. This is at least partly due to the fact that the current state-funding model rewards publishing activity in highly ranked journals more than before. Sometimes the articles are published together with the thesis supervisor and possibly with other members of a research group. This offers more incentives for the professors to provide their supervision in the form of co-authorship, in which the essential part of the training of a student is ‘learning by doing’ together with the supervising professors.

The graduation of a student brings academic merit for the supervisor, which is counted as one important aspect of academic expertise. In addition, doctoral graduates who leave academia to work in business or in the public sector are often in leading or highly rated expert positions immediately after the graduation or a few years after getting more non-academic work experience, although the unemployment of doctoral graduates has been

rapidly increasing in recent years (Haila, Karinen, Kaihovaara, Eronen, & Haapakorpi, 2016).

### *Family logic*

In Finland, strong welfare state ideals, a high level of individualisation and, simultaneously, the erosion of the role of the extended and nuclear family as a basic societal unit are all significantly lessening the influence and meaning of family logic as a motivational factor. This is highlighted in many ways; outright nepotism of any sort is strictly prohibited by the legislation, and it is considered socially unacceptable in all parts of the society, including in the academic world. At the same time, supervisor-student relationships are formal in the sense that their scope of activity does not typically extend beyond what is considered professional. For instance, giving advice on how students should live their lives outside academia would be considered, in most cases, unethical and intrusive behaviour.

However, all of this does not make Finnish universities and doctoral education totally immune to practices that can be connected to the idea of family logic. For instance, the admission of doctoral students is always at least partly based on the research interests and fields of expertise of the professors in charge in addition to the 'objective quality' of a research proposal. This directs, at least to some extent, the research interests of prospective doctoral students according to the existing research interests of their potential supervisors; it thereby resembles reciprocal and unconditional obligations oriented to the reproduction of the interests of 'family members'. Moreover, when it comes to training and quality assurance, given the high autonomy of professors in monitoring the quality of the education/supervision they themselves offer, one cannot escape the idea that students who are closer to their supervisors, either in terms of their research subjects or in personal relationships, could get more and better opportunities for higher quality supervision or for training throughout their studies as a sign of 'patronage'.

In a similar vein, this relationship can affect getting more and better letters of recommendation as a sign of the 'supervision family's' loyalty. For instance, higher-profile/higher-paid positions in research projects led by their thesis supervisor could be examples of family-type professional nepotism. Unfortunately, empirical, research-based information in the Finnish context is totally absent in the literature, thereby restricting the discussion on this topic here to the level of anecdotal evidence and presumptions based on common sense.

### *Market logic*

To a large extent, market logic has been absent from Finnish higher education in many ways; education at all levels from primary school to doctoral education has been more like a basic right rather than a commodity to be bought or sold (Hölttä et al., 2010). However, especially over the past decade, the role of markets and market logic as such has effectively

penetrated doctoral education in several ways. For instance, transformation towards a more competitive and commercialised climate in Finnish academia has, in many fields, led to a situation in which doctoral students are seen primarily as cheap labour to be utilised in externally funded projects (Hakala, 2009; Kuoppala, Pekkola, Kivistö, Siekkinen, & Hölttä, 2015). At the same time, the ability to generate competitive research funding is considered an indicator of the capacity to conduct high-quality research. Further, research projects result in an increasing number of publications that are, again, crucial impressions of scholarly productivity in research markets.

Success in generating more research funding can increase the possibility of more doctoral education. At the same time, the volume of attracted project funding and publication productivity can be considered representations of success symbols in winning 'market shares' in research markets. Successful professors have the talent to combine entrepreneurial activities (more research funding) and academic excellence (better quality training); unfortunately, however, the relationship is not always that straightforward. Competition is an essential part of academic life, and it is reflected throughout all stages of doctoral studies. According to extreme views, the Finnish higher education system is increasingly based on a 'tournament model' in which students play something akin to a zero-sum game as they compete against each other in admissions, scholarships, fixed-term paid positions, roles and responsibilities in research projects and so on (Ylijoki & Henriksson, 2015). However, this competition does not end with graduation. As the number of PhD holders has grown rapidly over the past 20 years, increasing numbers of qualified junior academics wishing to continue their academic careers after graduation constantly compete both for university positions and for external research funding from national research councils, the EU and other funding bodies (Ylijoki & Henriksson, 2015).

Another remaining under-studied aspect of market logic is related to practices in which graduates do professional favours for their former supervisors. Driven by the thinking that 'market exchange is loyalty', some professors can expect that their graduates are their personal 'business cards' and would pay back the services and opportunities students received from them throughout their training by offering professional counter-favours of different kinds. Indeed, some professors likely expect to benefit in many ways by having their former students in positions that bring them visibility, prestige or joint undertakings (e.g. lucrative consultation or research projects, prestigious expert roles in committees and visibility in media).

### *Corporation logic*

Corporation logic is closely manifested in the ongoing performance-based management practices of Finnish universities. Since the latest reform of Finnish university legislation, universities have gained significantly more autonomy in their staff management, for example, in terms of recruitment, promotions, salaries and workloads. The University Act of 2010 separated Finnish universities from the state budgeting bureaucracy and transformed

them either into independent corporations under public law or foundations under private law, thereby granting universities financial autonomy and liability. At the same time, civil-service employment relationships were changed to contractual relationships (Pekkola & Kivistö, 2012; Ylijoki & Henriksson, 2015). This, along with several other transformations, such as the introduction of a performance-based salary system, has intensified management orientation in doctoral training.

Here we provide some examples to further illustrate this point. For instance, in admissions procedures, the trend towards more selective admissions is perfectly in line with the increased emphasis on institutional efficiency and productivity (e.g. improved throughput and graduation rate and prospective publishing productivity). Some doctoral students have an employment relationship with the university either as full-time and paid doctoral students or as part-time/full-time project researchers. In both cases, remuneration and other terms of employment are at least partly related to output. Since employee behaviour guided by the managerial orientation is much stronger than student behaviour guided by supervisory orientation, conflicts between these two simultaneously existing roles may appear. At the same time, the institutional value of doctoral education can be determined with a cost-benefit approach, that is, how much money or prestige it creates for the institution as an exchange for the resources it consumes.

The main analysis of logics within the Finnish doctoral education system is summarised in Table 9.3.



Table 9.3. Institutional logics in the Finnish doctoral education system

		X-Axis: ideal types of institutional logics				
		state logic	profession logic	family logic	market logic	corporation logic
Y-Axis: dimensions of doctoral education system	admission	weak state regulation in admissions; only indirect influence on number of enrolled students	selection of the most academically qualified and promising applicants by professors	student admissions partly based on research interest and fields of expertise of the professoriate	(no obvious reflection)	selection of students with best prospects for publication productivity, project-building capacity and on-time graduation
	doctoral training	setting broad, non-binding recommendations for skills acquired through doctoral training and about relevance to labour market	co-publishing with supervisors; incorporating students into graduate training	possibility of giving more and better supervision to students who have formed closer personal relationship with the supervisor	integration of students with research projects and other activities that generate external revenue (project funding)	emphasises employee role of a student
	quality assurance	legislation requiring universities to take part in external evaluation of their activities and quality assurance systems on a regular basis	supervision in progression of studies, grades and publishing activity	possibility of lowering academic standards and violation of good ethical conduct in cases of students who have formed more closer personal relationships with supervisors	attract project funding and publication productivity as success symbols and winning 'market shares' with good-quality outputs	(no obvious reflection)
	graduation	loose requirements in terms of basic requirements for completing a doctoral degree and a student's right to appeal during the dissertation grading process	number of graduated students under supervision as an academic merit	reproduction of own scholarly identity in students	exchange of favours between supervisors and graduates	completed doctoral degree as measured institutional performance
	funding	state-funding model that rewards universities based on the number of conferred doctoral degrees, publication productivity and the amount of competitive research funding acquired	supervisors assist students to gain scholarships or research funding	supervisors play a stronger role in securing funding for the 'inner-circle' students under their supervision	role of doctoral students in projects generate income from the markets, with positive and negative effects	value of doctoral education determined based on how much money or prestige it creates for the institution
	governance	state governance via the use of three policy instruments: loose regulative instruments, strong financial instruments, and persuasive informational instruments	strong academic power determines all the phases of doctoral education	(no obvious reflection)	(no obvious reflection)	doctoral education governed as one of the performance areas of a university

Source: The authors

## Comparison and discussion

We compared the aforementioned findings of both systems and found that similarities and differences co-exist between the two systems.

On one hand, similarities between the two systems mainly concern profession logic, market logic and, partly, state logic. First, in both systems, the impacts of profession logic pervade all dimensions of doctoral education. This is related to the basis of doctoral education (i.e. research) and to the nature of doctoral candidates (i.e. often future academic professionals), which are beliefs shared by both countries. Second, along with the global trend of academic capitalism, the force of market logic has been transforming doctoral education systems in both countries with respect to many aspects, such as the emergence of project-based doctoral training, the increase of doctoral graduates in the non-academic sector and the popularity of competitive project funding. Third, although sternly influenced by state logic, doctoral education continues to be regarded as public goods in both countries, thus decoupling the effect of market logic on governance as well as on admission in both systems. Further, driven by state logic, the states in Finland and China both have a very strong role in funding doctoral training in that they both provide most of the resources and allocate these resources to universities.

On the other hand, differences between the two systems relate to state logic (partly), family logic and corporation logic. First, in terms of state logic, the regulative role of the state is significantly weaker in Finland than it is in China, where the state plays an active role in all dimensions of the doctoral education system, most notably in regulating admission, quality assurance and governance. In contrast, the level of autonomy of Finnish universities in terms of organising doctoral education is significantly higher, as the state has almost no role in regulating doctoral education by legislation or other binding norms.

Second, due to the different extent of the impact of family logic, there is a huge difference between the two countries with respect to understanding the relationship between supervisors and students. While in Finland, the relationship between supervisors and students is professional and usually contractual in the sense that the scope of supervision activity does not normally extend beyond academic issues, the doctoral supervisor-student relationship in China follows a hierarchical patronage model which allows the supervisors to extend their influence to students' non-academic issues. This difference may date back to the two countries' deeply rooted societal and cultural traditions, which inevitably are generally reflected in understanding the roles and relationships between individuals, families and society.

Third, differences concerning corporation logic are rather noticeable between the two systems, as the impact of corporation logic on the Finnish side can be revealed in most of the dimensions, whereas in China, it is just slightly reflected in doctoral training and graduation. When the practice of performance-based management is deeply rooted in Finnish universities, stemming from the 20-year tradition of state-driven performance-based funding, it has not penetrated the educational system to a similar extent in China,

despite the strong marketisation of higher education in general. This is also related to the stronger influence of other institutional logics, such as state and family logics, in the Chinese system.

## Conclusion

By using an analytical framework grounded in the insights of institutional logics, this chapter provides a comprehensive analysis of both Chinese and Finnish doctoral education systems in terms of the similarities and differences of underlying institutional logics. Although the analytical framework was originally developed by Zheng, Shen and Cai (2018) and used only in the Chinese context, our present study has proved the usefulness of the framework in comparing Chinese and Finnish doctoral education systems. Hopefully, this framework has the potential to be applied in efforts to understand and to compare doctoral education systems in larger international contexts.

The results show that the two systems share some similarities in all dimensions of doctoral education. In terms of the underlying logics, both profession logic and market logic exist in the two systems and have wide impact. In this sense, both systems are potentially compatible. Meanwhile, some differences are particularly noticeable in relation to the impact of family logic on the supervisor–student relationship and relevant aspects, the influence of state logic on system governance and matters of corporation logic concerning funding and system management.

Based on our comparative findings, we drew some implications for enhancing the practices of doctoral education cooperation between China and Finland.

First and foremost, when developing cooperation, policymakers and practitioners should be well aware of the dissimilarities and conflicts in the different logics of the two doctoral education systems and thus better reconcile them in practice.

Second, because of the different roles of the state as well as differences related to academic autonomy in the governance of Finnish and Chinese doctoral education, when establishing cooperation between both sides, actors should be well informed about Chinese state regulations and policies and try to comply with them. Meanwhile, the academic power and institutional autonomy from the Finnish side should be maximally utilised so as to guarantee the success of the establishment of cooperation.

Third, as the understanding of the supervisor-student relationship is different in China and Finland, when one supervisor supervises doctoral students from the other system, he/she should pay more attention to students' anticipation of supervisors' guidance. It may be influenced by the student's institutional context, which is different from that in the supervisor's system. Supervisors should try to adjust his/her supervision style to delimitate conflicts and to provide optimal supervision. For instance, when supervising Chinese students, Finnish supervisors should encourage and empower them to exchange ideas with supervisors about academic issues openly and critically without concern for the supervisors'

authority. When supervising Finnish doctoral students, Chinese supervisors should adopt a formal and professional supervisory relation and avoid extending their supervision beyond education-related issues.

Fourth, because actors' roles with respect to the quality assurance of doctoral education are different in Finland and China, assuring the quality of doctoral education cooperation or joint provision of doctoral education between Finland and China will be one of the most challenging in their practices. One should be aware that while, in both countries, the state takes part in external quality assurance, the role of the Chinese government is more decisive than that of the Finnish government, in which the state acts more like a facilitator. Supervisors are the primary actors in the internal quality assurance in both systems, but due to the impact of family logic in Chinese system, Chinese supervisors may lower academic standards to satisfy the needs of their 'academic children'. As such, in order to tackle this challenge, the body responsible for the quality assurance of doctoral education cooperation or joint doctoral supervision between China and Finland, as well as their responsibility scope, should be clearly identified, and the quality of doctoral dissertations should be strictly assured via peer review.

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# PUBLICATION

## V

**Deconstructing Doctoral Students' Socialization from an Institutional Logics Perspective: A Qualitative Study of the Socialization of Chinese Doctoral Students in Finland.**

Gaoming Zheng

*Frontiers of Education in China*, 14(2), 206-233. doi:10.1007/s11516 019 0011 y

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# Deconstructing Doctoral Students' Socialization from an Institutional Logics Perspective: A Qualitative Study of the Socialization of Chinese Doctoral Students in Finland<sup>1</sup>

Gaoming Zheng<sup>2</sup>

## Abstract

While socialization has become a major lens of research in doctoral education, this paper advances the theoretical foundation of the socialization process in doctoral education by using the institutional logics theory. Specifically, it proposes an analytical framework for understanding the socialization of doctoral students, where it is seen as a process of reconciling different or even competing institutional logics that drive students' development in doctoral education. The framework has been applied in an empirical study of ten doctoral students in Finland who were funded by the China Scholarship Council (CSC). While proving the usefulness of the analytical framework, the study shows that CSC doctoral students mainly face the competing logics of profession and corporation during socialization. Influenced by a strong profession logic, the Chinese students have transformed themselves into novice professionals and knowledge producers. Corporation logic competed with profession logic in the management of doctoral students and has resulted in a lack of teaching experiences in doctoral training and a weak recognition of professional identity in the students' host universities. The influence of family logic, inherited from CSC doctoral students' cultural backgrounds, has been decoupled in the socialization process and has led to a strong sense of loss in handling the supervisory relationship between supervisors and students. Based on the findings of this study, the author provides several recommendations for host universities, supervisors, doctoral students, the CSC, and the Chinese Embassy in Finland to enable them to work together and help CSC doctoral students tackle the aforementioned challenges.

**Keywords:** doctoral education, socialization, China, Finland, China Scholarship Council (CSC), institutional logics

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## Introduction

In the past two decades, there has been continuous interest in the socialization of doctoral students in order to enhance their future professional academic roles (e.g., Austin, 2002; Boden, Borrego, & Newswander, 2011; Li & Collins, 2014; Mendoza, 2007; Sweitzer, 2009; Szelényi, 2013; Weidman & Stein, 2003; Wu, 2017). More recently, an update and conceptual expansion of socialization theory through the perspective of institutional logics (Mars, Bresonis, & Szelényi, 2014) as well as a collection of key research findings concerning socialization and development in doctoral education (Gardner & Mendoza, 2010) represent an increasing interest in the development of theory on this subject.

Since doctoral socialization is of great relevance to doctoral students' learning experiences and career development, understanding the process of socialization is significant for doctoral education. The present study continues in this tradition of research on doctoral education by exploring how and why the factors within the organizational context of socialization influence the process of socialization. Doctoral socialization can be defined as the process by which doctoral students develop an understanding of the norms, values, and practices of their disciplinary and professional field and acquire the social knowledge and skills necessary to assume their organizational roles (Gardner & Mendoza, 2010; Mars et al., 2014). This definition looks at doctoral socialization on the organizational level rather than on an individual level (Gardner & Mendoza, 2010). Doctoral socialization is also a process under the influence of certain interrelated factors concerning individual attitudes and abilities, the overall social and academic dynamics of a department, and the cultures of academic disciplines and higher education institutions (Solem, Lee, & Schlemper, 2009; Weidman, 2010), as well as the recurrent themes and issues that underlie graduate education and influence the culture of academic disciplines and institutions (Weidman, Twale, & Stein, 2001).

A robust line of research has documented the increased understanding of the impact of contextual factors on doctoral socialization (e.g., Gardner & Mendoza, 2010; Mars et al., 2014; Solem et al., 2009; Sweitzer, 2009; Weidman, 2006; Weidman et al., 2001). Some scholars have examined the impact of the recurrent themes and issues in the context of higher education, such as academic capitalism (Mendoza, 2007; Szelényi, 2013) and national policy agendas (Mars et al., 2014). In a similar vein, scholars have examined the influence of factors related to individuals, higher education institutions, disciplinary and interdisciplinary culture, and academic communities (Boden et al., 2011; Li & Collins, 2014; Pyhältö, Toom, Stubb, & Lonka, 2012; Sakurai, Vekkaila, & Pyhältö, 2017; Solem et al., 2009; Weidman et al., 2001). Such studies have primarily manifested the influence of socialization factors on the doctoral students' experiences. However, the literature fails to adequately capture the nature of these factors and does not explore the reasons behind their influences. Informed by such limitations in the literature, Mars et al. (2014) utilized the institutional logics approach to probe the institutional logics behind the factors that influence doctoral students in science and engineering. They defined these

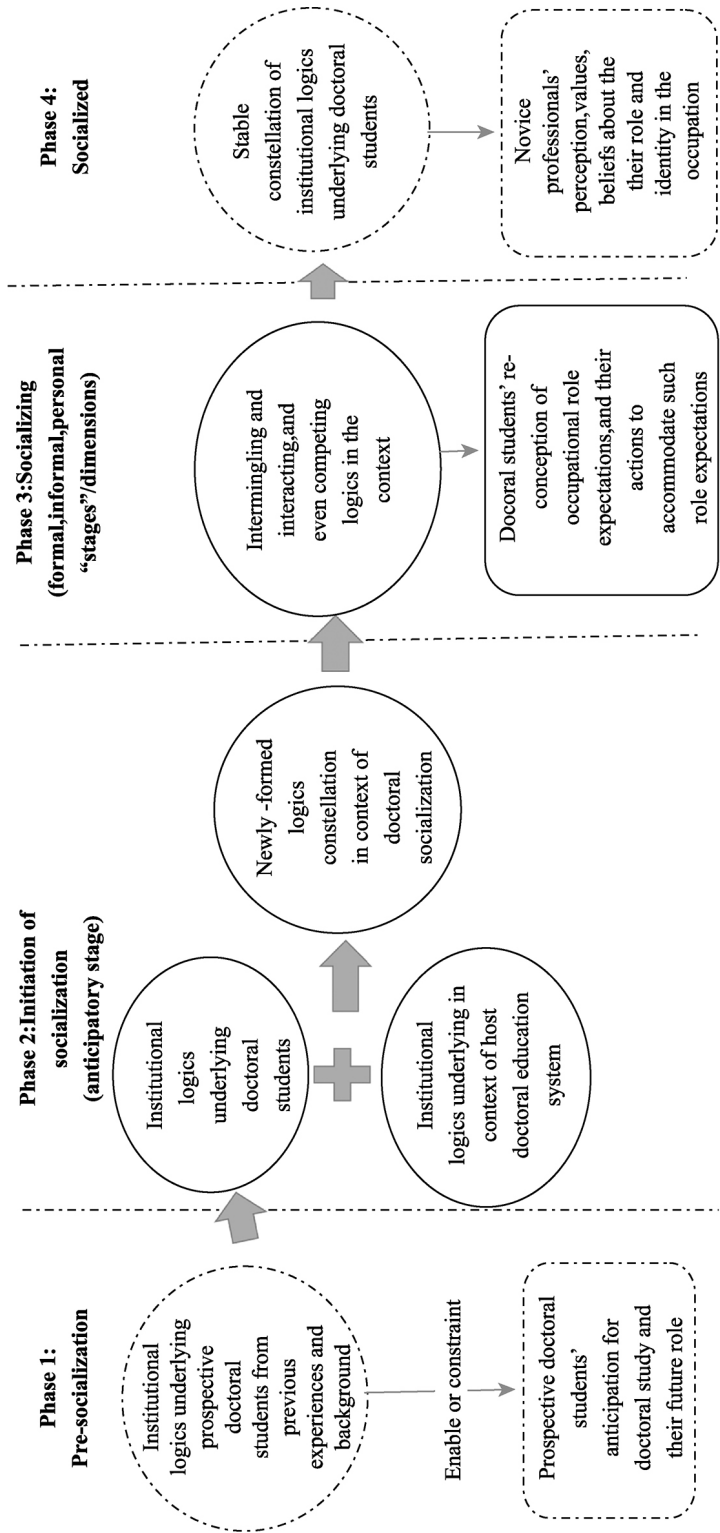
logics as market logic, scientific logic, and blended logic. Even though their study focused only on the market and regulative forces in the environment and neglected other possible influences, it nevertheless highlighted a path for the present study to follow. Thus, this study aims to narrow the research gap by utilizing the institutional logics perspective to examine the factors within the context of socialization and exploring the way these factors have influenced the doctoral socialization process. The chosen theoretical perspective was a follow-up from Mars et al.'s (2014) achievement. It was determined based on the explanatory power of the institutional logics perspective in concretizing the institutional environmental factors and explaining the effect of environmental factors on the actors (Cai & Mehari, 2015). Institutional logics are “the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton & Ocasio, 1999, p. 804).

This paper places a particular focus on how institutional logics in the context of socialization have influenced the socialization process of doctoral students in Finland who have been funded by the China Scholarship Council (CSC). This focus is particularly important when one considers that the number of Chinese doctoral students abroad has become a substantial demographic population of international doctoral students worldwide. Since the 1980s, China has become the world's largest sender of international doctoral students in the US, the UK and Australia (Shen & Wang, 2019). Among Chinese doctoral students abroad, CSC doctoral students represent an important component, owing to the strategic significance of the CSC postgraduate scholarship scheme to train high-level talents and achieve national prosperity with science, education, and talents (Shen, 2018), and its continuing expansion of this population. In contrast to their large and fast-growing population, research concerning CSC doctoral students abroad has only received a moderate amount of attention. Wu (2017) and Li and Collins (2014) have analyzed the socialization experiences of Chinese doctoral students in Germany and America, respectively. These studies have highlighted the importance of researching Chinese doctoral students abroad in order to provide examples for studies concerning international doctoral students. They also suggested that a Chinese student's predispositions, inherited from Chinese culture and its educational system, can influence their socialization experiences (Li & Collins, 2014; Wu, 2017). With a closer focus, Shen and his co-authors (Shen, 2018; Shen, Liu, & Chen, 2017) have studied the learning experiences and productivity of CSC doctoral students in sandwich PhD programs. Their study indicated that the relationship with international host supervisors is critical to ensure that Chinese doctoral exchange students have successful learning experiences, higher levels of research productivity, and more international collaboration and networking. Currently, little is known about the socialization experiences of CSC doctoral degree students in general. Even less is known about CSC students in Finland, where collaboration with China in doctoral education has been flourishing since 2010 (Zheng & Cai, 2018). Prior research concerning the

dissimilarities and conflicts in the doctoral education system between China and Finland has also suggested more empirical studies are needed in order to explore the dynamics of these conflicts (Zheng, Kivistö, Shen, & Cai, in press).

## Conceptual Framework

The present research draws on the conceptual framework proposed by the author (Figure 1) which is grounded in the theoretical principles of both institutional logics and graduate and professional student socialization. This framework represents the developmental path of individuals from prospective students to novice professionals (if socialized successfully) who are driven by the changes and interplays of institutional logics. Next, the author explains the theoretical principles and interpretations of the proposed framework.



**Figure 1** Re-Conceptualizing the Doctoral Socialization Process from an Institutional Logics Perspective

## The Doctoral Socialization Process

The socialization of professional graduate students (including doctoral students) is a continuous interactive process consisting of four stages—namely, the anticipatory stage, formal stage, informal stage, and personal stage (Austin, 2002; Weidman et al., 2001; Weidman & Stein, 2003). Through reading the literature concerning these four stages (Weidman et al., 2001; Weidman & Stein, 2003), the author found that except for the anticipatory stage, which is associated with prospective students and is well defined as the preparatory and recruitment phase (Weidman et al., 2001), the formal stage, informal stage, and personal stage are more dimensions of socialization rather than stages, and they can occur in a non-linear and even simultaneous fashion (Weidman & Stein, 2003). The formal dimension emphasizes the compliance with the “formal instruction in the knowledge upon which future professionals authority will be based” (Weidman et al., 2001, p. 13), thus representing the regulative dimension of socialization. The informal dimension refers to the cultural and cognitive aspects of the socialization process, where doctoral students learn of the implicit “affective and cognitive dimensions of the professional roles” (Weidman & Stein, 2003, p. 644) and accordingly adopt widely accepted and taken-for-granted behavior (Weidman et al., 2001). The personal dimension represents the normative dimension of socialization. In this dimension, students focus on professional matters and “learn how to accommodate the required normative dimensions of a role with his or her personal needs, attitudes and occupational role requirements” (Weidman et al., 2001, p. 15). These four stages encompass the entire development process of individuals moving from prospective doctoral students to their expected roles of doctoral students, academics, members of their discipline, and knowledge producers (Austin, 2002; Boden et al., 2011; Hakala, 2009; Mars et al., 2014; Weidman & Stein, 2003).

## The Institutional Logics Perspective

As a new strand of institutional analysis, the institutional logics perspective is considered a useful theoretical lens for studies of higher education (Bleiklie, Enders, & Lepori, 2017; Cai & Mehari, 2015; Lepori, 2016). It has also proven useful for understanding the organizational context of doctoral education (Gu & Luo, 2016; Mars et al., 2014; Zheng, Cai, & Ma, 2017; Zheng et al., in press; Zheng, Shen, & Cai, 2018). The institutional logics approach posits that the interests, identities, values, and assumptions of individuals and organizations are embedded within prevailing institutional logics, thus enabling or constraining behavior and decision-making (Thornton & Ocasio, 2008). Thornton and Ocasio (2008) also highlighted that the institutional logics perspective sees society as an inter-institutional system; this enables us to concretize any context as being potentially influenced by the institutional logics of different societal sectors. The deconstruction nature of institutional logics provides us with the possibility of theorizing the fragmented and even contradictory nature of factors in the context of doctoral socialization. Within



socialization, environmental factors related to individual attitudes and abilities, the social and academic dynamics of a department, the cultures of academic disciplines and higher education institutions, and recurring issues in the field of higher education that affect disciplines and institutions are all subject to institutional logics in the doctoral education system on which they are based.

The deconstructive nature of institutional logics allows us to theorize the socialization process as a procedure of changing and interacting institutional logics. Structural overlap is an important mechanism that triggers these changes. When individual roles, organizational structures, and organizational functions that were previously distinct are forced into association, a structural overlap occurs and triggers the beginning of logics changes in institutions (Thornton, 2004). Because of this overlap of structures, institutional logics that align with individual roles and organizational structures and functions continue to intermingle, interact, and even compete with each other to exert influences on actors in the institution until they eventually reach a stable relationship (Thornton & Ocasio, 2008).

Based on the empirical discoveries of the doctoral education system in China and the ideal types of institutional logics developed by Thornton, Ocasio, and Lounsbury (2012), five institutional logics in the context of the doctoral education system—state logic, profession logic, family logic, market logic, and corporation logic have been identified and defined (Zheng et al., 2018). These logics are further examined and refined in the comparative study of the institutional logics of Finnish and Chinese doctoral education systems (Zheng et al., in press). Grounded in this, the author here presents definitions of the five logics in the context of doctoral education systems and uses them to interpret the context of doctoral socialization.

### *State Logic*

In the state logic dimension of the doctoral education system, actors with bureaucratic power, such as state governments and university administrators, exert the greatest influence. The system is developed through government policies and regulations, routine administration, and the redistribution of resources. Doctoral education is regarded as a public good and represents the interests of the state and government.

### *Profession Logic*

In the profession logic dimension of the doctoral education system, an individual's status rests on their personal expertise in disciplinary research. Doctoral supervisors who have more advanced expertise in the discipline and more respected academic reputations exert the most authority. Doctoral students, as apprentices of doctoral supervisors, try to enhance their personal expertise and enhance their status in the profession.

### *Family Logic*

In the family logic dimension of the doctoral education system, a research family, which is comprised of a supervisor and their supervisees, becomes the basic unit of the system. A doctoral supervisor acts as the patriarchal leader of their supervision family, and supervisees become their academic children. The doctoral patriarchal leaders and their academic children behave like family members, and the relationship between them is based on patronage and reciprocity.

### *Market Logic*

In the market logic dimension of the doctoral education system, market and market-like activities are adopted in the system and increase the competition for resources and cooperation within the industry. Doctoral degrees and doctoral graduates are profitable commodities and valuable assets in the academic market. The pursuit of a doctoral education is carried out along with a desired increase in the actors' profits.

### *Corporation Logic*

In the corporation logic dimension of the doctoral education system, actors emphasize the efficiency of research resources, and performance-based management. On-time graduation, academic publications, and other activities that can demonstrate the effectiveness and efficiency of doctoral education management are encouraged. Doctoral students are managed through a contractual relationship in which universities or supervisors act as employers while doctoral students act as employees.

## Reconceptualizing Doctoral Socialization from the Institutional Logics Perspective

Based on the theoretical principles of both graduate and professional student socialization and institutional logics, the author reconceptualized doctoral socialization as a process of different or even competing institutional logics that are inherited from an individual student's background, underlie the doctoral education system, and drive the student's development in doctoral education (Figure 1). Considering socialization as a dynamic and continuous process without a definite beginning or ending (Weidman et al., 2001), the proposed framework considers the phases before and after socialization. This aligns with Weidman et al.'s (2001) fundamental framework.

From left to right, the proposed framework begins with the **pre-socialization phase**: the time before doctoral socialization takes place. In this phase, prospective doctoral students' perceptions, values, and behavior are influenced by the multiple institutional logics in the institutional environment where they are located. When prospective students then enter

the host doctoral education system and become doctoral students, they enter into the critical **initiation of socialization phase**. This phase also refers to the anticipatory stage of socialization. In this phase, the institutional logics embedded within doctoral students that were inherited from previous experiences and backgrounds have a structural overlap with the institutional logics in the context of the host doctoral education system. The logics from both sides then begin to intermingle and form a new institutional logics constellation that will guide the development of the doctoral students. At the point of structural overlap, doctoral students become aware of their new role expectations. After the structural overlap of the logics, those formed in the newly created constellation continue to intermingle and interact. Guided by this interaction, doctoral students learn of the regulative (formal), cultural–cognitive (informal), and normative dimensions of occupational role expectations, and accommodate their behavior to the expected role. The author identifies this phase as the **socializing phase**, which is in a state of constant change. It covers the formal, informal, and personal dimensions of socialization. Eventually, the doctoral students will either be successfully or unsuccessfully **socialized** when the relationship between multiple logics in the constellation reaches a stable and interactive status. Under the impact of such a logics constellation, doctoral students develop their professional identities.

Guided by the proposed framework, one can investigate doctoral students' socialization process and the driving forces behind the development and interaction of multiple logics in the logics constellation. These logics are inherited from (prospective) doctoral students' previous experiences and logics in the host doctoral education system.

## Research Method

Based on the belief that the socialization of CSC doctoral degree students in Finland is an uncharted area, the author considers a qualitative approach is appropriate for this study. Following the analytical framework, in 2017, the author collected empirical data through 11 semi-structured interviews and a thorough review of the relevant literature and reports.

In 2017, there were 97 CSC doctoral degree students in Finland. The author sent out interview invitations to them in May. 11 CSC students (five males and six females from five different universities) accepted the interview requests voluntarily and participated in the research in June and July. The response rate was 11.5 %. Unfortunately, however, one interview recording (male, social science) was broken due to recorder malfunction, so only ten interviews are valid. Each interview lasted between one and one and a half hours, with a focus on the students' anticipation of their doctoral education before beginning their doctoral studies, their perception of their doctoral study experiences, and their perception of their identities.

Ethical principles for scientific research in social sciences and humanities in Finland, i.e., voluntary participation and informed consent, avoiding harm, and protecting privacy (National Advisory Board on Research Ethics, 2009), have been taken into account in this

study. After receiving the positive feedbacks from voluntary participants, the author further explained the usage of interview data and asked them for research permission, including permission for recording the interview. All interview participants agreed and sent their consent by signing a research consent form. The interviews were conducted anonymously, and the participants' information was kept confidential. To make them un-identifiable, the author labelled the interviewees, whose interviews were included into this study, from A1 to A10. Table 1 presents the basic information of labeled interviewees. Interviews were carried out in Chinese, the mother tongue of the participants, and were audio-recorded and later transcribed. The transcribed data were translated into English when direct quotations were used in this paper.

**Table 1** *Information of Interviewees*

Name	Discipline	Gender	Start of study year	Funding period of the CSC grant	Means of interview	Interview date
A1	Chemistry materials	Male	2017	2017-2021	Face to face	Jun. 12, 2017
A2	Medicine	Female	2017	2017-2021	Phone call	Jun. 12, 2017
A3	Education	Female	2013	2013-2017	Face to face	Jun. 13, 2017
A4	Social science	Female	2016	2017-2020	Face to face	Jun. 13, 2017
A5	Marine science	Male	2017	2017-2021	Phone call	Jun. 14, 2017
A6	Information technology	Female	2014	2015-2018	Phone call	Jun. 17, 2017
A7	Social science	Male	2013	2013-2017	Phone call	Jun. 18, 2017
A8	Geology	Female	2013	2013-2017	Face to face	Jun. 23, 2017
A9	Food science	Female	2013	2013-2017	Phone call	Jun. 24, 2017
A10	Psychology	Male	2014	2014-2018	Phone call	Jul. 9, 2017

All the interviewees completed their master's degrees in China, and they came from diverse disciplines covering natural sciences, social sciences and medicine. The ratio of gender is 6:4 between female and male. They were completing their doctoral study in four different cities in Finland, including Helsinki, Jyvaskyla, Turku, and Oulu.

Besides interview data, documentary data covering the academic literature of doctoral student socialization and learning experiences in Finland and China, government and non-governmental association reports in relation to doctoral students in Finland were also analyzed.

The author analyzed the collected data through content analysis with the assistance of NVivo 10 software. The author first coded the collected data to the analytical framework and then used the five defined institutional logics of doctoral education systems to interpret the underlying logics of the coded content. The results of the analysis will be presented in the following section of this paper.

## Findings

Guided by the proposed framework (Figure 1), in this section, the author first analyzes how the CSC doctoral degree students recalled their anticipation of their doctoral studies before entering the Finnish doctoral education system and interprets the logics behind this anticipation. The author then describes the institutional logics and related features of the Finnish doctoral education system and presents the components of the newly formed logics constellation in the initiation of the socialization process. The author then discusses how the logics constellation continues to develop, interact, and influence Finland's CSC doctoral degree students' experiences of socialization and development. The author concludes this section with an overview of certain features that CSC doctoral degree students have developed during socialization.

### *Pre-Socialization: The Underlying Logics of CSC Doctoral Students' Anticipation of Doctoral Studies*

Analysis of the interview data shows that CSC doctoral students' preconceptions of doctoral education before socialization were aligned with their understanding of the doctoral education system in China. The Chinese doctoral education system features strong logics of state, profession, and family, and relatively weak but emerging market and corporation logics (Zheng et al., 2018).

Interviewed CSC students recalled that they expected a strict quality assurance system for their doctoral studies. This expectation was driven by the Chinese state logic that emphasizes external regulation and assurance. The CSC PhD scholarship is supported in the form of state funding for doctoral education, and the prospective CSC doctoral degree students considered themselves state-selected, which also entails a logic of state. They also expected a closer, hierarchical, patron-like relationship with their supervisors and a stronger sense of belonging to their research family. For instance, interviewee A<sub>3</sub> (female, education) stated, "In China, the supervisor-supervisee relationship is more hierarchical" and "I often placed myself in a humble position." She further explained, "Before I came, I thought there would be a research family or a closed research community in which we can communicate more with each other." Their pre-conceptions thus reflect a family logic. Regarding the training model, they believed that it would be similar to an apprenticeship, which indicates a logic of profession. Under the influence of market logic, some interviewees from the disciplines of science and engineering thought they would be used as academic labor for externally funded projects and be guided by their supervisors through the said projects. They also expected to publish articles in some publications during their doctoral studies; this manifests the impact of corporation logic on research productivity and efficiency.

## The Initiation of Socialization

### *Logics Underlying the Host Doctoral Education System in Finland*

Grounded in the strong Humboldt tradition of modern higher education, profession logic dominates the institutional environment of the Finnish doctoral education system, while corporation logic has been introduced to the system in recent decades and is growing fast. When compared to these two logics, the influence of state, family, and market logic are relatively weak (Zheng et al., in press).

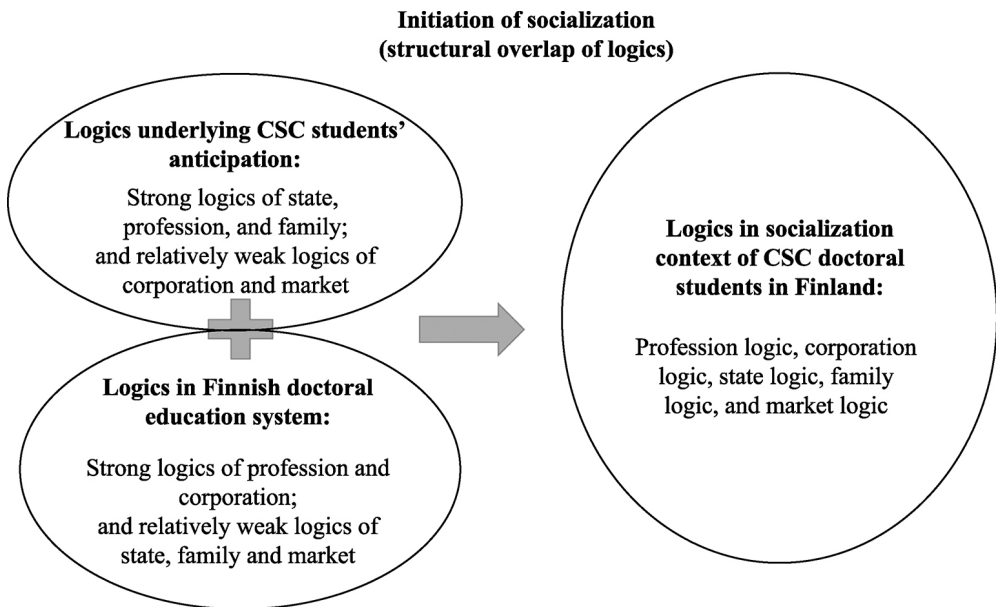
Underlined by the profession logic, doctoral training is traditionally unstructured and in the form of a supervisor–supervisee apprenticeship with an emphasis on doctoral students’ compatibility and initiative (Hakala, 2009). Doctoral students in Finland are treated primarily as junior academic professionals rather than students who need to be educated (Zheng et al. in press).

A logic of corporation is reflected in the performance-based management and employer management of doctoral students in Finland. Driven by corporation logic, a publication-based PhD, which produces more publications for universities and allows supervisors to share their supervisory responsibility with referees (Hakala, 2009), has become increasingly popular. A publication-based dissertation is comprised of three to five peer reviewed articles published in international journals or books and an integrating summary. Meanwhile, some doctoral students are employed by universities for their doctoral research, thus introducing the employee practices of doctoral students. State logic in the Finnish doctoral system is rooted in the Nordic welfare-state model, where there is free tuition and universities enjoying sustainable autonomy in order to arrange doctoral training with an emphasis on equality (Höltkä, Jansson, & Kivistö, 2010). Typically, the influence of state logic remains at the macro level, with loose regulations, financial incentives, and non-binding information steering (Zheng et al., in press).

Similarly, influences of family logic and market logic are loosely enforced in the system. Family logic is usually only noticeable in some exceptional cases where supervisors and supervisees develop a close personal relationship based on reciprocity (Zheng et al., in press). Market logic can be observed in the increased competitiveness of external funding for Finnish universities (Hakala, 2009). Because of different funding situations, doctoral students are categorized into different groups (e.g., employed doctoral students with paid university positions, project-funded PhD students who are financially supported by external project funding, doctoral students who receive external grants from foundations, self-paid doctoral students with their own funding). The CSC doctoral degree students belong to the third group in Finland (i.e., doctoral students who receive external grants from foundations).

## *Structural Overlap and Newly Formed Logics Constellation*

When the CSC doctoral students were enrolled in the Finnish doctoral education system, they formed an association with the underlying logics of the Finnish doctoral education system. As shown in Figure 2, the components of the logics underlying the CSC doctoral students' anticipations and the logics of the Finnish doctoral education system are the same. They comprise the context of doctoral socialization and form a logics constellation of profession, corporation, state, family, and market. These logics guide the socialization of CSC doctoral students.



*Figure 2 Structural Overlap and Newly Formed Logics Constellation at the Initiation of Socialization*

Nevertheless, we can also see that the interrelations and influences of multiple logics are different to quite a large extent (Figure 2). This will affect the interactions among logics in the newly formed logics constellation. Common ground can be found in the strong profession logic as well as the relatively weak market logic, while the situation of the other three logics (i.e., family logic, state logic, and corporation logic) is relatively different. When it comes to a specific aspect (i.e., the supervisory relationship), the underlying logics can also be different.

## Socializing Phase

### *The Developmental Trend of Intermingling Logics*

Since the initiation, multiple logics in the newly formed logics constellation continue to intermingle, guide the CSC doctoral students' development, and affect their experiences in the socializing phase. In this section, the author explores how CSC doctoral students perceive doctoral education and their current roles within this education. The changes in terms of the logics underlying their conceptions are also explored. The analysis shows profession logic and corporation logic have been strengthened, while state logic and family logic have been weakened. No significant change is observed in relation to market logic.

First, CSC doctoral students in Finland have learnt of the formal, informal, and normative expectations of their role as academic researchers and have acted accordingly. Such findings suggest the strengthening of profession logic in the students' perceptions and behavior. The interviewees said that they learnt from their supervisors' professionalism and rigorousness in relation to scientific research, and they gradually understood how to conduct proper research and be independent researchers. They also became aware of the importance of academic autonomy and freedom, and thus appreciated the advantage of the CSC scholarship. According to interviewee A4 (female, social science), "With the benefit from the grant, I can almost completely concentrate on my doctoral research without any interruptions and disturbance." Similarly, interviewee A6 (female, information technology) said she valued the freedom of being able to say no. "I am more confident to reject some project tasks if I don't want to [do them]. If it is related to my doctoral research, I will do it. If not, I refuse."

Second, the CSC doctoral students' preferences for publication-based dissertations and their awareness of appropriate employee behavior are driven by corporation logic. All interviewees were completing a publication-based dissertation. The interviewees realized that due to their "unemployed" status, their supervisors and other actors believed it neither right nor legal to involve them in any activities other than doctoral research. As a result, most of them were uninvolved in teaching or management activities during their studies. According to interviewee A10 (male, psychology): "Because I am not a university employee, in my supervisor's opinion, the funding for my doctoral study is solely for doctoral research." Employer behavior was also noted in terms of ensuring the well-being of the doctoral students. For instance, interviewee A9 (female, food science) was injured during a business trip:

The faculty agreed it was an injury at work. If I were employed by the university, the university's occupational insurance company could have covered the cost. ...The faculty administrator would like to help, but it is the system that she cannot change.

Some interviewees tried to fight against this differentiated treatment at the beginning of their doctoral study, but they gradually compromised. Some even rationalized and fully



accepted it. This suggests that corporation logic was rather strong and changed their conceptions. As interviewee A3 (female, education) put it:

Probably I (should) consider myself as a student. I am studying instead of working. Otherwise, I would think it is an unfair situation considering the nature of work done by me is the same as that by other positioned PhD students.

Third, CSC doctoral students became more independent and less reliant on external steering in the Finnish system. This shows the influence of state logic, as external regulation has been weakened. However, its influence has been shown to be strengthened in the supervisory relationship, and it encouraged the students to develop an equal relationship with their supervisors. When asked about the relationship with their supervisors, all of the interviewees said that it was equal and collegial.

Fourth, the influence of family logic was weakened in the socializing phase. Most of the interviewees had not developed a close and personal supervisory relationship. Their distant relationship sometimes was described by interviewees (e.g., interviewee A5, male, marine science) as a lack of caring, "Sometimes I feel there's no connection between my supervisor and me. My supervisor treats me equally as a colleague. However, equality doesn't mean caring." Only in one case (interviewee A4, female, social science) was the influence of family logic so strong that her supervisory relationship became close and familial as a result. Interviewee A4 described her supervisor:

Except for academic matters, we are also close, actually even closer, in daily life. I have connections with his family. He cares about me, not only regarding the academic aspect, but also my life in Finland. ...I think comparing to supervisory relationship in China, our relation is still less close, but, comparing to the normal supervisory relation in Finland, it is closer.

Their close relationship also represents reciprocity. A4 admitted she has voluntarily helped her supervisor deal with some "small" tasks, e.g., email communication with Chinese partners, but she felt she owed more to her supervisor's help and caring. As A4 explained, "I think supervisor-supervisee relationship basically is a relationship between human beings. When you give others a favor, they would also possibly return you one." Her thinking as well as her relation with her supervisor entails a strong logic of family.

Lastly, the change of market logic was not significant, as interviewees from the fields of natural science and engineering mentioned that they witnessed market-like behavior in their research group, as expected, which affirmed their beliefs in academic capitalism. However, the students also mentioned that they preferred to have their articles published in international indexed journals in order to meet the needs of the academic market. This preference is aligned with the global trend of marketization and may imply a slight strengthening of this logic.

### *Relation and Conflicts of Intermingling Logics*

Following the changing logics, profession and corporation logics have both been strengthened and found to be competing for the domination of the socialization context. This finding is based on the analysis of interview data. Enforced by the strong profession logic, CSC doctoral students have adapted their academic values and gained recognition as junior professionals in an international academic community as well as in their disciplinary field. They usually write at least three refereed publications during their doctoral studies, thus proving their active research productivity. However, the corporation logic competed with and decoupled the influence of profession logic in the recognition of their professional identities and personal expertise development. Due to the employment-oriented way in which Finnish universities manage doctoral students, the CSC doctoral students who do not behave as employees have been marginalized in the management system. The interviewees felt that their professional identities as junior professionals and their academic contributions were not recognized by their universities. Most interviewees considered themselves to be only students rather than independent researchers in their universities. As they were usually only involved in activities related to their doctoral research, they had scant opportunity to develop their teaching expertise. From time to time, the interviewees questioned the rationale behind the employment-oriented practices in managing doctoral students and argued that doctoral students should be treated equally by universities, regardless of their employment status. For instance, Interviewee A10 (male, psychology) pointed out:

The nature of our work (doctoral students with grants and positioned doctoral students) is the same. The quality of our work is not different, but we are not treated equally. I think this is something we should change. Here I'm not referring to the payment differences, but the identity differences, and the discrepancy of expected equal functional role and unequal identity recognition.

This implies that profession logic can be competitive and decouple the influence of corporation logic in the management of doctoral students.

Aside from the competition between profession and corporation logics, decoupling occurs between state and family logics, and meanwhile between profession and family logics. The weakening of family logic in the socializing phase implies that the influence of the said logic has been decoupled by the other two logics of state and profession. As a result, instead of developing a hierarchical patron-based relationship, CSC doctoral students establish an equal relationship with their supervisors. Instead of developing a close and informal relationship, they establish a formal and professional relationship with their supervisors. However, when the embedded family logic held by CSC doctoral students is strong, the opposite could happen. Under such continuous tension between logics, the CSC doctoral students often felt a sense of loss in handling their supervisory relationship. For instance, A3 (female, education) mentioned, "Sometimes I don't know how to deal with

my supervisor, because it is so different here. They are more equal. Sometimes they make jokes with me as well.” Similarly, A<sub>5</sub> (male, marine science) found himself confused about the supervisory relationship. Because in China he had a close relation with his supervisor and his supervisor took care of him as a family member, when in Finland his relation with supervisors become more formal, he often felt confused:

Sometimes I feel he doesn't care about me. But if I said so, it is not true because I am his student and he still supervises me. But if I said he cares about me, he never asks about my progress. ...Until now, I still haven't figured out what is the best way to get along with my supervisor.

In comparison with competition and decoupling, market logic is found to be less dominant and competitive and only exerts its influence on CSC doctoral students in certain ways (e.g., enforcing market-like values and behavior in publishing and project activities).

### *Socialization*

Gradually, in the context of doctoral socialization, while the gradually strengthening profession and corporation logics compete for dominance, the influence of family logic weakens as it becomes decoupled by the logics of profession and state. Market logic does not dispute the dominant logics, but rather combines with them and exerts its influence in a different way. This logics constellation is changing and interacting in a relatively stable way. Under the influence of the said constellation, CSC doctoral students develop their professional identities as novice professionals. In the socialization process, they also develop certain unique features: (1) They have acquired the research expertise required for competent researchers. However, they usually possess insufficient teaching experience. (2) They have developed a more equal and formal relationship with their supervisors, but feel a sense of loss in handling this supervisory relationship. (3) They have become productive knowledge producers. (4) With their research competency and productivity, they become recognized as novice professionals in their disciplines. However, in their universities, there is poor recognition of their professional identities. Thus, as novice academic professionals, they are more committed to the discipline than to their respective institutions.

### Discussion

This study makes an important contribution to the body of research that examines the factors that influence the development and socialization experiences of doctoral students. Particularly, it helps us better understand why doctoral students are socialized or not socialized in a certain way. For instance, even though previous studies have indicated that doctoral students with external funding in Finland usually lack teaching experience (Hakala, 2009), few studies have explained the reasons behind this. From the present empirical study, and using its analytical framework, we can see that the main reason may

lie in that the corporation logic of the management of doctoral students limits the scope of activities of students with external funding and without contractual relationship.

Meanwhile, this study affirms that socialization is a by-directional process that occurs between individual students and the host doctoral education system (Mars et al., 2014). By “by-directional process,” it means that the context of the doctoral education system influences the students; in turn, the system itself is possibly influenced by the students’ values and beliefs that they inherited from previous experiences (Austin, 2002). Furthermore, the study proposes its conceptual framework to consider the interactions of the by-directional influences. To date, most research within this field of inquiry has studied only one-directional influence, i.e., either the influences of individuals’ previous experiences and cultural backgrounds or the contextual factors of the host doctoral education system. Previous studies have failed to capture the common nature of these influential factors, their relations and interactions, and the influences related to said relations and interactions. This is an important gap in the extant literature that the present study contributes to filling.

The proposed analytical framework is particularly useful for understanding the socialization of international doctoral students due to its explanatory power of the natural cultural differences between individuals and the host system, but it also leads us to be conscious of the interpretation of societal institutional logics in different cultural contexts. Today, the predominant educational approaches come from the West, even in non-Western contexts (Grigorenko, 2013). This means that the interpretation of ideal institutional logics is based on a Western perspective (Thornton et al., 2012). However, the adoption of the Western model in a non-Western context does not simply result in a mono-cultural system of university management being applied to a non-Western context. Instead, this system can integrate with the traditional culture of the non-Western context and develop its own by- or multi-culturalism (Yang, 2017). Even with the same societal logic, its reflection may be divergent in different societal contexts. Hence, when applying and interpreting institutional logics in different contexts, one should carefully consider the contextual societal realities and cultural traditions. Further research can also be done to investigate and redefine institutional logics in a more multicultural society (e.g., a Western-Confucian society).

The empirical findings of this study suggest that the dominant logics (i.e., profession and corporation) are the most influential logics in terms of the CSC doctoral students’ experiences and development. Profession and corporation logics represent the core foundations of the Finnish doctoral education system, which is primarily anchored in the recurring themes of professionalism and new public management in higher education. The importance of professionalism is easy to understand, since doctoral education, as a preparatory passage for future scholars, by nature indicates the trend of professionalism. New public management was formally introduced to university management in Finland with the University Act of 2010 (Broucker, de Wit, & Leisyte, 2015). This act heralded an entrepreneurial culture for Finnish universities by separating Finnish universities from

the state-budgeting bureaucracy and transforming them into independent corporations under public law or foundations under private law (Zheng et al., in press). Along with these characteristics, contractual relationships, performance-based funding, and emphasis on efficiency and other corporate behavior intensify the management nature of Finnish doctoral training. The findings of this study are anchored in the current ongoing transformation of Finnish higher education with the University Act of 2010, and support Weidman et al.'s (2001) argument that doctoral socialization should not be considered in an encapsulated institutional environment, but rather in consideration of the recurring themes and issues of higher education systems.

Findings in the study highlight the importance of understanding cultural differences, complementing what Li and Collins (2014) have indicated about the limitations of Weidman et al.'s (2001) socialization framework in explaining the discrepancy of cultures. For instance, in this study, some interviewed students mentioned feelings of aloneness within the scholarly community of the university. Some reported feeling lost when handling their supervisory relationship. They are, as explained earlier, associated with strong family logic in their preconceptions inherited from the traditional familial culture of the Chinese educational system, where teachers are respected as parents or patriarchal leaders (Gu, 2004). This is different from the erosion of the role of the extended family as the basic societal unit in Finnish society, where an emphasis on individualism has to a certain extent replaced the role of the family (Zheng et al., in press). This individualism eliminates or minimizes the influence of family logic on the Finnish doctoral education system. By understanding the logic that underlies a certain culture (e.g., family logics underlying family culture) and its interaction with other logics inherited from other cultures, such findings have contributed to distinguishing and concretizing cultural differences and their associated influences in doctoral students' socialization context. The study also supports previous studies that the influences of traditional Chinese culture should be taken into account when exploring the socialization experiences of doctoral students from China (Wu, 2017; Li & Collins, 2014).

## Conclusion

This study contributes to the theoretical understandings of socialization theory and makes empirical discoveries as to CSC doctoral degree students' socialization experiences in Finland. Interpreting the underlying logics behind the influential factors affecting doctoral students' socialization, this study examines the true forces behind the factors related to both individual values and predispositions and those of the host doctoral education system, and consider them within the same theoretical framework. Through this, the proposed framework can help us better understand the reasons behind the success and failure of quality assurance of doctoral education, i.e. why some doctoral students are socialized or not socialized in a certain way. In future studies, researchers can consider applying the proposed analytical framework to different contexts and further refine it.

The empirical study, guided by the proposed framework, has not only proven the usefulness of the said framework, but also clarified the socialization experiences of CSC doctoral students in Finland and the logics behind those experiences. As the analysis results show, along with the development and interaction of the logics of profession, corporation, state, family, and market, CSC doctoral students in Finland have successfully developed into knowledge producers and junior professionals who are recognized by their discipline and academic community. They also face multiple challenges, such as a lack of professional identity recognition in host universities and the insufficient development of teaching expertise, due to the influence of the competing logics of profession and corporation, and a sense of loss in the supervisory relationship, driven by the continuous tension between family and state logics, as well as between family and profession logics. Nevertheless, considering that the sample in this study includes just ten CSC doctoral degree students, more empirical studies should be carried out in the future in order to further examine the findings of this study.

By drawing on the findings in order to tackle the aforementioned challenges, we should first strengthen the influence of profession logic in the management of doctoral students and promote the idea of doctoral students being treated as equals. Universities need to recognize the position of CSC doctoral students as grant doctoral students and their identities as researchers in the same way that employed doctoral students are. In relation to this, universities should also provide more pedagogical training and teaching practices to doctoral students and enhance their teaching expertise.

Secondly, by learning from the case of interviewee A4, the sense of loss experienced by the students could be resolved by strengthening the family logic in the supervisory relationship. When supervising CSC doctoral students, supervisors are recommended to account for cultural differences and try to understand the needs and anticipations of CSC students. They are encouraged to take more initiatives in following the progress of the students' doctoral research and involve the students in the local academic community more proactively. This will not only enhance the mutual understanding and trust between supervisor and supervisee (thus resolving the sense of loss), but also increase the sense of belonging and commitment of students to their host universities.

Thirdly, by being armed with an understanding of the institutional logics behind the challenges faced by the CSC doctoral students, they themselves can proactively take action to change the institutional logics in their institutional environment. For instance, similar to the suggestion for supervisors, doctoral students could also increase the influence of family logic in their supervisory relationship. They could also follow the culture of strong associations and profession logic in Finland by forming their own association in their local community. By forming an association to represent CSC doctoral students, the recognition of their professional identities in the local academic community can become more visible. A shared association can also provide a common platform for CSC doctoral students to share their experiences and create a sense of belongingness.

Fourthly, as state logic exerts a strong influence on prospective CSC doctoral students' preconceptions, the said logic can help them transition smoothly from the Chinese education system to the Finnish doctoral education system. The CSC and the Chinese Embassy in Finland are recommended to provide more information packages and practical guidance about the Finnish doctoral education system to prospective CSC doctoral students. By gaining more knowledge about the host doctoral education system before socialization, CSC doctoral students can better align their preconceptions with their future host system and reduce the conflicts regarding logics in the initial phase of doctoral socialization.

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