

# Culture and Technology Integration in Higher Education



# Culture and Technology Integration in Higher Education:

*An Ethnographic Study in China*

By

Ling Li

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To my parents, Yiqiang LI and Qingli SI



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# PREFACE

Moving forward requires some signposts along the way and measuring culture must be one of the beacons of educational reform.

Jerome Freiberg

## Background

Along with the rapid development of information and communication technology (ICT), pedagogical innovations using ICT have been taking place in many universities around the world. The purpose of universities' change agenda has been the crafting of a technology-mediated learning environment in which students can enquire, explore, analyse, reflect and construct, and their intellectual capacities can be cultivated. According to UNESCO, worldwide technology investment in higher education has increased more than a hundredfold in the last two decades. However, the actual integration of technology in universities does not seem to proceed with corresponding enthusiasm. Many studies have found that the use of technology by teachers is often ritualized as surface procedures or transformed into pedagogically familiar forms; resistance, tension, inefficacy, and disorders are also found along with adoption. As a result, technologically well-equipped universities have yet to transform education at the scale expected.

The realities of integration, however, do not seem to dampen the great enthusiasm of the educational industry. From “mobile learning” to “cloud learning” and from “big data” to “AI-driven adaptive learning”, fashionable pedagogical innovations powered by the rapid development of technologies have been merging in one wave after another. Universities and teachers in this process are being *swept forward* by the mighty technological wave, with more passive acceptance than thoughtful adoption, and more hardware input than learning outcomes. The current state shows that if we continue to feed interest in technology with nothing more than rhetoric, its potential will not flourish and grow into better instructional practices. To better adopt educational technologies, it is the timely moment to expand our expertise from the clinical world of theories to the real world of integration. This expansion requires new research perspectives to be

adopted, through which more questions need to be asked and answered, and more knowledge needs to be learnt and understood.

## **Theoretical grounding**

In organizational studies, there has been a body of research focusing on the significance of organizational culture and its influence on change. Organizational culture, which consists of the beliefs, values and attitudes held by organizational members, is viewed as “interpretive schemas” that fundamentally shape how the members perceive, think about and respond to change strategies. It is believed that regardless of how well change might be planned in terms of formal organizational approaches, it is the hidden and informal aspects of culture that ultimately promote or hinder the success of change.

In education, culture is central to the life of schools, as it is central to any organization. The culture of school refers to the guiding views held by the participants about the ways school operates, such as what constitutes good teaching and learning, what is valued most in teachers’ communities and what makes effective leadership. Understanding the culture of schools, therefore, can help us to understand much about the dynamics of educational change and its absence: why teachers adopt or resist innovative pedagogies, why teachers’ collaborative activities open up or block off learning opportunities, and why managerial approaches promote change or lead to disruptions. It is in the complex and multifaceted culture that much of the success and failure in educational change is ultimately to be found.

For these reasons, this book embraces the cultural dimension of teachers’ technology adoption, which is believed to open up a fruitful angle to understand the issues in the current technological innovations in higher education. Through a systematic examination of culture, this book intends to get into the “internal logics” of the institutional response to the technology agenda, and thus come to a better understanding of what teachers do, why they do it and how they might do it better. Building on three theoretical lenses, this book has formulated a multilevel cultural framework with respective focuses on pedagogical beliefs (personal level), collegial culture (interpersonal level), and managerial culture (institutional level). This integrated approach has led to a rich understanding of the complexity of culture in higher education and its significance in the implementation of change.

## Uniqueness and significance

This book, which affords a critical investigation of technology integrations, is needed at this time when the field of educational technology is largely forward-looking, with much effort devoted to researching “state-of-the-art” issues. A review of the contemporary ed-tech literature indicates a strong focus on the learning potentials of emerging “new technologies”, such as gamification, learning analytics, AI-powered adaptive learning, and immersive learning with VR and AR. The field of education technology, therefore, is primarily concerned with questions of what *should* happen, rather than what *actually* happens once new technologies are introduced into classrooms. The forward-looking focus of this field has directed most researchers’ attention solely to the positive aspects of technology; the many issues involved in the actual adoptions, i.e., the difficulties, gaps and barriers, are often viewed as teething troubles that will eventually be overcome. The forward-looking focus has consequently left the teachers themselves to face the complexity and uncertainties in teaching.

This book takes the opposite, and perhaps less fashionable, approach, investigating the mundane realities in technology implementations. Being immersed in the various voices and phenomena of the everyday life of teaching, the research has identified the vital, but previously unexamined, issues surrounding technology implementations, including the pedagogical beliefs of teachers, the collegial culture of professional communities, and the managerial culture of the administrative system. Together, the findings draw attention to these invisible, soft fabric aspects of an institution that are worth fighting for if the desired change is to be truly realized in higher education.

## Empirical core

Empirical research was conducted in a university in China. Contemporary Chinese history is one of dramatic change. Since the economic reform initiated in the late 1970s, China has undergone significant transformations in the process of modernization. Its tremendous economic growth, together with the development of science and technology, has promoted the transition of the Chinese economy away from a dependence on the use of machines and a labour force towards a reliance on the transmission of information and other intellectual resources. Such a transition requires transformed pedagogical models for the cultivation of skilled knowledge workers. The selected university is one of the pioneer institutions in the

trend of educational innovation, and these have invested in a vast range of technologies to facilitate the change agenda. Together they have rendered the university as an ideal setting for the purpose of this research.

An ethnographic study facilitates an in-depth understanding of culture and technology implementation. The methodological design of this study has resonated with a *bricoleur*, *improvisational* and *open-ended* style of contemporary ethnography. Based on the nature of each level of analysis, the author flexibly adopted different research strategies, which not only generate fruitful findings, but also take readers on an intriguing journey to appreciate the dynamics of culture in a university.

At the personal level, for example, a narrative approach was employed to examine the teachers' pedagogical beliefs. Learning about teachers' stories accesses the values, concerns and sense-making that directed their technology usage. By analysing the way that teachers' stories were told – their language and imagery, their drama and repetitiveness – the research uncovered underlying beliefs about their teaching and came to a better understanding of how they did their job and why.

At the interpersonal level, a discourse approach was adopted to analyse the interactional patterns of teachers' conversations. The study uncovers the collegial culture in the teachers' community and reveals how it influences teachers' collective learning, reflection and exploration of technology adoption and pedagogical change.

Finally, at the institutional level, this study invented a novel strategy, "voices in dialogue", which brought together the "official voices" of the administration and the "personal voices" of the teachers. By comparing the institutional values of the ICT agenda and the teachers' perspectives during the change implementation, the analysis made explicit the consensus, conflicts, and tensions between the two parties. Such a dialogical approach effectively identified the symptoms of the institutional implementation of change, as well as the managerial culture in operation.

## Structure of this book

This book is organized into six chapters. *Chapter 1* starts with an overview of the changing landscape of global higher education. This is followed by a detailed account of the digital transformation in China's higher education, within the context of the social, economic and technological developments in the wider society. This chapter concludes with a review of the emerging issues in technology integrations and the urgent need for research attention at the current stage of development. To guide the investigation, *Chapter 2* proposes an analytical framework, with

respective focuses on pedagogical beliefs (the personal level), the collegial culture (the interpersonal level) and the managerial culture (the institutional level). Each cultural theme is discussed in detail by referencing the pertinent literature.

*Chapters 3 to 5* present the insights generated from the different levels of analysis. By analysing two teachers' case stories of technology adoption, *Chapter 3* reveals the teachers' belief systems and the role they play in teachers' perception, selection and adoption of educational technologies. This chapter highlights the changing landscape of today's higher education and argues that the seemingly technology-driven pedagogical change actually requires the constant development of teachers' pedagogical beliefs in the changing time.

*Chapter 4* follows two teachers at different career stages, with the research lens focusing on their professional communities. Through a fine-grained analysis of the interactional patterns of teachers' conversations, this chapter uncovers the collegial culture in the teachers' community and reveals how it influences teachers' collective learning and exploration of technology adoption and pedagogical change.

*Chapter 5* establishes a dialogue between the "official voices" of the administration and the "personal voices" of the teachers concerning the issue of technology-supported pedagogical change. Based on the consensus, disagreement and tension addressed between the two parties, the analysis identifies issues in the institutional implementation of the technology agenda and the managerial culture behind it.

Bringing together the different levels of analysis, *Chapter 6* provides a systematic discussion on the significance of culture in technology-supported innovation in higher education, and proposes a theoretical model – "culture as a capacity to change", as a new way of theorizing change integration in higher education. Research insights are envisaged to complicate the current understanding of technology integration and pedagogical change in China's higher education. They will also shed light on a global understanding of the significance of culture in general and open the door for researchers in other countries to explore culturally-anchored issues in their own contexts and to manage change more effectively.

# CHAPTER 1

## INTRODUCTION

We are living in a world that has been profoundly transformed by information and communication technology (ICT). The functions of various technologies, such as 5G, digital devices and associated software, have greatly advanced the ways in which information is produced, distributed and communicated. In the last two decades, new technologies have brought profound transformations to almost every aspect of modern societies, such as business, finance, healthcare, media and communication, and have, in turn, significantly changed the ways in which we live and interact with one another.

In education, technology has also been widely applied to facilitate change. This study is situated within the current trend of technology-supported educational change in China's higher education, reflecting the social, economic and technological developments in the wider society. Through a detailed account of the background, design and initiation of technology integration in China's higher education, this chapter aims to provide the broad context of this research. In particular, *Section 1.1* introduces the reform of China's higher education in light of the new demands of talent cultivation for an emerging knowledge society. *Section 1.2* illustrates the major issues that emerged in the actual technology integration. *Section 1.3* discusses the central role of teachers in initiating the change. This is followed by a critical review of the existing studies on teachers' technology adoption in China. Based on the findings and limitations of the reviewed studies, *Section 1.4* introduces a cultural perspective, as a possible avenue towards a deeper understanding of this issue.

### **1.1 Knowledge society and reform of China's higher education**

“An educational system does not exist in a vacuum. It exists always within a social system which makes its own nature and purpose the framework within which the nature and purpose of its educational idea

must function” (Hefferlin, 1969, p. 143). The social function of education suggests that the development of an educational system can only be properly appreciated when placed within the wider economic and social contexts. This section illustrates the challenge of an emerging *knowledge society* in China, to provide a clear vision of the background and motivation behind the current reform of China’s higher education.

Contemporary Chinese history is one of dramatic change. Since the economic reform initiated in the late 1970s, China has undergone significant transformations in the process of modernization (Naughton, 2007; Ryan, 2010). Its tremendous economic growth, together with the development of science and technology, has promoted the transition of the Chinese economy away from a dependence on the use of machines and a labour force towards a reliance on the transmission of information and other intellectual resources. In such a transition, a knowledge society is emerging, in which economic growth is becoming significantly reliant on the production, dissemination and integration of knowledge.

A knowledge society has three main characteristics that have driven new demands for human resources. First, a knowledge society requires a much faster pace of information production, in which employees’ ability to learn becomes more important than what they have already learnt (Liesa-Orús et al., 2020). Second, a knowledge society relies on innovation as the main fuel of development, so that individuals’ capabilities to invent and innovate become the new determinant of the success of organizations (Kocak et al., 2021). Third, a knowledge society is composed of and sustained by knowledge-based communities. The circulation of new knowledge and the collective development of new expertise among individuals have become agents of change for the economy as a whole (Liesa-Orús et al., 2020; Kocak et al., 2021). Given the new characteristics of a knowledge society, both the government and businesses today are urging educational institutions, particularly those in higher education, to help learners to achieve high standards of cognitive learning. This involves enhancing their “brain power” to think, reflect and innovate, as well as their abilities to obtain, produce and communicate information and knowledge.

The new demands on the workforce of the knowledge society have posed a great challenge to China’s higher education. Compared with the rapid economic growth, China’s higher educational system is lagging behind, with an array of issues that have long existed in teaching and learning: the teacher-dominated pedagogical approach, which leads to students’ passive and non-participatory learning; the exam-oriented system, which stifles students’ creativity and critical thinking; and the



standardized teaching requirements, which constrain the dynamics of pedagogical innovation (M. Wang, Shen, Novak, & Pan, 2009; Gu & Shi, 2010). These issues have impeded the cultivation of skilled knowledge workers and reflect an urgent need for reform in higher education.

To address the challenges of the knowledge society, the Chinese Ministry of Education has launched many projects to promote pedagogical change in higher education with educational technologies. Those projects, which targeted a fundamental change in pedagogical philosophy and an innovative modelling of talent cultivation, set up the main objectives for change in teaching and learning.

However, pedagogical change is not a direct result of the intrinsic qualities of technology as a tool. After more than a decade of development, studies have found that those technologically well-equipped universities have yet to produce a radical enhancement in teaching and learning through their ICT usage; a series of disturbing phenomena have emerged during the actual process of technology adoption.

## **1.2 Issues in actual technology integrations**

Since the large-scale technology implementation, inefficient adoptions have been frequently reported. Researchers find that teachers' technology usage is often transformed into pedagogically familiar approaches or ritualized as surface procedures. Issues documented in early studies can be summarized as three major symptoms.

### ***Symptom 1: selecting less impactful technologies***

A major symptom in teachers' technology adoption is that teachers tend to select certain types of technologies that are consistent with their existing pedagogies; they thus have little impact on their teaching. As reported in early studies, the most frequently used technologies in teaching are those that support a teacher-centred approach, such as using PowerPoint slides to replace chalkboard notes and distributing electronic materials instead of printed copies. By adopting pedagogically compliant technologies and discarding incongruous ones, an existing teacher-centred approach can be maintained, in order to avoid deep conflicts with the incorporated technologies. A paradox thus becomes evident: the more that a technology and its usage fit into the prevailing pedagogical activities, the more it is welcome and embraced, but the less of an impact it has (Zhang, 2009).

***Symptom 2: assimilating new technologies into old pedagogies***

The original purpose of introducing technology in teaching was to facilitate a constructivist teaching approach, which is more individualized, participatory and explorative than traditional methods. In this process, technologies are supposed to be employed as content-open productivity tools to support interactive and explorative learning, such as online discussion, presentation and essay writing. However, during actual usage, technology is often employed in the design of content-bound and curriculum-compliant courseware and resources, such as online drills and practice, computer-assisted tests with fixed answers and web-based gateways that present learning resources in line with the national curriculum. As a result, therefore, although technology is increasingly used in teaching, its revolutionary functions are assimilated into the didactic paradigm and its potential impact is far from evident.

***Symptom 3: ritualizing technology usage as surface activities***

The lack of teachers' willingness and commitment in technology usage is another issue that has been frequently addressed in recent studies. By observing teachers' engagement in online discussions, Li (2010) finds that teachers' responses to students' questions were generally very simple, only one or two sentences; teachers' effort to initiate meaningful online discussions was not evident. A similar observation is made in Zhang's (2009) study, showing that teachers only conducted technology pedagogies in the "demo-lectures" *performed* to visitors and inspectors, and maintained traditional teaching practices in their daily routines. Such sticking-plaster solutions initiated by teachers have degraded innovative ICT pedagogies to surface activities. Researchers in educational technology have come to the consensus that regardless of the advance of technologies, it is teachers, who design, develop and experiment with innovative pedagogies, that are the ultimate key to technology integration. Without teachers' engagement and commitment, educational technology is not, and never will be, transformative on its own.

The phenomena demonstrated above illustrate why technology-supported pedagogical change is so hard to achieve in universities. By assimilating domesticated technologies and conducting pedagogically familiar teaching activities, profound change with the incorporated technologies was avoided. As a result, the traditional teacher-centred approach is still dominant in teaching, whether it is in a chalkboard or multimedia environment, in the use of traditional textbooks or electronic

materials, or in an offline or online environment that teacher-student interactions are conducted.

### 1.3 Turning the spotlight on teachers

Integrating technology in teaching is a complex and system-wide experimentation, involving a wide range of parties and issues, such as policymaking, university leadership, technological infrastructure, software, training, curriculum design, teachers and learners. To understand the current frustrations in technology integration, the first question to address is: who is in charge? Who is the key driving force in this process? As a response, a comparative analysis of technology adoptions in education and other public sectors offers a good starting point. It has been a common reality across many countries that the educational system is always one of the slowest fields to adopt new technologies. This is partly because of the special working routines in teaching and learning. Specifically, routine work in public services, such as nursing, banking, counselling or medical care, often has measurable standards, accountability or effectiveness. When integrating technology in organizational systems like these, its usage can be standardized as unified activities and procedures for staff to follow. In education, however, the varying natures of different subject settings (e.g., pedagogical procedure, resource provision and assignment) lead to different kinds of technology usage in teaching activities. The variety of teaching contexts suggests that there is no one-size-fits-all approach for technology usage in education; effective adoption requires teachers to *fit* technologies into their particular instructional contexts, purposes and procedures. This pedagogical autonomy suggests that to fully understand technology integration in education, teachers must be placed at the centre of the investigation, since it is what teachers think, believe and do at the classroom level that ultimately shapes the way that technologies are applied in teaching and learning.

Educational technology as a distinct research discipline in China emerged in the mid-1990s. In recent years, given the problems and challenges arising from the integration, a new line of research has emerged, featuring critical examinations and evaluations of the actual practices in technology integration (Jiang et al., 2022; S. J. Li et al., 2022; Zhao et al., 2022; S. J. Li & Gu, 2021; Hu & Webb, 2009; W. Zhang, 2009). Due to the critical role of teachers, their capacities, perceptions and practices in technology usage are fully examined. A series of constraints and barriers to teachers' technology adoption have been addressed in diverse research contexts. This section reviews this line of research, in

order to cull their findings, reveal their limitations and more importantly, explore a possible analytical entry into a deeper understanding of teachers' technology adoption in higher education.

### ***The lack of technological skill***

Teachers' technological skills directly correlate with their ICT usage and thus, have drawn abundant attention in early studies. Studies have found that teachers were generally competent with basic computer applications, such as word processing, electronic presentations, web navigation and e-mail management; however, when asked about more sophisticated operations, such as using technologies to support innovative pedagogies, analysing and interpreting learning data, or engaging students in knowledge mapping and discovery-oriented projects, they appeared to be less confident and less interested (Jiang et al., 2022; S. J. Li et al., 2022; Zhao et al., 2022). Similar issues are also addressed in studies conducted in other contexts, ranging from survey-based large-scale projects (Zhang, 2009) to case studies focusing on teachers in particular universities and in particular subject areas (Hu & Webb, 2009). A consensus reached in these studies is that a lack of advanced technological skills has hampered teachers' willingness to integrate technology in teaching; a sustainable training mechanism is needed in universities to provide teachers with ongoing technological support in teaching.

### ***The anxiety of a technology-rich teaching environment***

Studies have also found that teachers' technology anxiety is not only "mechanical anxiety", caused by interaction with the mechanical aspects of computers, but also "existential anxiety", which is evoked by the completely different instructional context, procedure and practice brought in by new technologies (Zhao et al., 2022; Zhang, 2009). Teachers, who used to work productively in an environment that does not involve the use of technologies, may not be willing to throw themselves into a technology-mediated teaching environment that is, for them, full of challenge, ambiguity and uncertainty (ibid.). Zhang's (2009) findings give rise to the consideration of a very important issue in technology integration, which concerns the new role of teachers in a technology-rich teaching environment. However, Zhang (2009) does not explore the issue with further discussions, on topics such as the new characteristics of an ICT-mediated teaching environment, and how teachers should update their knowledge system and reconceptualise their instructional identity to meet

the new demands of the changing context. This issue will be thoroughly discussed based on the research findings in *Chapter 3* of this book.

### ***Partial perceptions toward the value of educational technologies***

Another major inhibitor of teachers' technology adoption is found in their partial perceptions towards the value of educational technologies. Through a survey study, L. Li (2010) finds that the most important values of technology according to teachers were "making the lessons more interesting", "motivating their students", "improving presentations" and "making teachers' administration more efficient"; however, using technology to initiate innovative pedagogies was absent from the list. A similar issue is addressed in Hu and Webb's (2009) study, that technology was perceived by most teachers as simply a "cost-effective substitute for a blackboard, an advanced recorder and capable graph designer", rather than something which would bring about change in teaching. Both studies conclude with the statement that faith in the transformative potential of technologies has yet to be widely established among teachers; this has, in turn, hindered their commitment to explore change through technologies.

A review of early studies identifies the major inhibitors of teachers' ICT adoption in China's universities. It appears that, compared with the robust development of technologies, teachers' skills, awareness and commitment have been lagging behind. However, the review also reflects a critical limitation of the existing research. Despite the variations in research foci and context, the studies reviewed above share the same thinking framework in problem formulation, which is characteristic of a *reductionist*<sup>1</sup> analytical approach. In particular, the targeted technology-supported teaching is usually reduced to a list of things to do and to use, such as teaching resources, tools, activities and procedures; the deep change is assumed to take place automatically once teachers accomplish the component tasks on the "to do list". In sharing this thinking framework, most of the research has converged on a similar idea that teachers lack the competence to judge why, when and how to use technology in education, and has ended up criticizing teachers for not faithfully integrating the new approaches. Such a reductionist approach has caused the research to fail to look beyond the visible barriers to technology adoption and to explore the more fundamental questions, such

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<sup>1</sup> The reductionist approach understands the nature of complex things by reducing them to the interactions of their parts. The underlying philosophical position of reductionism is that a complex system is nothing but the sum of its parts, and thus an account of it can be reduced to accounts of individual constituents.

as why are teachers not devoted to developing the greatly needed technological skills? Why does the optimistic, theoretically-sound technology agenda lose its glamour for teachers? Why do they persist in keeping their traditional style of teaching and not setting off on a pedagogical exploration with the new technologies? What are the greater obstacles behind all the constraints and limitations?

To investigate these questions, Hargreaves' (1994a) analysis of teachers' work broadens our scope of understanding:

Teachers teach in the way they do not just because of the skills they have or have not learned. The ways they teach are also grounded in their backgrounds, their biographies, in the kinds of teachers they have become. Their careers – their hopes and dreams, their opportunities and aspirations, or the frustration of these things – are also important for teachers' commitment, enthusiasm and morale. So too are relationships with their colleagues – either as supportive communities who work together in pursuit of common goals and continuous improvement, or as individuals working in isolation, with the insecurities that sometimes brings (p. ix).

As we come to understand these wider aspects of teaching, we also begin to realize that it is not that teachers are personally unskilled, unknowledgeable and uncaring, but teachers in a particular institutional context are constrained or shaped by the particular culture and structure, such as the professional support they receive, the collegial relations in which they are involved, and the administrative systems of control, reward and promotion under which they work – all these factors will affect the way they teach in the classroom. In this sense, therefore, the contextually indiscriminate criticism of teachers' personal skills, knowledge and commitment in their ICT adoption, as addressed in early studies, has little substantive significance in teachers' work and little to offer to policymakers. If we are to develop a sophisticated rather than a stereotyped understanding of teachers' technology usage, it is important to consider the broader context of teaching and to study teachers' work with a spirit of understanding rather than condemnation.

## 1.4 A cultural perspective

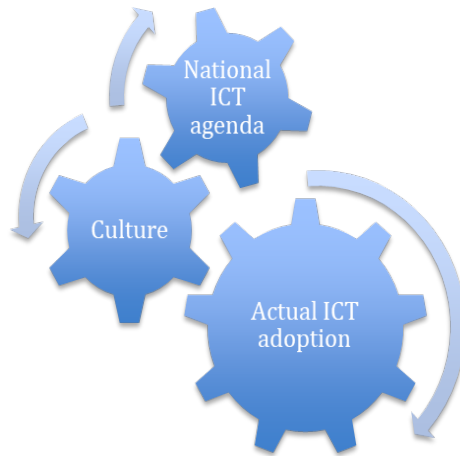
The metaphor quoted by Clifford Geertz (1973) in *The Interpretation of Cultures* from Max Weber provides a theoretical path to consider the contextual perspective of teachers' work. He said: "man is an animal suspended in webs of significance he himself [sic] has spun" (p. 5). The "webs of significance" were regarded as culture. In this sense, Geertz was

saying that humans can create and modify their cultures and their culture then serves to define the world around them through methods of understanding enforced by cultural institutions. Once spun, such webs create realities hard to alter (Geertz, 1973). Similarly, institutions such as universities are certainly influenced by power from external factors such as economic and political conditions, yet they are also shaped by strong forces that emanate from within (Tierney, 1988). Culture as a major internal dynamic has its roots in the history and goals of an institution; meanwhile, it reflects the decisions, actions and communications in the institution's working in various levels and perspectives (ibid.). Hence, there is no one-to-one correspondence between actions and results in institutional change. Culture, as a critical link, influences the reception, interpretation and implementation of change agendas.

In light of this understanding, therefore, effective technology adoption cannot be oversimplified into a "to do list" as in a reductionist approach. The causations of technology-supported pedagogical change in an institution are analogical to *chemical effects* rather than *mechanical ones*, in which culture may serve as a significant contextual element that, in various ways, influences the generation of change. As such, the present study makes its assumptions as to what occurs when the national agenda of ICT-supported pedagogical change is introduced into higher educational institutions and, is, in turn, melted and recast by their cultural moulds; and the end product may or may not be change. In particular, this study seeks to prove the link, which is likely to exist between culture and technology integration in higher education, by specifically investigating how culture influences teachers' perception, interpretation and adoption of educational technologies (see Figure 1.1).

In sum, to understand the current stalemate of technology integration in higher education, teachers, as front-line educational providers, should be placed centre-stage in the whole discussion. A review of pertinent studies indicates that research on teachers' technology adoption has long been dominated by reductionist thinking, which traces the reasons underlying poor technology adoption to teachers' skills, knowledge and commitment *per se*, while ignoring the contextual factors that profoundly shape the way they teach. Despite this fact, mainstream research is still driven by this mechanistic approach of analysis; it becomes increasingly difficult to find "basic" research, which is strongly theoretically driven and strives for a breakthrough in understanding. Drawing on a cultural perspective, this study endeavours to conduct a more critical and systematic analysis of this issue. Potential findings are expected to provide

a fuller picture of technology integration in higher education, which can truly give meaning and direction to the future efforts of change.



**Figure 1.1 The role of culture in technology integration in higher education**



## CHAPTER 2

# TOWARDS A THREEFOLD CULTURAL FRAMEWORK TO UNDERSTAND TEACHERS' TECHNOLOGY ADOPTION

This chapter develops a cultural framework to investigate teachers' technology adoption in higher education. Through a systematic review of the originality, development and contributions of cultural studies, this chapter proposes a multilevel cultural framework. At each level of analysis there is a cultural theme. These are pedagogical beliefs (the personal level), the collegial culture (the interpersonal level) and the managerial culture (the institutional level). These three levels of analysis are not separate or hierarchical but are built into a dialectic and holistic framework that looks at teachers' technology adoption from different perspectives. *Section 2.1* offers an overview of culture as a shifted paradigm in social science studies and its application in learning change in organizations in general and in higher education in particular. *Section 2.2* reviews the development of cultural studies in higher education and identifies three promising lines of inquiry that inform the design of the present study. *Sections 2.3, 2.4* and *2.5* discuss these three cultural themes respectively. Based on the discussions, *Section 2.6* defines the research questions of the present study. This chapter concludes with a summary of the main purpose of this research.

### 2.1 The emergence of a cultural perspective

As a response to the dramatic crisis of functionalist theories<sup>2</sup>, cultural studies as a shifted paradigm in social science have emerged rapidly since

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<sup>2</sup> Functionalist thought, from Comte onwards, has looked particularly towards biology as the science providing the closest and most compatible model for social science. Biology has been taken to provide a guide to conceptualizing the structure and the function of social systems and to analysing processes of evolution via mechanisms of adaptation ... functionalism strongly emphasizes the pre-eminence

the late 1970s (Alexander, 1988). What lies behind this “cultural turn” is a shifted epistemology in understanding individuals’ social behaviours. Rather than examining how mental and psychological structures govern activities, researchers started to explore how cultural contexts mediate individuals’ perceptions and actions (Alexander, 1988; Bonnell & Hunt, 1999). This intellectual movement in social science has given rise to the interest in cultural studies in a variety of disciplines, particularly in the field of organizational studies (Alexander, 1988; Peterson & Spencer, 1990).

### ***Organizations as cultures***

In organizational studies, researchers started to notice the significance of culture in shaping organizational performance from the early 1980s (Barley, 1983; Barley, Meyer, & Gash, 1988; Greenfield, 1975; Martin & Meyerson, 1988). Cultural studies in an organizational context focus on the deeply-seated values, assumptions, beliefs and ideologies shared by organizational members and their impact on daily work (ibid.). The significance of culture in organization has been uncovered and articulated in numerous studies (e.g., French & Bell, 1990; Greenfield, 1975; E. H. Schein, 1990, 1996). Among these, French and Bell’s (1990) metaphor of the “organizational iceberg” offers a vivid illustration. This metaphor depicts two contrasting aspects of organizational life. The part above the water is composed of the more visible and formal aspects of an organization, such as its strategies, structures, systems and procedures. The second, hidden part of the iceberg, is composed of the more covert aspects of organizational life, which include the beliefs, values and attitudes held by organizational members. The iceberg metaphor draws attention to the proposition that the “basic underlying assumptions”, which are unconscious and taken-for-granted, actually function as “interpretive schemas” that shape how participants perceive, think and act (French & Bell, 1990). This organizational cultural system has been further interpreted by some scholars as an “organizational framework” that gives order to the people and events within it (Ball, 2012; E. H. Schein, 1996). Some have even argued that “the [cultural] system – unseen behind everyday affairs – is real; it is the organization” (Ball, 2012, quoted from Barr-Greenfield, 1975, p. 65).

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of the social world over its individual parts (i.e., its constituent actors, human subjects) (Giddens, 1984).

The idea of viewing culture, as to what an organization *is* rather than what an organization *has*, is to highlight the fact that the cultural system is the ultimate source of institutional values and action and, thus, should be given sufficient research attention. Since this “cultural turn”, studies on organizational change, which had long focused on concrete procedures and structures, have increasingly shifted their focus to the influence of culture on organizational members’ reactions to change strategies (Peterson & Spencer, 1990; E. H. Schein, 1996). Empirical studies have uncovered a series of cultural perspectives (e.g., values, leadership and power relations) that promote or constrain the degree of change adoption (French & Bell, 1990; G. Morgan, 1989; E. H. Schein, 1996). A consensus has been reached in this line of studies that, regardless of how well change might be planned in terms of more formal organizational characteristics, it is the hidden and informal aspects of organizational culture that will ultimately help or hinder the success of organizational change.

### *University as cultures*

The increasing understanding of culture in organizational studies provides revolutionary insights to the field of higher education. Since the mid-1980s, there have been some initial attempts to introduce the concept of “organizational culture” to the studies of higher education (Becher, 1987; B. R. Clark, 1980, 1987b; Masland, 1985; Tierney, 1988). As the researchers suggest, on the one hand, modern systems of higher education develop massive structures and procedures that create order and rationality; and on the other hand, higher educational systems are always steeped in their own traditions, values and beliefs that influence the decisions, actions and communications in the organization’s working, “both on an instrumental and a symbolic level” (Tierney, 1988, p. 3).

The most prominent figure in the research of culture in higher education is Burton R. Clark (1980, 1983, 1987b, 1998). In 1980, Clark, for the first time, put forward the concept of “academic culture” and has continually expanded and refined it in his later work (B. R. Clark, 1983, 1987b, 1998). According to Clark, culture encompasses “the complex set of cultural beliefs and structures that are upheld by an academic community”, and serves as the myriad “rules of the game” that define what is expected in an institution and how change programmes are to be constructed and delivered. Based on the symbolic nature of culture<sup>3</sup>, Clark

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<sup>3</sup> Geertz (1973) defined culture as “an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate and develop their

(1987b) suggests that a cultural perspective on higher education allows researchers to view the world through the eyes of their subjects and, hence, gets them inside the system in which the subjects live:

With a little imagination [a cultural approach] allows observers to see the system from the bottom up, looking out from the positions and perspectives of faculty, students and local administrators, as well as from the top down, where analysis flows toward the problems and orientations of central officials, national legislators, and those who advise and influence them. (p. 106)

Therefore, when studying change implementation in higher education, such an internalist perspective, as Clark (1987) suggests, enables researchers to go beyond the external “demand”. They can then move into the “internal logics” of the institutional response to change and address further questions, such as “what is the response to a particular change in external conditions?” and “as a ‘demand’ flows into the system, who supports it, who resists it, and how is it organizationally implemented and thereby shaped?” (p. 107).

The concept of academic culture experienced a crucial stage of development in the 1990s, when various cultural perspectives were developed. These include governance patterns (Bergquist, 1992; Smart & John, 1996; Tierney, 1988), the philosophy of education (A. Hargreaves, 1997), beliefs in teaching and learning (Masland, 1985) and the culture of academic communities (Bergquist, 1992; B. R. Clark, 1987a, 1997; A. Hargreaves & Dawe, 1990a). These cultural perspectives have greatly enriched the understanding of academic culture, laying the theoretical foundation of this field of research.

## **2.2 The development of research on cultural studies in higher education**

In the past decade, the concept of academic culture has become one of the most pervasive and influential concepts in the studies of change in higher education. Although, to my knowledge, there has been no study that has systematically looked at the significance of culture on teachers’ technology adoption, this concept has been widely applied to understand other types of change integration in universities, such as initiating curriculum

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knowledge about and attitudes toward life” (p. 89). Culture as defined by Geertz, along with behavioural patterns associated with the conceptions about life, has become a fairly standard definition of culture within anthropology.

change (A. Hargreaves, 2005c; Roehrig & Kruse, 2005), pedagogical innovation (A. Hargreaves, 1997) and new professional development programs (Kezar & Eckel, 2002). Notably, despite being linked to the same conceptual root, these studies have adopted different analytical approaches and have branched off in many directions of research. Through an extensive literature review, I identified three promising lines of inquiry, which enriched my understanding of the significance of culture and informed the design of a multilevel cultural framework for the conduct of the present study.

The first line of inquiry focuses on the personal level of academic culture, exploring how teachers' pedagogical beliefs influence their adoption of change strategies. This body of research is based on the underlying assumption that a pedagogical culture, which is composed of long-developed and deeply-entrenched thoughts about teaching in an institution, has significant effects on teachers' reactions to and adoption of change programmes (Cavanagh & Romanboski, 2008; Hargreaves, 1997; Hinde, 2004; Sarason, 1996; Zhang, 2009). When incorporating new instructional activities, teachers tend to reinterpret these activities in light of their beliefs about teaching and adjust them accordingly (*ibid.*). Studies have identified a series of factors in teachers' beliefs that determine the implementation of change, such as teachers' beliefs about the nature of knowledge, teaching orientations, power structure in the classroom, social organization of learning, valued learning outcomes, and teachers' and students' roles and their relationships (Cavanagh & Romanboski, 2008; A. Hargreaves, 1997; Roehrig & Kruse, 2005; J. W. Zhang, 2009). A consensus has arisen in this line of research that teachers' pedagogical beliefs serve as an "intuitive screen" through which teaching is framed, filtered and guided; when initiating new curriculum and teaching strategies, therefore, teachers' beliefs should be given salient consideration (Hinde, 2004; Roehrig & Kruse, 2005).

The second line of inquiry focuses on the interpersonal level of academic culture, exploring the collegial culture among teachers and its influence on teacher learning and pedagogical change. The concept of collegial culture arises with an emerging interest in a professional community, which provides teachers with opportunities to share teaching experience, question ineffective routines and explore new approaches for change (Andy Hargreaves, 1992; Little, 2002; Little & McLaughlin, 1993b). Researchers find that collegiality in a teachers' community does not happen automatically; it is the collegial culture, which defines the forms of collegial interaction and the patterns of association, that eventually defines how teachers work with each other (*ibid.*). In recent

years, the phenomenon of teachers' professional isolation has been frequently addressed in this body of research, which tends to result in teachers' anxiety about their effectiveness, their fearfulness over external evaluation and their reluctance to adopt new approaches. A number of case studies have indicated that the professional isolation of classroom teachers has resulted in persistent failures to secure curriculum implementation and pedagogical change (Cooper, Ling, & Stewart, 2010; A. Hargreaves & Dawe, 1990a; Andy Hargreaves, 1999, 2001a; Little, 1993, 2002; Little & McLaughlin, 1993b). Accordingly, discovering how to create a collaborative culture to facilitate teacher development and pedagogical change is now a central focus in this body of research.

The third line of inquiry focuses on the institutional level, exploring how universities' managerial culture shapes the implementation of change. This body of research challenges the conventional focus on the concrete structures and procedures in change implementation, and endeavours to explore the *cultural realities* in leadership and managerial approaches. Through the studies of change in different contexts, such as initiating collaborative leadership (Kezar & Eckel, 2002), pedagogical innovation (A. Hargreaves, 1997; Hinde, 2004) and teachers' development programmes (Kezar & Eckel, 2002), researchers have uncovered a link between managerial culture and change integration: "A healthy culture can promote identification (who we are), legitimation (why we need to do), communication (with whom we talk), coordination (with whom we work) and development (what are the dominant perspectives and tasks)" (Davies, 1997, p. 135, cited in Lueddeke, 1999, p. 236); while conflicting culture tends to lead to ineffective plans and disruptions (Valentin, Dinescu, & Valentin, 2011). Based on the findings, the scholars argue that "culture and leadership [...] are two sides of the same coin" (Lakomski, 2001, quoted from Schein, 1992, p. 1); therefore, the creation of a managerial culture, which is more responsive and receptive to change, should be the paramount responsibility of university leaders (A. Hargreaves, 1997; Hinde, 2004; Lakomski, 2001).

A review of pertinent studies identifies multiple lines of evidence, showing that culture has a strong influence on universities' adoption of change strategies. Each research line discussed above has distinct implications for the design of this research, which aims to investigate teachers' technology adoption in China's higher education. The remainder of this chapter treats culture as an umbrella concept and formulates a threefold analytical framework to explore the impact of culture on teachers' reception, interpretation and implementation of educational technologies.