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A COMPARATIVE CASE STUDY OF THE IMPLEMENTATION OF EDUCATION REFORMS IN FINLAND AND SINGAPORE

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Abstract

International organizations have in the past promoted a decentralized, loosely coupled approach to education reform, emulating high-performing school systems such as that in Finland (Mourshed et al., 2010). The promulgation of a supposed universal model for successful education reform has drawn criticism from researchers who give the example of Singapore's high-performing system that, in contrast, employs a tightly coupled and controlled approach to reform (Dimmock and Tan, 2016). This seeming contradiction raises the question of whether a universal model for implementing education reform and developing school systems on a path towards high performance exists. This dissertation aims to compare the implementation of education reforms in Finland and Singapore to better understand the nuances of reform in contrasting settings. Based on an extended literature review of reforms in both countries, the dissertation analyzes and compares how control was distributed to actors at various levels of the system, how stakeholders made sense of the reforms, and with what degree of fidelity the reforms were implemented. It finds that the Finnish and Singaporean school systems differed substantially in their approaches to implementing reform, both in terms of the distribution of control and the sense-making processes in which stakeholders engaged. In both school systems, consistent and faithful implementation was largely absent. This dissertation concludes that the success of specific reform approaches is inextricably linked to the context of each school system, highlighting the limits of universal recommendations for successful education reform.

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1 Introduction

How to develop school systems on a path towards strong performance has long been a topic for debate. These discussions have only intensified with the advent of large-scale assessments, such as the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) (Santos and Centeno, 2021). Such standardized assessments allow policymakers to compare approaches for educational reform internationally and judge their effects on student learning. The availability of rich data sets on student outcomes from school systems around the world has propelled many researchers to attempt to find a 'gold-standard' path to improving education that can be applied to all school systems equally. For instance, in a widely distributed report by the consulting firm McKinsey&Company, Mourshed et al. (2010) study the trajectories of several of the most-improved school systems and attempt to find commonalities in the interventions that propelled these systems to improve. They differentiate four stages of development (poor-to-fair, fair-to-good, good-to-great, and great-to-excellent) and identify policy interventions that corresponded with improvement during each stage. For example, systems in the good-to-great stage focused on strengthening the teaching profession and improving teacher quality by establishing teacher career tracks and enhancing in-service training. Notably, Mourshed et al. (2010) report that while school systems in the poor-to-fair stage exerted tight control over teaching and learning, systems progressing towards more advanced stages tended to "provide only loose guidelines on teaching and learning processes" (p. 20). In systems moving from great to excellent, governments "move[d] the locus of improvement from the center to the schools themselves" (p. 20) and "[decentralized] pedagogical rights to schools [and] teachers" (p. 28). The Organization for Economic Cooperation and Development (OECD), which administers PISA, similarly reports that "school systems that grant more autonomy to schools to define and elaborate their curricula and assessments tend to perform better than systems that don't grant such autonomy" (OECD, 2013, p. 52).

Notwithstanding the question of whether large-scale assessments are a valid marker of high-quality education, upon which Mourshed et al.'s (2010) recommendations and those of the OECD rely, McKinsey&Company's advocacy for a devolved, more democratic style of policy implementation deserves scrutiny, given these organizations' wide-reaching impact. For instance, Mourshed et al. (2010) limit their analysis to systems with a history of improvement on international assessment, yet by focusing solely on systems that improved,

their methodology excludes a pivotal prerequisite for any claim to causality, namely a control group. The interventions observed in systems that improved could just as well be present in systems that did not, but their methodology precludes any such conclusion. Indeed, the absence of a control group weakens the conclusions of much of the 'best-practices' research that seeks to identify commonalities in successful school systems (Greene, 2012).

Moreover, several high-performing systems appear to diverge from the proposed 'gold-standard' path for improvement that ends with governments distributing significant control to schools. Finland, which approaches education reform in a highly devolved manner (Sahlberg, 2015) and serves as the sole example of an 'excellent' school system in the McKinsey&Company study, has substantially declined in PISA over the last 15 years (OECD, 2019a). Furthermore, Shanghai and Singapore, both high-performing school systems, rank below the OECD average on school autonomy over curricula and assessments (OECD, 2013, p. 132). On closer inspection, the correlation between PISA performance and school autonomy over curricula and assessment – while indeed positive, as reported by the OECD –, is, in fact, fairly weak (with an R-squared coefficient of only 0.13 across all participating countries and economies) (OECD, 2013, p. 51). In other words, while school autonomy can account for some of the variation in PISA performance, high-performing systems are indeed found across the spectrum from low to high levels of school autonomy.

Dimmock and Tan (2016) critique the approach taken by McKinsey&Company and the OECD as well as the level of confidence with which they make their recommendations as 'naïve empiricism' – the reductionist attempt to "simplify the attributions of education system success to a misleadingly small number of factors" (p. 165). Specifically, Dimmock and Tan (2016) outline how Singapore, while scoring well above Finland in PISA (OECD, 2019b), has not followed the trend towards devolution to the degree advocated for in the McKinsey&Company model. While schools have received some autonomy in designing co-curricular activities, the national curriculum and assessment procedures place strict limits on schools' discretion in shaping their students' learning experiences. Even though Singaporean teachers are well-trained, well-paid, well-respected, and frequently engage in peer collaboration and professional development – all markers of a highly-developed teaching profession –, "teachers in most Singapore schools do not appear to enjoy a high degree of autonomy in the exercise of their professional practice" (Dimmock and Tan, 2016, p. 167). To be sure, the high performance of Singapore in large-scale assessments should not be taken as causal evidence for the superiority of tightly controlled reform implementation just as much as Finland's still strong performance is not evidence of its inferiority. However, the

disconnect between the promulgation of a 'gold-standard' model and what appears to be a contradiction of it in practice justifies further exploration and clarification. In short, is there in reality only one model of successful education reform implementation in high-performing school systems?

To better understand the nuances of education reform in contrasting settings, this dissertation aims to explore the differences between the implementation of education reforms in Finland and Singapore. Both Finland and Singapore are high-performing systems with a similar population size that are often considered model school systems, yet are also viewed as pursuing contrary approaches to education reform. Consequently, these two systems are illustrative of the apparent contradiction between the approach taken by some Asian school systems and that advocated for by international organizations. Many governments look to high-performing school systems as role models for education reform and, consequently, take the recommendations of international organizations seriously (Santos and Centeno, 2021). Therefore, a better understanding of how context can affect the implementation of education reform can support governments in being appropriately critical when transferring implementation strategies to their context.

Given Dimmock and Tan's (2016) critique of Mourshed et al.'s (2010) model based on the case of Singapore's tightly controlled approach to reform implementation, this dissertation will begin with the hypothesis that the implementation of educational reform in Finland and Singapore does, indeed, differ significantly. If confirmed, such a result would cast doubt on the existence of a 'gold-standard' model of reform implementation in high-performing school systems. In order to test this hypothesis, this dissertation seeks to answer the following three research questions:

- **Research Question 1**: To what extent do Finland and Singapore differ in the amount of control granted to actors at different levels in adapting the reforms to their context?

- **Research Question 2**: To what extent do Finland and Singapore differ in how actors at various levels make sense of the reforms?

- **Research Question 3**: To what extent do Finland and Singapore differ in the degree of fidelity with which the reforms are implemented on the ground?

While capturing the entirety of educational reform implementation in these countries is beyond the scope of this dissertation, the three research questions reflect key aspects of how reform initiatives translate to implementation on the ground. Whereas Research Question 1

takes a system-level perspective in asking how much discretion actors on each level (i.e., local governments, schools, teachers) have in implementing reforms, Research Question 2 focuses on individual actors, the processes through which they interpret reforms, and the factors that influence these interpretations. Finally, Research Question 3 explores the link between the interpretations of reforms and their actual implementation in schools and classrooms as well as the degree to which these on-the-ground practices align with policymakers' intent. While necessarily incomplete, these questions, taken together, should give a representative picture of the approach taken by each country in implementing educational reform.

In order to answer these questions, this dissertation is structured as follows: Chapters 2.1 and 2.2 introduce the reader to two theoretical concepts upon which the comparative discussion will draw, namely the notion of tight-loose coupling, as developed by Weick (1976), and that of sense-making, as developed by Spillane et al. (2002). Chapter 2.3 serves as a brief introduction to the Finnish and Singaporean school systems through the lens of tight-loose coupling. Chapter 3 outlines the methodology – an extended literature review – employed by this dissertation. Chapters 4 and 5 detail the findings of the literature review. Chapter 6 serves as a comparative discussion of these findings, and Chapter 7 draws conclusions, considers the implications, and gives recommendations based on the findings and their discussion.

2 Conceptual Framework & Context to the Finnish and Singaporean School System

2.1 Tight-Loose Coupling

While the OECD and McKinsey&Company use terms such as 'autonomy' or 'decentralization' to describe school systems, an argument can be made that these concepts alone are insufficient to describe the ways in which governments influence practitioners' behavior on the ground. For instance, accountability schemes that rely on student test scores may constrict schools in their choices of pedagogy and curriculum, despite their having autonomy over these aspects on paper. Instead, the concept of tight and loose coupling appears to be a more suitable descriptor of the forces influencing practitioners' behavior. In his seminal paper 'Educational Organizations as Loosely Coupled Systems,' organizational sociologist Karl Weick (1976) argues that, as opposed to many corporate organizations at the time, schools – at least those in many Western countries – are characterized by a lack of interdependence among the individuals working in them; they are 'loosely' coupled systems, in which teachers largely work independently with little oversight or coordination with peers and considerable autonomy over their work.

Broadly speaking, the term 'tight-loose coupling' refers to the notion that elements in a system can have varying levels of interdependence. Loosely coupled systems are characterized by independent sub-units, an absence of standardization or monitoring, distributed leadership, and the acceptance of diversity of practices, while tightly coupled systems are characterized by standardization, strict monitoring, hierarchy, and central decision-making (Hargreaves, 2011). While tightly coupled systems respond better to top-down change initiatives, the limited freedom to experiment can stifle innovation. In a loosely coupled system, actors' comparatively weak coordination and their unresponsiveness to external direction can impede change yet also hamper the effects of bad policy imposed from above (Hautala et al., 2018). Generally, both tightly and loosely coupled elements are found in most schools and school systems, with those in Western countries historically considered more loosely coupled. However, in some loosely coupled systems, the past decades have witnessed the introduction of "educational reforms, such as higher standards, testing, and accountability, [that] seek to improve student achievement through tightened centralized control" (Fusarelli, 2002, p. 562).

One strength of tight-loose coupling is the flexibility with which it can be applied to diverse situations. Hargreaves (2011), for instance, differentiates between professional coupling (i.e., the amount of autonomy that teachers possess), institutional coupling (i.e., the linkages between structures within an organization), and inter-institutional coupling, which describes "the nature and extent of a school's linkages to other schools and organizations" (p. 689). Furthermore, Dimmock and Tan (2013) distinguish "vertical (coupling operating hierarchically between different levels) from lateral (coupling between professionals and units/sub-units at the same level)" coupling (p. 323). However, Dimmock et al. (2021) highlight some weaknesses of tight-loose coupling as a tool for analysis. For instance, a binary model (i.e., couplings are loose or tight) is used to describe what is more likely a spectrum with varying degrees of looseness and tightness. Looseness and tightness are also difficult to quantify, especially as some couplings may be simultaneously loose and tight, for example, when schools possess autonomy but also face scrutiny from accountability measures. Finally, while tight-loose coupling serves as a tool to describe relationships between parts of a system, it does not provide guidance on the suitability of tight or loose coupling for any given relationship. Still, even as these shortcomings point to the limits of tight-loose coupling as a tool for analysis, it is apparent that it can capture more of the dependencies and linkages between elements of a school or school system than notions of 'centralization' or 'decentralization' would.

2.2 Sense-Making

While tight-loose coupling describes the discretion that individuals possess in implementing reform, it falls short of capturing to what extent and in what ways practitioners make use of their autonomy, i.e., how they make sense of reform. As Spillane et al. (2002) argue, many implementation models mistakenly assume that, as long as a reform is clearly communicated, any failure to implement is because practitioners lack the capacity or the will to do so. These models underestimate, as Spillane et al. (2002) assert, "the complexity of the sense-making process" (p. 391). Practitioners' interpretations of reform are strongly influenced by their beliefs, prior knowledge, and the social context in which they operate. Reforms may be misinterpreted not due to "lack of effort, incomplete buy-in, or explicit rejection of the reform ideas" (p. 397) but because practitioners' current understandings or beliefs impede their ability to make sense of reform in accordance with policymakers' intent. Accordingly, because belief systems change only slowly over time, changes in practice are at first more likely to be superficial than substantive.

Furthermore, as Spillane et al. (2002) note, "sense-making is not a solo affair" (p. 404); social context is vital. School structures and traditions and social or professional networks mediate how teachers come into contact with reform. Specifically, interactions among practitioners can bolster the sense-making process by facilitating peer learning and building a shared understanding of reform, though not guaranteeing alignment with policymakers' intent. As a consequence, organizational structures can hinder or empower shared sense-making. Spillane et al. (2002) argue that typical organizational arrangements in schools – i.e., teachers working individually with few opportunities to interact with colleagues – often result in limited shared sense-making.

In conclusion, sense-making can explain why implementation might diverge from policymakers' aims despite good intentions of all involved actors. Still, as Spillane et al. (2002) contend, sense-making can only supplement other implementation models, not replace them. The lenses of sense-making and tight-loose coupling in combination can, therefore, be used to analyze reform implementation, both from the system perspective and that of the individual practitioner.

2.3 Tight-Loose Coupling in the Finnish and Singaporean School System

In order to provide the reader with necessary contextual knowledge, this chapter gives key facts on the Finnish and Singaporean school systems as they relate to tightly and loosely coupled aspects in each system. While classifying any school system as entirely tightly or loosely coupled would be simplistic, a clear pattern emerges: Finland's school system resembles a loosely coupled system, while Singaporean schools display many characteristics of tightly coupled systems.

This pattern is evident in the level of standardization across each school system. Educational decision-making in Finland can be described as highly devolved. Local municipalities have the primary legislative authority to set and implement education policy. The national government sets only broad policy guidelines to achieve coherence across the system. Schools have considerable flexibility in designing teaching and learning processes and seldomly face significant interference from municipal governments (Sahlberg, 2015). Moreover, teachers are generally seen as "autonomous experts in teaching their classes and subject areas" (p. 111) and are given great amounts of freedom in terms of pedagogy, assessment, and curriculum (Pyhältö et al., 2012). In Singapore, by contrast, schools and teachers are bound by tight regulations set by the Ministry regarding aspects such as curriculum, assessment, staffing, staff appraisal, and finances. In the past decades, however,

schools have been given more autonomy concerning pedagogical approaches, co-curriculum programs, student admissions, and school operations (Dimmock and Tan, 2016). This balance of centralized and decentralized decision-making has been described as 'centralized decentralization,' in which the Ministry determines the strategic direction of the school system and schools are given leeway to decide how best to implement the Ministry's strategy (Chua et al., 2019). Notably, in contrast to the devolution of power to municipalities in Finland, Tan and Ng (2007) contend that in Singapore, "the primary motivator to decentralisation is not to promote democracy per se, but to improve efficiency and effectiveness of governance" (p. 150).

The difference between the devolution of authority in Finland and the Singaporean government's approach to decentralization without delegating control is evident in the many accountability mechanisms in the Singaporean school system. Accountability schemes can strongly affect the actions of practitioners and can, therefore, be interpreted as a form of tight coupling. One such scheme is the 'School Excellence Model' quality management system, for which schools must regularly provide evidence of high-quality leadership, staff management, strategic planning, resource deployment, and student-focused processes, as well as evidence of stakeholder and staff satisfaction and societal impact. This evidence is then translated into a quantitative score (Tan and Ng, 2007). Additionally, teachers are rigorously appraised every year by multiple senior leaders, who triangulate their observations for each teacher. High-performing teachers can be considered for promotions and performance bonuses (Dimmock and Tan, 2013). Finally, the importance placed on high-stakes examinations strongly affects the work of teachers and acts as a form of accountability. Parents typically expect teachers to prepare students for examination success and often choose schools based on their students' examination performance (Toh et al., 2016). Finnish students, in contrast, do not sit a national examination until they are 18 or 19, and while some media outlets publish schools' examination results, they garner little attention among most parents. Teachers and schools traditionally set their own assessments to evaluate student learning. Furthermore, Finnish schools have no formal measures to evaluate teachers' performance; teacher pay is not based on performance. Municipalities also refrain from systematically inspecting schools for accountability purposes (Sahlberg, 2015). In short, Finland's absence of top-down accountability is characteristic of loose vertical coupling (i.e., between different levels), while Singapore's rigorous accountability schemes are evidence of tight vertical coupling.

A similar contrast is also evident for lateral coupling (i.e., between teachers and between schools). Finnish teachers usually make decisions individually (Paulsrud and Wermke, 2020) and are "not highly committed to developing the school community outside their own classrooms" (Pyhältö et al., 2011, p. 51). Principals struggle to "broaden teachers' sense of professional agency from classroom to school- and district-level professional interaction" (p. 51). The fact that Finland is a sparsely populated country with many rural municipalities, often only consisting of one school, also limits opportunities for cross-school collaboration (Autti and Bæck, 2021). In contrast, Singapore, a densely populated city-state, has established several structures for cross-school collaboration. For instance, 12-14 schools form a cluster, which serves as a platform to spread innovations between schools (Toh et al., 2016). Furthermore, 'Networked Learning Communities' let teachers from different schools collaborate on more niche topics (Hairon, 2020). Within schools, Singaporean teachers engage in regular small-group Professional Learning Community team meetings, where they develop teaching artifacts or discuss their practice (Ho et al., 2020). Both in terms of professional and inter-institutional coupling, schools in Singapore exhibit many features of tight lateral coupling; those in Finland align more closely with loose lateral coupling.

In summary, the pattern of loose coupling in Finland's school system and tight coupling in Singapore's appears consistently and is evident both concerning vertical and lateral coupling.

3 Methodology

This chapter outlines the research method chosen to answer my research questions and details my rationale for the chosen method, the chosen procedures for data collection and analysis, limitations and ethical considerations, and my research positionality. As a reminder to the reader, this dissertation explores the differences in how education reforms are implemented in Finland and Singapore to gain a better understanding of the nuances of education reform in contrasting settings. More specifically, this dissertation seeks to answer the following three research questions:

1. To what extent do Finland and Singapore differ in the amount of control granted to actors at different levels in adapting the reforms to their context?

2. To what extent do Finland and Singapore differ in how actors at various levels make sense of the reforms?

3. To what extent do Finland and Singapore differ in the degree of fidelity with which the reforms are implemented on the ground?

Research Method and Rationale

This dissertation uses an extended literature review to answer the three research questions. Given that the research questions require identifying patterns among several education reforms over long time periods and in two countries, conducting primary research was unsuitable to the scope of this dissertation. A desk-based literature review also appeared appropriate, given that there is a considerable amount of literature on the implementation of specific education reforms in Finland and Singapore, which had not yet been compared and contrasted as it pertains to this dissertation's research questions.

Data Collection and Analysis

To collect evidence for the literature review, I searched the University of Glasgow's library search engine using meaningful combinations of search terms that related either to educational reform implementation in a general sense, specific areas of educational reform, or specific educational reforms in Finland or Singapore. I filtered the results to include only peer-reviewed journal articles or academic books or book chapters and those that were published in English and gave insight to reform implementation in Finland or Singapore.

The search terms I used to construct my searches were: 'Singapore,' 'Finland,' 'Finnish,' 'education,' 'reform,' 'school,' 'implement,' 'implementation,' 'teaching,' 'teacher,' 'enact,' 'policy,' 'top-down,' 'bottom-up,' 'interpret,' 'sense-making,' 'ICT,' 'technology,' 'digital,' 'pedagogy,' 'curriculum,' 'assessment,' 'early childhood,' 'leadership,' 'special

education,' 'assessment,' 'basic education,' 'ICT Masterplan,' 'Thinking Schools, Learning Nation,' and 'Teach Less, Learn More.'

I organized the relevant studies as entries in an Excel document, where I systematically listed relevant features of each study, such as the country and specific reform discussed, the research question or questions addressed by the study, a summary of the findings, and any notes that I made while reading each study. I subsequently filtered the Excel entries for each research question and organized the relevant studies around apparent themes and patterns before constructing my claims and arguments for each research question.

Limitations and Ethical Considerations

The degree to which this dissertation can achieve its aim of furthering the understanding of the nuances of education reform in contrasting settings is limited by the fact that only two countries are discussed. Every country's historical, cultural, and political background affects its education system – and therefore the implementation of education reform – in myriad ways. Consequently, whether lessons from the success or failure of the implementation strategies employed within Finnish or Singaporean education reform apply to other countries is uncertain. Specifically, despite Finland and Singapore's strong PISA performance, this dissertation's findings likely cannot serve as evidence for a causal link between any approach to reform implementation and improved PISA performance.

Other than my commitment to an accurate and unbiased portrayal of the literature to the best of my abilities, there are no notable ethical considerations that need to be undertaken regarding anonymity, confidentiality, or consent, given the dissertation is a desk-based literature review. All references are cited using the Harvard referencing style to ensure that authors receive credit for their research.

Research Positionality

Having completed my schooling and teacher education in Germany, I approach both the Finnish and Singaporean school system with an outsider's perspective – but, nevertheless, with some experience on the inside: After completing my teaching degree, I spent several months visiting schools in countries with strong PISA performance, which included Finland and Singapore, where I spent five weeks observing classes and interviewing students, teachers, and principals in six schools in each country. These observations served as the starting point for my academic research into reform implementation in these systems and are the lens through which I interpreted the available literature. During my travels, I conversed with practitioners who adamantly supported aspects of their system and those who fiercely

disagreed with them. I, too, observed practices with which I disagreed but also those I would gladly see my home country emulate. So, while it is in the nature of personal bias that it frequently goes undetected, I believe my experiences in these systems make me, in fact, more sensitive to the contexts I am studying and possibly weaken bias stemming from my Western upbringing when analyzing education in an Asian context. Still, to mitigate personal bias, I endeavored to view the available evidence base from multiple perspectives and incorporate different points of view into my arguments.

4 Finland

The literature review findings for Finland and Singapore are presented in Chapters 4 and 5, respectively. A comparative discussion will follow in Chapter 6. Each of the three research questions outlined in Chapter 3 will be addressed in turn under the following headings – 'Control,' 'Sense-Making,' and 'Fidelity.'

4.1 Control

Education reforms in Finland are typically implemented in a highly devolved process, which is reflective of and, as Weick (1976) suggests, a typical feature of loosely coupled systems. While the national government typically operates only as a guiding force to achieve coherence across the system, education policy in Finland is primarily the responsibility of municipalities. Local actors are empowered to make decisions sensitive to local demands and resources, which appears fitting given Finland's geographic diversity (Autti and Bæck, 2021). The prominent role of local actors when translating reforms into practice can be observed in the most recent 2014 curriculum reform. While the national government provided a core curriculum, broadly outlining the main objectives, essential subject contents, and cross-curricular themes, almost 180 issues, such as student care and yearly curricula, were delegated to the municipalities (Tian and Risku, 2019). Municipal officials, in turn, engage in curriculum design and construction, interpreting the goals set out in the national curriculum in cooperation with school stakeholders (Pietarinen et al., 2017). Schools, representing the third functional level of the school system (Tian and Risku, 2019), can further adapt the municipality curriculum and generally have broad autonomy in implementing pedagogy and specifying the details of the grade-specific curricula (Pietarinen et al., 2017).

Finland's strategy of devolved implementation is neither recent nor confined to curriculum reform. Devolution can, for example, also be observed in the implementation of the undivided basic education reform of the late 1990s. This reform aimed to combine the previously distinct phases of lower and upper basic education (grade 1-6 and 7-9), which had been housed in separate buildings and taught using separate curricula and with markedly different pedagogical approaches, leading to challenges for students transitioning between the two phases. Concerning the reform's implementation, the national government established a strong vision for the reform's aim but did not mandate specific actions or control or evaluate the implementation itself, leaving it entirely in the hands of the municipalities (Gérin-Lajoie, 2015). A similar pattern of devolution has been observed in special education reform (Thuneberg et al., 2014). To summarize, Finland's reliance on

devolved implementation at the local level instead of issuing national directives is evident across multiple reform areas. In other words, local officials are empowered to make decisions instead of merely implementing decisions imposed from above.

Despite municipalities having considerable decision-making powers, the implementation of school reforms nevertheless contains elements of both top-down and bottom-up processes to ensure alignment of local implementation with the intent of policymakers. The intensity of top-down guidance from the national government has ranged from merely providing information to setting broad frameworks for local implementation. For example, in the undivided basic education reform of the 1990s, the national government organized seminars and distributed documents to support and guide municipal implementation. While the national government did coordinate a pilot project related to undivided basic education before the policy was introduced nationally, its role in the nation-wide implementation "cannot be understood as being a coordinator, but rather can be described as being a supporter of implementation processes" (Gérin-Lajoie, 2015, p. 105).

In the 2014 curriculum reform, the national government played a more active top-down role, not only organizing discussion forums and providing information but also giving a national roadmap, including implementation timelines, steps for municipalities to follow during the curriculum construction, and guidance on how to connect the local curriculum to national goals (Tian and Risku, 2019). Indeed, when surveying municipal steering groups, Tikkanen et al. (2020) found that steering group members perceived the municipal implementation of the curriculum as top-down–bottom-up, both in terms of the sharing of knowledge between different system levels and managing change more broadly. The bottom-up processes mainly took the form of involving stakeholders at different levels. The municipal steering groups were comprised of stakeholders from schools and the respective municipality (Pietarinen et al., 2017). At the national level, bottom-up communication is evident, for example, in that the government delayed the implementation of the curriculum by two years in response to municipalities' criticism of the original timeline (Tian and Risku, 2019). As Tian and Risku (2019) establish, the top-down–bottom-up implementation strategy allowed those involved "to lead the [reform] on their own level and influence actors on other levels" (p. 239). In summary, while the implementation process is mainly in the hands of schools and municipalities, this does not preclude the national government from gently steering the process, albeit considering local actors' input.

However, and somewhat in contradiction to the aforementioned pattern, there appears to be a shift of control from schools to municipalities evident in the 2014 curriculum

reform. In the previous curriculum reform in 2004, as Pyhältö et al. (2018) point out, the task of designing the curriculum was much more in the hands of schools, who were tasked with designing a school-based curriculum to fit their teachers' interests. In 2014, this process was moved to the municipality, and correspondingly, Tian and Risku (2019) find only minor variations of school curricula within the same municipality despite significant variations in curricula between different municipalities. To be sure, most of the time, the process of municipal curriculum construction involved school-based practitioners, who could give input and ensure the curriculum was aligned to the needs of schools. However, the status of the municipal curriculum as a legal document bound schools more strongly in their autonomy in terms of curricular choices. Furthermore, the shift to municipal curriculum construction led to reduced practitioners' involvement compared to the mainly school-based curriculum design in 2004 (Haapaniemi et al., 2021).

In a notably still highly devolved implementation process, the shift towards more centralization appears to be a historical trend that preceded the 2014 reform. Placing the 2004 curriculum in historical context, Mølstad and Hansén (2013) establish that it too was implemented in a more centralized manner than the prior 1994 curriculum, which they call "an extreme expression of decentralization" (p. 742) and only included very vague general guidance for municipalities and schools. The 2004 national curriculum, on the other hand, included more detailed and explicit requirements. The trend towards a more prescriptive national curriculum was reinforced in the 2014 curriculum. Whereas teachers historically had broad pedagogical autonomy as long as they taught the curriculum content, the 2014 national curriculum was even more prescriptive than in 2004 and includes pedagogical obligations such as integrating subjects into multi-disciplinary modules (Haapaniemi et al., 2021).

The increasingly prescriptive national curricula seem to be the consequence of a widening gap between policymakers' aspirations and on-the-ground practices. Hakala et al. (2015) argue that Finnish education policy discourse has been increasingly influenced by international economic trends that emphasize education's ability to foster creativity in students, standing somewhat in contrast with Finnish teachers' historically more traditional pedagogical methods (Simola, 2005). Accordingly, Hakala et al. (2015) describe how notions of creativity had a considerable influence on the curriculum planning process, and they attribute its influence to the rising neoliberal economic ideology within Finnish education policy discourse. In another demonstration of how policymakers' views can override stakeholders' input, Säily et al. (2020) document how the design of the 2014 national mathematics curriculum, which was framed as being a democratic process incorporating

practitioner feedback, was, in fact, not as deliberative or democratic as communicated. By comparing the comments on draft documents with the final curriculum, they found that few comments, even well-reasoned and research-based ones on topics such as integrating technology or programming in mathematics, ultimately influenced the final national curriculum.

Another example of policymakers' views taking priority over practitioners' input is evident in the redesign of school buildings. Since the implementation of the 2014 curriculum, newly built or renovated schools have been redesigned to be more compatible with the curriculum's pedagogical emphasis on student-led, inquiry-based, and phenomenon-based learning in multi-disciplinary modules (Niemi, 2020). This redesign entailed removing classroom walls and traditional desks and replacing them with open learning spaces with flexible furniture. When interviewing teachers from six schools that had undergone such a redesign, Niemi (2020) found that the remodeled school layouts did not correspond with teachers' goals or favored pedagogical methods. From the teachers' perspective, the government had neither provided justified arguments for the redesign nor taken teachers' input sufficiently into account.

In summary, the question of control during reform implementation reveals two somewhat contradictory patterns: one of strong devolution and stakeholder involvement and one of increased centralization and the devaluing of teacher input. A plausible explanation for this seeming contradiction can be found in Peck and Theodore's (2015) conception of 'fast policy,' which describes the notion that policy ideas are nowadays spread internationally and implemented quickly with less consideration of the respective contexts. Indeed, Hardy et al. (2020) outline how historically, Finland has evaded the influence of 'fast policy,' instead favoring deliberative, participatory policymaking. Recently, however, the markers of 'fast policy' have become more prevalent, for example, in the accelerated pace and decreased transparency of policymaking. In conclusion, it appears that while the government is still relatively hands-off in the implementation of reforms, the leeway granted to practitioners within the reforms themselves has, in fact, been decreasing.

4.2 Sense-Making

The primacy of municipalities in the translation of national policy to local practice makes the processes they use to interpret and adapt the reforms particularly noteworthy. During the 2014 curriculum reform, municipalities appear to have established structures for shared sense-making. As part of the local curriculum construction, municipalities convened steering

groups consisting of practitioners and municipal officials to make sense of the national curriculum. These groups were tasked with coordinating the curriculum design by clarifying, incorporating, and adapting the broad goals of the national curriculum to fit the municipality's context, thereby building a shared understanding of the curriculum among stakeholders and, consequently, taking on an "active intermediary role" (p. 195) between schools and the state (Pyhältö et al., 2018). As municipalities were free to decide the process of local curriculum construction, there was significant variation among municipalities, for example, in terms of the methods of curriculum creation and compilation and the degree of stakeholder involvement (Tian and Risku, 2019). Municipal officials have furthermore been shown to perceive the local curricula as coherent regarding their aims, content, assessment, and pedagogical approach (Sullanmaa et al., 2019), which can be interpreted as evidence of a shared understanding and ownership of the reform. It is important to note, however, that these steering groups convened only for the implementation of the curriculum reform; they were "short-term and loosely-connected" (Tikkanen et al., 2020, p. 558). Consequently, the evidence of successful sense-making in curriculum reform should be considered the result of a short-term initiative rather than continuous structures for shared sense-making across the system.

Facilitating shared understanding is not the only aim of the municipal sense-making process. As Pietarinen et al. (2017) contend, shared sense-making that considers critical voices can also act as a form of quality control for national reform. Furthermore, the participative style in which the steering groups engaged in their work also ensured democratic legitimacy. As Tian and Risku (2019) note, municipalities operate as the second legislative level in the school system next to the national government. Consequently, the local curriculum constitutes legislation that requires democratic support. Illustrating this aspect of Finnish reform, Mølstad and Hansén (2013) contrast Finland and Norway's curriculum reform process. In Norway, local governments are merely tasked with delivering curriculum instead of constructing it as they are in Finland. As a result of Norwegian curricula not having a comparable legal status, their implementation was conducted in a less democratic manner, with fewer stakeholders being consulted at the local level. It follows that the participatory approach to sense-making taken by Finnish municipalities is, in fact, linked to their high status in the Finnish school system.

Relying on local governments to make sense of reforms requires them to have the capacity to do so, which may not be the case in small or under-resourced municipalities. Autti and Bæck (2021) find that in rural areas, where municipal offices are often understaffed and

lack educational expertise, the local curriculum work fell to individual teachers, who in some cases were the only teacher of a particular subject in that area. As a result, rural teachers perceived the curriculum design process as a major burden, wanted more detailed implementation guidance, and criticized that the reform implementation was designed with only well-resourced urban municipalities in mind.

While at the system level, sense-making is left to municipalities, at the school level, making sense of reforms is generally delegated to individual teachers. In fact, school-level implementation is often characterized by a lack of shared sense-making between teachers and school leaders. Two factors likely contribute to this absence of shared sense-making: Finnish teachers are generally trusted to implement reforms without top-down guidance or control from school leadership (Sahlberg, 2015), and they tend to see themselves as "individually autonomous" (p. 706), making most teaching decisions individually instead of in coordination with the wider teaching staff (Paulsrud and Wermke, 2020). The lack of shared sense-making is evident in a case study by Braskén et al. (2020) on the school-level implementation of the 2014 curriculum. Braskén et al. (2020) describe how a school's principal had organized only a few meetings with the teaching staff on the aims of the new curriculum, leaving the sense-making mainly to teachers. When planning multi-disciplinary modules, which were a curricular requirement, teachers reported being unclear both about what constituted such a module on a conceptual level and how to implement it. The lack of support and opportunities to collectively make sense of the reform led to diverging conceptions of the modules. While the principal had conceived them to be largely student-led and to become part of teachers' regular practice, teachers had planned the modules in a detailed way and viewed the modules "as something outside their 'ordinary teaching'" (p. 865).

Indeed, a divergence in interpretations of reform between school leaders and teachers – an indicator of insufficient shared sense-making – appears in other studies as well. In one study on practitioners' perceptions of the curriculum reform, Autti and Bæck (2021) found marked differences in how principals and teachers discussed the reform. While principals, who tended to be more involved in the municipal curriculum design, discussed the reform in broader terms, stressing new responsibilities and emphasizing the overarching goals behind the municipality's decisions, teachers paid more attention to the specific details of what would have to change in classrooms. They struggled to relate the new curriculum's goals to their teaching practices, saying the curriculum contained "fine words with no connection to actual teaching" (p. 82). A similar disconnect becomes apparent when

synthesizing two studies on the perceptions of the undivided basic education reform. In line with Braskén et al.'s (2020) and Autti and Bæck's (2021) findings, Pyhältö et al. (2011) report that while school leaders had a favorable view and good understanding of the reform's aims, their conception of its implementation was "usually quite non-specific, one-sided, fragmented and narrow" (p. 53). Perhaps unsurprisingly, when surveying teachers, Pyhältö et al. (2012) identify a lack of shared understanding among teachers on how to implement the undivided basic education reform and find considerable variation in teachers' perception of the reform and their role in its implementation. These studies serve as examples of how the loose coupling between school management and teachers can lead to diverging interpretations of reform in the absence of deliberate shared sense-making.

To be sure, during the school building redesigns, where school layouts were radically transformed by removing traditional classrooms and replacing them with open learning spaces, teaching staffs and principals did, in fact, build "a shared vision of goals, values, dreams and preferred practices of their future school" (p. 9), thereby constructing a collective understanding of the redesign's consequences for their work (Niemi, 2020). Still, teachers reported a lack of ownership of the new learning spaces, as the municipality had not considered their input sufficiently during the redesign itself. Teachers believed that the school layout discouraged teacher-led instruction, which they thought was occasionally necessary.

To conclude, there are instances where shared sense-making took place both at the system level (e.g., in municipal curriculum construction) and at the school level (e.g., after the school redesigns). However, practitioners appear to engage in shared sense-making mainly when there is a top-down impetus to do so. In the curriculum reform, the national government – while not micro-managing its implementation – did require municipalities to actively make sense of the national curriculum goals and engage stakeholders to legitimize the local curriculum as a democratically constructed, legal document. In the case of the school building redesigns, the changes to the school environment, which the municipalities implemented top-down and, in part, against the wishes of teachers, posed such a dramatic change to all teachers' working experience that collectively interpreting the necessary changes to their practice arguably became a logistical necessity. When, however, the reforms lacked meaningful monitoring of school-level implementation and did not demand that teachers change their practice substantially – as was the case both in the undivided basic education and curriculum reform –, teachers were left to interpret the reforms individually. Without external forces requiring a collective understanding of reform, loose coupling, as reflected in

principals' hands-off leadership and teachers' individualistic conception of autonomy, resulted in a lack of shared sense-making of educational change.

4.3 Fidelity

In Finland's loosely coupled system, the degree to which reforms are implemented faithfully depends on the interpretations of municipalities and practitioners and can therefore vary significantly. The implementation of Finland's 2011 special education reform and 2014 curriculum reform serve as examples of this pattern.

In 2011, a reform to special education intended to create a bridge between the full-time specialized supports for diagnosed special needs students and the general support by classroom teachers available to any student. By transitioning to a three-tier model that included middle-ground 'intensified supports,' any student with learning difficulties could, for example, be co-taught by an additional teacher or participate in part-time small group support sessions. By strengthening differentiation and multi-professional collaboration, most students with support needs would still be part of the wider class community and would not have to transition to full-time special needs classes (Thuneberg et al., 2014). Thuneberg et al. (2014) document how municipalities and schools were given considerable freedom to decide the implementation of the reform, which resulted in a wide variation in the degree to which it was implemented. While some municipalities chose to employ approaches compatible with the notion of 'intensified support' such as co-teaching or flexible student groupings, other municipalities did not implement the reform. They viewed their special education supports in place as already sufficient. Furthermore, Jahnukainen (2015) finds a large discrepancy between the inclusive ideals emphasized in the special education legislation and the more pragmatic views of principals regarding its implementation. When discussing how to accommodate students with special needs, the principals stressed the advantages of the full-time 'special' groups that were commonplace before the reform.

Indeed, even after the reform was adopted, special educators were still mostly instructing students in segregated settings as opposed to co-teaching with classroom teachers, an approach which policy documents highlighted as more inclusive (Sundqvist et al., 2019). Ekstam et al. (2015) also find that the approach of 'pulling' students out of the classroom to provide specialized supports was still the most common. In fact, teachers reported that the legislation did not facilitate any change in their practices, collaboration, or support strategies. Sundqvist and Hannås (2020) point to teachers' "belief in well-established small-group teaching and […] lack of knowledge regarding how to

effectively collaborate and co-teach" (p. 11) as an explanation for the reluctant adoption of co-teaching as a substitute for separated small-group instruction. This explanation is strengthened by Saloviita's (2020) survey of over 1,700 teachers' attitudes towards inclusive education, which finds that while special educators generally favor the more inclusive approach, classroom and especially subject teachers were, on average, opposed to an approach that de-emphasizes small-group special instruction. Thus, the special education reform demonstrates how, in Finland, the interpretations of municipalities, principals, and teachers can have an outsized impact on how they implement reforms or whether they implement them at all.

Moreover, the Finnish curriculum reform demonstrates how the misalignment of reform with teachers' needs can lead to a lack of implementation. In Autti and Bæck's (2021) study of teachers' implementation of the curriculum, teachers asserted that the new curriculum had not influenced their practice significantly, saying that "much [curriculum] work had been done that did not really help their teaching" (p. 81). As an example, one teacher pointed to the municipal curriculum's extensive detail, culminating in a 700-page document, as impeding their ability to make sense of the curriculum. It is apparent that even though the respective municipality devoted significant effort to constructing the curriculum document, teachers had not been sufficiently supported or engaged.

Furthermore, when a reform does not match teachers' preferred practices, implementation can become inconsistent with the reform's intent. In Niemi's (2020) study on the redesign of school buildings in line with the curriculum's more progressive pedagogical emphasis, teachers reported that the lack of classroom walls resulted in students being "frequently disturbed or interrupted and distractions and noise [led to] stress and concentration difficulties both for students and teachers" (p. 10). In fact, due to the noise of parallel groups working nearby, teachers employed teacher-led instruction more often than before so as not to disturb the other classes. Indeed, teachers described the range of teaching methods that could feasibly be implemented in the new space as "a step backward rather than a step forward" (p. 15). Both cases of curriculum reform implementation described by Niemi (2020) and Autti and Bæck (2021) exemplify the importance of aligning the reform measures themselves and the supports for sense-making to the needs of teachers. This type of alignment appears especially crucial in Finland's loosely coupled school system, where other mechanisms that align teachers' practices such as evaluation or inspection schemes are absent.

In conclusion, the observed pattern of inconsistent implementation can be traced back to the patterns described in the previous two chapters. In a traditionally highly devolved system, local officials and practitioners – and their interpretations of the reform – play a prominent role in implementation. In contrast, the increasing prevalence of 'fast policy' (Hardy et al., 2020), which pays less attention to the context in which it is implemented, can create a misalignment between the reforms and teachers' preferences. Moreover, in the absence of an external impetus for shared sense-making, teachers tend to make sense of reforms individually, which leads to varied interpretations of the reforms and an overall disconnect between municipal and school leaders' vision for a reform and teachers' perception of it. In summary, when the implementation of reforms lies in the hands of practitioners to the degree that it does in Finland, any misalignment in reform aims, perceptions, or supports poses a threat to faithful reform implementation on the ground.

Having given an account of the literature review findings as they relate to education reform implementation in Finland, the following chapter, Chapter 5, will address the same research questions as they pertain to the implementation of reforms in Singapore's school system.

5 Singapore

Chapter 5 follows the same structure as the previous chapter, now focusing on education reform in Singapore. This chapter will detail the amount of control granted to actors at different levels in adapting reforms to their context, the way in which actors at various levels make sense of reforms, and the degree of fidelity with which reforms are implemented on the ground in the Singaporean school system. As in Chapter 4, these questions will be addressed under the headings 'Control,' 'Sense-Making,' and 'Fidelity.'

5.1 Control

The strong centralization and tight coupling present in Singapore's school system, as outlined in Chapter 2.4, is mirrored in the limited control that schools and practitioners have in shaping the implementation of reforms. Still, even in a tightly controlled system, schools and teachers have some discretion in implementing reform, which Tan and Dimmock (2014) describe as 'bounded autonomy': The autonomy that schools and practitioners do possess resides within a framework set by the Ministry. Bounded autonomy is evident in the implementation of one of Singapore's landmark reforms 'Teach Less, Learn More' (TLLM). TLLM, which was rolled out in 2005, encompassed many individual reforms in curriculum, pedagogy, and assessment and sought to move the Singaporean school system away from its perceived overemphasis on measurable learning, assessed through high-stakes examinations, and the reliance on rote learning and didactic instruction (Ng, 2008). These changes were perceived as necessary to prepare students for a knowledge-based economy. In implementing TLLM, the Ministry transferred some decision-making powers to schools while still setting the general direction and providing a framework for its implementation.

For example, primary schools were encouraged to incorporate active learning into their educational programming. While the Ministry provided a '3 C's' framework, encompassing the values of confidence, curiosity, and cooperation, individual schools could interpret these values in ways that matched their school's resources and profile (Lim-Ratnam et al., 2016). The autonomy that the Ministry gave to schools was, however, accompanied by 'tight' structures for accountability, for example, in the form of the 'School Excellence Model' (SEM) school evaluation scheme, leading Chua et al. (2019) to characterize the process of curriculum implementation in Singapore as tight-loose-tight: The overall direction and strategy for reform are set by the Ministry (tight); schools and teachers have the autonomy to innovate within the Ministry's framework (loose); yet they face

accountability through a well-defined process for evaluating the effectiveness of their practices (tight).

The evolution towards a 'bounded autonomy' approach is also evident in Singapore's strategy to strengthen ICT (information and communications technology) in schools. By analyzing its strategic ICT Masterplans, which started in 1999, each Masterplan covering about five years, Chua and Chai (2019) outline how Singapore's approach has evolved from providing one-size-fits-all professional development in the first Masterplan to encouraging more school-initiated innovations from the second Masterplan onwards. Notably, the autonomy that schools received not only let them develop implementation strategies that matched each school's interests and resources, but it also enabled schools and the system as a whole to profit from bottom-up innovations. Indeed, the later implementation of ICT reforms can be described as "top-down support for ground-up initiatives" (Toh et al., 2016, p. 1252). Top-down support manifested itself in various ways: For example, the government encouraged innovation by creating and financing ICT prototype schools, so-called FutureSchools, that would act as laboratories for testing new methods, which could then be spread to other schools (Toh et al., 2016). Furthermore, officials at the school cluster level advised and assisted principals in formulating their school-based ICT plans. The clusters also acted as feedback links to the Ministry, ensuring strong alignment between the different system levels (Tan et al., 2017). Toh et al. (2016) further emphasize the top-down–bottom-up role of the clusters as a middle layer between schools and the Ministry for facilitating and coordinating the spread of innovations across the system. As Hung et al. (2015) assert, top-down–bottom-up implementation is particularly suitable to centralized decentralization, which takes advantage of both standardized and contextualized forms of knowledge and innovation.

The patterns that characterize implementation at the system level are evident at the school level as well, which Chua et al. (2019) describe as the 'fractal' nature of centralized decentralization. For example, in several case studies of ICT innovation in schools, Toh et al. (2016) find a similar tight-loose-tight pattern as seen at the system level: School leadership provided the general direction for ICT innovation (e.g., inquiry-based learning) (tight); teachers had the flexibility in designing ICT lessons that matched this direction (loose); and the effectiveness of the innovation in improving student learning was monitored closely, for example, by working with university researchers (tight). Another parallel between implementation at the school and system level is apparent in the presence of a middle layer that coordinates bottom-up initiatives. At the system level, this role is fulfilled by school

clusters that spread innovations throughout the system. At the school level, middle managers such as department heads work to help share the learning that occurred within one department or team with the wider staff (Toh et al., 2016).

The principle of bounded autonomy found in system-level implementation is also evident in how schools implement teacher professional development, as Ho et al. (2020) document in the case of Professional Learning Community (PLC) teams (i.e., groups of teachers meeting regularly to improve their practice). Having been encouraged by the Ministry, school leaders established and sustained the PLC teams in a top-down manner. They also set the general theme and structure for all teams in their school. Within those bounds, however, departments were able to adapt the PLC work and processes to the needs of their teachers and discipline. Ho et al. (2020) characterize this arrangement as "tighter at the school level, looser at the department and [PLC team] levels" (p. 639). For example, all teams might follow the same term schedule for reading and discussing relevant literature, but they would choose the books most relevant to the respective teams. Department heads, in turn, serve as a link between their department and school leadership, so that all teams are aligned to the school's vision but still relevant to teachers' individual needs.

In summary, while individual schools and teachers have some leeway in implementing reforms, the discretion they possess is bound by a framework set by officials and school leadership, respectively, that aligns on-the-ground implementation to the reform aims. Furthermore, the increased autonomy that accompanied 'Teach Less, Learn More' also resulted in tighter accountability structures to monitor the aspects over which schools now had more decision-making powers.

5.2 Sense-Making

Schools' discretion to adapt Ministry initiatives to fit their context can result in differences in how schools interpret the same reform. In Lim-Ratnam et al.'s (2016) case study of active learning implementation in primary schools, the four participating schools interpreted the Ministry's '3 C's' framework (confidence, curiosity, cooperation) in different ways. For example, one school used active learning programs to get first and second graders excited about the pre-existing co-curricular activities starting in third grade. Another school interpreted active learning as an opportunity to expose students from low socio-economic backgrounds to cultural experiences on which they might otherwise miss out. The other two schools not only integrated the '3 C's' in their extra and co-curricular programming but also saw the initiative as a chance to incorporate more exploratory learning experiences in

traditional academic subjects. These varying interpretations that nevertheless adhere to the framework set by the Ministry demonstrate how schools balance top-down guidance with local needs when interpreting reforms. Lim-Ratnam et al. (2016) furthermore observe that as a consequence of each school being able to "interpret the purpose of active learning […] based on their respective schools' contextual needs" (p. 242), teachers had a great sense of ownership of the implementation.

Within schools, reforms are often interpreted collaboratively as a whole-school effort as opposed to teachers making sense of reforms individually or school leaders prescribing how to implement the reform. Whole-school collaboration is evident in Lim-Ratnam et al.'s (2016) active learning case study. They report that "teachers were actively involved in creating, delivering, supporting lessons, and even evaluating the active learning modules" (p. 240). School leaders, program coordinators, and teachers were jointly responsible for designing, implementing, and evaluating the school programs, in many cases relying on established school structures such as committees or grade-level teams. Similarly, Wang et al. (2019) study the implementation of school-based curriculum development – an initiative that allowed schools to develop a curriculum niche beyond the national curriculum. They, too, observe a "whole-school approach to curriculum innovation" (p. 337). As in the implementation of active learning, teachers, teacher leaders, and school leadership played "intertwined and interdependent roles across different stages of the curriculum innovation" (p. 351), a sign of strong collegiality and established structures for shared sense-making at the school level. The prevalence of structures for shared sense-making, such as PLC teams, is also apparent in schools' efforts to integrate ICT in their teaching, as Chua and Chai (2019) note. Indeed, Toh et al. (2016) emphasize how schools set up "architectures for reflexivity and capacity augmentation" (p. 1256) to facilitate ICT integration, such as PLC teams and opportunities for peer lesson observations.

The presence of established school structures for shared sense-making requires leaders that coordinate and facilitate this shared learning. Chua and Chai (2019) outline how middle leaders played a significant role in supporting teachers in interpreting the Ministry's directives on ICT reform and translating them to their context. The roles taken on by middle leaders are, to a great extent, formalized in official leadership positions in line with Singapore's detailed teacher career tracks and school leadership hierarchies (Nguyen et al., 2017; Ho et al., 2020). Such distributed leadership is formalized in both pedagogical leadership positions (e.g., senior and lead teachers) and administrative or organizational positions (e.g., heads of department, vice principals). Consequently, as Nguyen et al. (2017)

point out, instructional leadership, that is, leadership that concerns the minutiae of improving teaching and learning, is distributed throughout the school instead of coming solely from the principal. In fact, Chen (2013) documents how principals tend to employ transformational leadership practices, such as creating a shared vision and motivating staff, whereas middle leaders typically take on instructional leadership. Given the hierarchical nature of both school leadership structures and Singapore's culture, the strong role of middle leaders in facilitating shared sense-making may come into conflict with reforms that seek to empower teachers to take more initiative, as was the case with the establishment of PLCs across Singaporean schools (Hairon and Dimmock, 2012). Still, Hairon et al. (2015) find that despite the influence of Singapore's hierarchical culture, teacher leaders could foster collegiality and collaboration for sense-making during PLC team sessions.

Structures and leadership for collaboration and shared sense-making extend beyond individual schools and are also present at the system level. For example, the school cluster infrastructure can "facilitate networking, sharing and collaboration among affiliated schools" (p. 1253), acting as a multiplier for educational innovation (Toh et al., 2016). Beyond the formal cluster infrastructure, schools can form 'Networked Learning Communities,' which Hairon (2020) sees as "extensions of PLCs from school-based PLCs to system-based PLCs" (p. 511), where schools share and reflect on a particular topic related to teaching and learning. Finally, national institutions such as the Academy of Singapore Teachers, a center for professional learning led by expert teachers, facilitate learning across the entire system (Hairon, 2020). Just as teachers make sense of reform within a tightly connected network of other teaching staff and middle leaders, how schools make sense of reform is also influenced by other schools and system-level leaders.

The networked structures that facilitate shared sense-making among schools also help align the Ministry's policies to schools' needs. For example, while school clusters help spread good practices between schools, they also act as mediators between schools and the Ministry, informing the Ministry of school capacities and needs (Tan et al., 2017). Similarly, Chua et al. (2019) maintain that centralized decentralization requires school leaders to be ecological leaders who can "move and function at multi-perspectival levels of the system [and] give feedback to the Cluster Superintendent with regard to the issues and challenges faced on the ground" (p. 17), as well as align the school's vision to that of the Ministry.

Principals generally emphasize the value of aligning the goals of their schools with those of national reforms (Nguyen et al., 2017) – likely because principals and teachers tend to agree with them. For example, Retna and Ng (2016) document how principals embraced

the Ministry's TLLM reform, as they agreed it would promote skills that students needed in the future; they found the Ministry's reforms well thought out. Correspondingly, when asked about the Ministry's push to strengthen critical thinking in students, teachers supported the initiative not just out of obligation but because it matched their experiences and expectations in the classroom (C. Tan, 2017). It follows that the tight network in which actors at the school and system level operate creates alignment between practitioners' interpretations and policymakers' input and vice versa.

However, practitioners' general agreement with the reform goals does not preclude other factors from influencing their interpretations. In Singapore's case, the high premium put on examination results governs much of schools' and teachers' mindsets when interpreting reforms (Ng, 2017). The emphasis on examination results is representative of the strong influence of performativity in general, which Tan and Dimmock (2014) describe as "the obsession with effectiveness and efficiency" (p. 743). For instance, in Lim-Ratnam et al.'s (2016) case study on the implementation of active learning in primary schools, several schools interpreted active learning in ways that strengthened the schools' academic results or reputation instead of broadening their students' horizons as intended by policymakers. For example, while one of the initiative's goals was to expose all students to a wide range of sports and cultural experiences, one school only promoted "activities that supported the [co-curricular activities] in which the school [had] excelled […], for example, gymnastics, table tennis, and volleyball, even though some of these skills were not developmentally appropriate" (p. 242). As Lim-Ratnam et al. (2016) assert, this school's interpretation narrowed the originally holistic conception of active learning to one that focused on identifying and preparing talented first and second graders for the co-curricular activities starting in third grade to promote the school's reputation. Lim-Ratnam et al. (2016) similarly point to another school, whose drama program initially entailed a large group performance to build students' confidence but eventually became more aligned with English Language subject standards. The examples in both schools demonstrate how the influence of performativity can narrow schools' interpretation of reform in ways that conflict with policymakers' intent.

The primacy of examination results also influences how teachers interpret reforms related to teaching and learning in general. Such influence can be observed in how teachers interpreted the Ministry's initiative to strengthen critical thinking among students. C. Tan (2017) details how, instead of embracing an "'emancipation-focused' conception [of critical thinking] that emphasises one's ability to question and challenge existing knowledge and the

social order" (p. 595), teachers made sense of the initiative by employing a cognitive, skills-focused conception of critical thinking that was more aligned with what was assessed in examinations. Furthermore, C. Tan (2017) documents how the performative environment in which teachers operate led them to interpret the critical thinking reform using a correlative approach: Instead of shifting their approach of teaching for examination performance to teaching for critical thinking, teachers utilized a hybrid model that merged both teachers' desires to foster critical thinking in their students as well as prepare them for high-stakes assessments. In another example of how performativity can affect how teachers make sense of initiatives that aim to promote holistic learning, Lim-Ratnam et al. (2019) study how teachers implemented action research – the process of testing and evaluating new pedagogies in their practice. Even though the action research initiative intended to test new pedagogies that support students' holistic learning, teachers "tended to view action research as testing new strategies for teaching with an eye to improving students' examination results" (p. 274) instead of as an opportunity to explore pedagogies that strengthened competencies not measured by summative assessments.

To summarize, the tight relationships among and between teachers and school and system leaders can support shared sense-making both at the school and system level. Nevertheless, while schools' autonomy to adapt a reform to their context can increase ownership of the reform, it also poses the risk of schools interpreting the reform in ways that deviate from its original intent when the performative environment in which schools operate conflicts with the reform's goals.

5.3 Fidelity

The strong influence of performativity – specifically in the form of accountability and assessment measures – has resulted in reforms being implemented in ways that were often at odds with their intent, despite practitioners' positive disposition towards them.

For instance, the emphasis on high-stakes assessments led to tensions between the pedagogical practices advocated for by the TLLM reforms and those perceived as improving examination results. Hogan et al. (2013), who studied the fidelity with which the pedagogical reforms of TLLM were translated to ninth-grade English and mathematics classrooms, found that traditional, didactic instruction was still the most common teaching strategy. Despite the pedagogical reforms encouraged by TLLM, the observed instructional practices suggested that the wide-reaching performative orientation had persisted. Hogan et al. (2013) argue that "the current assessment regime incentivizes and rewards teachers to teach (and

students to learn) in ways that maximize assessment performance rather than the kinds of teaching and learning called for in national policy documents" (p. 99). However, even though the intended pedagogical changes might not have been realized in day-to-day instruction, De Souza (2018), in contrast to Hogan et al. (2013), argues that TLLM was successful in that it brought about pedagogical changes in the form of co-curricular programs and applied learning modules that supplemented the more traditional instruction. Still, as demonstrated earlier in Lim-Ratnam et al.'s (2016) study on active learning programs, the influence of performativity is evident even in the co-curricular programs that De Souza (2018) touts as successful implementation of TLLM.

The conflict between holistic learning and performativity observed in the active learning programs is emblematic of tensions between a culture of pragmatism and performativity that has historically permeated the Singaporean school system and reforms, such as TLLM and its predecessor 'Thinking Schools, Learning Nation' that encourage critical thinking and student-centered pedagogical approaches. This conflict is equally illustrative of the somewhat conflicting nature of the Ministry's goals per se, namely, to strengthen students' transversal skills while still maintaining a high academic performance trajectory (Dimmock and Tan, 2013). Kadir (2017) postulates that when performativity and the progressive ideals of reform come into conflict, performativity tends to prevail. Indeed, such a pattern has been documented in other studies, strengthening Kadir's (2017) position. For example, in an interview study by Retna and Ng (2016), Singaporean primary and secondary school principals report how teachers "try to teach less and guide students to learn on their own. But [there is] one trend – nearer examinations they tend to fall back to teach more because of one definite issue: the result, the bottom-line" (p. 435).

Similarly, Curdt-Christiansen and Silver (2013) document how primary teachers implemented a new English literacy program. While superficial changes such as changing seating arrangements and adapting new instructional materials were implemented with fidelity, "deeper changes in the way new materials [were] used, teaching approaches [were] enacted, and in teacher beliefs […] [were] less evident" (p. 258). As Curdt-Christiansen and Silver (2013) conclude, the program's aim to encourage more active and engaged participation among students stood in conflict with the primacy of examination results, leading to a lack of fidelity in implementation. At the upper secondary school level (in junior college), Lim and Pyvis (2012) document a similar discrepancy between the science curriculum that emphasizes holistic development and the implemented instructional approaches that still emphasize examination preparation. Teachers, Lim and Pyvis (2012)

argue, are "forced to make practical accommodations when they find new teaching and learning initiatives incompatible with sought outcomes" (p. 144). These studies are further evidence that the fidelity of implementation largely depends on the degree to which the proposed pedagogical changes are compatible with the culture of performativity still dominant in Singapore's schools.

Interestingly, the culture of performativity also affects the implementation of reforms that aim to reduce performativity's dominance over teaching and learning. In an effort to reduce examination pressure, the government has encouraged the use of bite-sized assessments to shift the focus from one-off summative assessments at the end of a term to formative assessments that support learning during instruction (K.H.K. Tan, 2017). However, the implementation of bite-sized assessments appeared to have the opposite effect: Students' and teachers' stress increased, as they viewed the more frequent formative assessments as "mini-exams" (p. 197) that resulted in students being "perpetually tested, throughout the year" (K.H.K. Tan, 2017, p. 196). This reaction to the introduction of bite-sized assessments is mirrored in Ratnam-Lim and Tan's (2015) study of the large-scale introduction of formative assessment practices. Still, as Wong et al. (2020) argue, the discrepancy between the aims and effects of assessment reform should not necessarily be taken as an indication of failure. They outline how in Singapore, newly introduced assessment policies have rarely completely displaced the impact of previous policies. Instead, policies and their effects are layered on top of each other, gradually changing practice over time. Thus, the lack of fidelity in reform implementation observed by K.H.K. Tan (2017) and Ratnam-Lim and Tan (2015) may well merely be evidence of the considerable time lag for new assessment policies to affect practice rather than an indication of a definite lack of success.

Finally, the culture of performativity also appears to be in tension with the shift towards bottom-up change promoted within many reforms in Singapore. For example, Huang (2019) documents how, in the context of ICT reform, many school leaders chose to initiate top-down changes in their schools instead of encouraging a bottom-up approach promoted by reform documents. School leaders justified their top-down approach with the need to demonstrate quick implementation progress to their superiors. Indeed, Retna and Ng (2016) note similar concerns among school principals, who expressed unease about the speed with which the Ministry wanted many of the TLLM reforms implemented in schools. Just as the strong emphasis on learning outcomes undermined the learning process in pedagogical and curricular reforms, in Huang's (2019) study, the government required

schools to implement reforms quickly, thereby undermining the process with which they were implemented.

Performativity can adversely influence the shift towards bottom-up change in a second way: Chua et al. (2019) find that, given Singapore's hierarchical society and history of centralized decision-making, many teachers were apprehensive about being given more autonomy, as increased autonomy would result in more accountability for outcomes. Such apprehension can be observed in the implementation of PLCs, which by their nature rely on teachers taking responsibility for their own learning. Ho et al. (2020) highlight how for the teachers implementing PLC teams, "strategic alignment to the school's vision, mission or strategic thrusts was important, without which 'empowerment' appeared to be less meaningful, and even frightening" (p. 640). It appears, overall, that bottom-up change is undermined, as a culture of performativity both tends to value outcomes over process and can create reluctance among practitioners to be responsible for outcomes in general.

In conclusion, the fidelity of implementation – whether it relates to pedagogy, curriculum, assessment, or change management – appears to be significantly, and most often adversely, influenced by Singapore's emphasis on measurable outcomes. Having now addressed the research questions for each country separately in Chapters 4 and 5, the following Chapter 6 will discuss these findings in comparison, before conclusions are drawn in Chapter 7.

6 Comparative Discussion

The advent of international assessments has compelled many researchers to attempt to formulate a model for developing school systems towards high performance, which systems around the world could then emulate. In their McKinsey&Company study, Mourshed et al. (2010) recommend a pathway that entails progressively delegating decision-making powers to schools, essentially transitioning from a tightly to a loosely coupled system. The OECD has similarly advocated for increased school autonomy over curriculum and assessment as a way to improve learning outcomes (OECD, 2013). However, in an apparent contradiction to this 'gold-standard' model, Singapore's high-performing system has mostly remained tightly coupled with the government exerting firm control over teaching and learning (Dimmock and Tan, 2016). This raises the question: Is there truly only one model of successful education reform implementation in high-performing systems? Or in other words, to what extent is it possible to advocate for implementation approaches that apply to school systems regardless of their context?

By exploring the differences in the implementation of education reforms in Finland and Singapore, this dissertation aims to further the understanding of the nuances of education reform in contrasting settings. This chapter compares and discusses the findings in Chapters 5 and 6, explicitly answering the three research questions posed in the introduction:

1. To what extent do Finland and Singapore differ in the amount of control granted to actors at different levels in adapting the reforms to their context?
2. To what extent do Finland and Singapore differ in how actors at various levels make sense of the reforms?
3. To what extent do Finland and Singapore differ in the degree of fidelity with which the reforms are implemented on the ground?

As in previous chapters, these research questions will be discussed under the headings 'Control,' 'Sense-Making,' and 'Fidelity.'

6.1 Control

While both for Finland and Singapore, it can broadly be said that the central government exerts some form of control and schools have some form of autonomy when implementing reforms, this distribution differs significantly. In Finland, the national government typically only sets the broad outlines of a reform and leaves the specifics of its design and

implementation to municipalities, who, in turn, also grant schools considerable leeway in implementation. By contrast, in Singapore, the autonomy that schools and teachers possess is restricted by a comparatively prescriptive framework that is decided centrally and aims to align on-the-ground implementation to the Ministry's goals. Furthermore, the intensity and duration of top-down support for local implementation provided by the respective national governments – also a form of control – differed substantially. In Finland, the national government's involvement in implementation, for example, during curriculum reforms, was short-term and limited to providing broad frameworks for municipalities to follow. Singapore, in contrast, has established permanent structures such as school clusters, which closely support schools in implementing reforms. The considerable difference between Singapore and Finland in the amount of control granted to schools and teachers to implement specific reforms, therefore, aligns with the overall pattern of tight and loose vertical coupling in each system, as described in Chapter 2.3. Such alignment is hardly surprising, given that implementation approaches are, of course, bound by the context in which they are executed. Nevertheless, it confirms that high-performing school systems do differ in their approach to implementing reform.

Given the different cultural contexts of Finland and Singapore, it would be amiss not to address the role played by culture when effecting change. For instance, the dimension of cultural tightness-looseness appears as a suitable cultural lens for analyzing the distribution of control. Cultural tightness-looseness refers to the "strength of social norms, or how clear and pervasive norms are within societies, and the strength of sanctioning, or how much tolerance there is for deviance from norms" in different cultures (Gelfand et al., 2006, p. 1226). Tight cultures, Gelfand et al. (2006) assert, restrict the range of accepted behaviors and promote order, whereas loose cultures permit a broader range of behaviors and allow for diversity and risk-taking. Indeed, Finland is found to belong to the group of loose cultures, while Singapore's culture is categorized as tight (Gelfand et al., 2021). Perhaps unsurprisingly, for both countries, the classification as a tight or loose culture aligns with the predominant form of coupling within its system. While this alignment certainly is not evidence that such a pattern would hold for other countries, it does strengthen the hypothesis that cultural factors shape whether a tight or loose implementation approach is suitable for a given system.

Somewhat unexpectedly, both systems appear to some extent to be moving away from their characteristically tight or loose approach to implementation. In Singapore, the Ministry has transferred several decision-making powers to schools and promoted school-

based innovations, albeit while still exerting control through accountability schemes, and is encouraging principals to promote more bottom-up change. In Finland, curriculum construction has been moved from the school to the municipal level, restricting schools' autonomy compared to prior curricular reforms; national core curricula have also become more prescriptive. Finland's tightening and Singapore's loosening of control can be interpreted as the respective governments acknowledging the weaknesses of their status-quo approach. Singapore's prior top-down approach without autonomy – as opposed to the now practiced top-down–bottom-up approach – would not have given schools enough flexibility to innovate. Finland's more decentralized curriculum construction in 1994 and 2004 likely resulted in a widening gap between national policymakers' aspirations and the on-the-ground reality in schools. The more prescriptive curriculum and top-down implementation of school redesigns can thus be interpreted as policymakers' reaction to that misalignment. Furthermore, relying on individual schools to construct curricula can unreasonably burden individual teachers and may lead to low-quality implementation, as was the case in rural Finnish schools (Autti and Bæck, 2021). Therefore, the move from school-based to municipality-based curriculum construction can also be interpreted as an attempt to consolidate resources.

All in all, when comparing the level of control granted to actors at different levels, it appears that neither Singapore nor Finland quite fit McKinsey&Company's model. Singapore still exerts tight control over schools through accountability measures and largely standardized curricula and assessments; Finland is moving away from the strongly devolved approach, which Mourshed et al. (2010) establish as the endpoint in developing systems for high performance. While McKinsey&Company's model does not fully represent reform implementation in either system, the question remains whether a different, 'gold-star' model exists – a Goldilocks mixture of tight and loose coupling balancing the need for innovation and alignment –, towards which both Finland and Singapore are moving. While it is reasonable to believe that such a mixture exists for each system individually, a strong argument can be made that the ideal balance depends on each country's culture and values and that no one-size-fits-all model exists, which can be transplanted to any system. For instance, it appears likely that the societal norms in Singapore's tight culture place a limit on the amount of loose coupling and bottom-up leadership with which teachers would feel comfortable. Ho et al. (2020), for example, report in their case study that Singaporean teachers stressed their desire to align their practice to their school's strategy "without which 'empowerment' appeared to be less meaningful, and even frightening" (p. 640). In contrast,

Finland's historical emphasis on democratically legitimized, local decision-making, as described by Mølstad and Hansén (2013), likely limits the degree to which the government can reasonably move towards a tighter, more top-down style of implementation. So, even though shifts in the control granted to local actors appear in both countries, the dominant approach nevertheless closely aligns with and appears very much influenced by the context in which the reforms are implemented.

6.2 Sense-Making

The findings on sense-making during reform implementation address both the sense-making processes in which practitioners engaged and the outcomes of those processes, i.e., practitioners' interpretations of reform and their alignment with those of policymakers.

Regarding the sense-making processes, the tight professional coupling between teachers in Singapore, for example, through PLC teams and distributed leadership, facilitated shared sense-making among teachers and between teachers and school leadership. Shared sense-making also occurred across schools and between system levels due to established structures such as Networked Learning Communities and the school clusters, which function as inter-institutional links. In contrast, Finnish teachers, in most cases, made sense of reforms individually. Shared sense-making between system levels only occurred in response to a top-down impetus, for example, when the national government required municipalities to establish short-term steering groups to construct a local curriculum. The apparent link between tight coupling and shared sense-making and between loose coupling and individual sense-making is not surprising and highlights the strength of tight coupling in facilitating alignment among those implementing reforms.

When interpreting the outcomes of sense-making processes, the findings suggest that shared sense-making is necessary for practitioners to interpret the reform in line with its goals. In Finnish schools, where shared sense-making was largely absent, teachers and principals interpreted reforms in vastly different ways; teachers' interpretations often did not align with reform goals, while principals' interpretations aligned more closely. In Singapore's tightly coupled schools and school system, the ongoing shared sense-making led teachers and principals to agree with and support the reform aims.

However, the findings in Singapore also demonstrate how shared sense-making can lead to a shared understanding among practitioners that, nevertheless, does not align with policymakers' intent. Specifically, Singapore's continued emphasis on examination performance led practitioners to interpret reform in ways that were not aligned with its goals.

It follows that shared sense-making is likely necessary but no guarantee for alignment. Instead, such misalignment in spite of shared sense-making highlights the significant influence that teachers' prior understanding of effective teaching – which in Singapore historically and to a large extent still is shaped by performativity – has on their interpretations of reform.

The findings from Singapore and Finland have broader implications for sense-making in tightly and loosely coupled systems. Loose coupling poses the risk that implementing actors do not sufficiently engage in shared sense-making, leading to varying interpretations of reform. In a tightly coupled system, however, there is a risk that different types of tight coupling contradict each other – in Singapore's case, accountability mechanisms that demand measurable outcomes and the Ministry's directive to focus on holistic learning –, which also leads to misinterpretations.

Somewhat ironically, Singaporean schools and teachers at times used the autonomy they were given as part of the TLLM reforms to interpret the reforms in ways that did not match the reform goals, as was the case in Lim-Ratnam et al.'s (2016) study on active learning implementation and Lim-Ratnam et al.'s (2019) study on action research implementation. This suggests that practitioners in tightly coupled systems will use whatever discretion they have to align their behavior to satisfy the demands placed on them by the tight coupling of accountability measures, leading to misinterpretations of reform. Thus, giving more autonomy to schools and teachers without rectifying the contradictions between different types of tight coupling appears unpromising. Similarly, Finland's shift towards more centralization, for example, by moving the curriculum construction from schools to municipalities, led to even less shared sense-making within schools (Haapaniemi et al., 2021) and caused teachers to see the curriculum as "fine words with no connection to actual teaching" (Autti and Bæck, 2021, p. 82). Both Singapore's shift towards decentralization and Finland's shift towards centralization, therefore, appear not to have addressed the underlying causes of teachers' misinterpretations of reform and, to some extent, to have compounded their adverse effects.

In summary, it is clear that the loosely coupled implementation approach advocated for by McKinsey&Company is as little a guarantee for a shared and aligned understanding of reform among practitioners as a tightly coupled approach to implementing reform. In fact, the approaches' strengths and pitfalls related to sense-making differ substantially and further call into question the existence of a universal 'gold-standard' implementation approach.

6.3 Fidelity

For both Finland and Singapore, the studies that evaluate actual changes in practice paint a picture of nonexistent, inconsistent, or misaligned implementation. In Finland, the degree to which reforms were implemented depended on local actors' interpretations, which, however, often did not align with those of policymakers. In Singapore, faithful implementation largely depended on the compatibility of the proposed changes with the culture of performativity in the school system. However, as many of the Ministry's reforms to some degree conflicted with the continued emphasis on measurable outcomes, many changes appear not to have been implemented in the way the reforms were intended.

These findings can be explained to a large degree using the findings on sense-making for both systems. Given Finland's lack of accountability schemes, teachers face few consequences when preserving the status quo. Accordingly, whether practitioners implement reform mostly depends on them having the appropriate resources and viewing the reform's aims as appropriate, which was often not the case. In contrast, Singapore's tightly coupled approach essentially required schools to implement the reforms in some way. Consequently, practitioners' interpretations played more of a role in how the reforms were carried out instead of determining whether they would be implemented at all, as was much more the case in Finland.

Two limitations come to mind when considering the validity of these findings. First, the available studies only offer a snapshot of the changes in classroom practice as they had occurred up until the point of observation. As Spillane et al. (2002) argue, belief systems – and as an extension, teaching practices – change only slowly over time. Accordingly, these findings may as well be evidence of a substantial delay rather than a failure of implementation. Second, faithful implementation of reform is not necessarily a desirable outcome when the reform itself is misguided. For instance, the reason why Finnish teachers, schools, and municipalities did not adopt the reforms as intended may well be that they genuinely disagreed with them. To some extent, therefore, it is unclear whether the loose coupling in Finland prevented reforms from being implemented that would have improved the system or, in fact, acted as a buffer against inappropriate reforms. Given the rise of 'fast policy' in Finnish education (Hardy et al., 2020), the latter option should not be dismissed.

Overall, considering that Finland and Singapore are internationally well-regarded and high-performing school systems, the absence of consistent, faithful implementation of education reform may be surprising to some. Indeed, as expected, these findings cannot

causally link tightly or loosely coupled implementation approaches to the success of either country in PISA. Regarding the existence of 'gold-standard' model, these findings indicate that neither a tight nor a loose approach guarantees faithful implementation. If anything, these findings underscore the complexities of implementing reform with fidelity and the many difficulties implementation strategies must navigate as reform is translated to practice.

7 Conclusions, Implications, and Recommendations

International organizations' promulgation of a loosely coupled approach to education reform, as adopted in Finland, has encountered opposition, given that Singapore appears to employ a more tightly coupled strategy for reform (Mourshed et al., 2010; Dimmock and Tan, 2016). This seeming contradiction raises the question of whether a universal model for implementing education reform and developing school systems on a path toward high performance exists. This dissertation aimed to compare the implementation of education reforms in Finland and Singapore to better understand the nuances of reform in contrasting settings. Based on an extended literature review of reforms in both countries, the dissertation compared how control was distributed to actors at various levels of the system, how stakeholders made sense of the reforms, and with what degree of fidelity they were implemented. It found that the Finnish and Singaporean school systems differed substantially in their approaches to implementing reform, both in terms of the distribution of control and the sense-making processes in which stakeholders engaged. Furthermore, consistent and faithful implementation was largely absent in both systems. Notably, the reasons for the lack of successful implementation were inextricably tied to the contexts of the Finnish and Singaporean systems.

These findings highlight the importance and complexities of reform implementation and call into question the existence of a universal, 'gold-standard' model that ensures its success. Both tightly and loosely coupled approaches to implementing reform have strengths and weaknesses. These findings provide no justification for the belief in the superiority of one approach over the other. Instead, they show a clear connection between each school system's context, the predominant approach with which reform was implemented, and the reasons for the lack of faithful implementation in classrooms. The findings suggest that successful reform implementation is likely not a question of fundamentally shifting one's own approach to emulate that of another system but instead recognizing the weaknesses of the current approach to reform and addressing the underlying causes. Universal recommendations on what approach to take or how to improve fidelity in implementation, therefore, appear inappropriate.

The specific recommendations concerning reform implementation for governments around the world are limited by the fact that only two systems were studied. Indeed, the findings themselves highlight the importance of context when drawing lessons from other countries' school systems. Still, the findings for Finland and Singapore can offer some

guidance to countries that share features with either system. Specifically, loosely coupled school systems may consider establishing structures for shared sense-making to align stakeholders at and between all levels of the system to compensate for the lack of natural mechanisms for alignment. Tightly coupled systems may consider what forms of tight coupling might stand in conflict with the reforms they wish to implement.

The findings of this dissertation carry further implications for future research. For instance, they underscore the value of studying education reform using multiple analytical frameworks to better capture its complexities. They also highlight the importance of in-depth case studies within comparative education research as a complement to cross-country empirical studies. Researchers who study education reform and reform implementation should be cognizant in studying and highlighting the context in which it is being carried out. Future research could further explore the connections between reform implementation and cultural factors, such as cultural tightness-looseness. It would also be interesting to see whether the patterns found in Finland and Singapore also occur in other loosely and tightly coupled school systems. Finally, international organizations that base their recommendations on the empirical analysis of large cross-country datasets should consider communicating more explicitly the limits of correlational findings that only take a small number of factors into account and work towards capturing more of the ways in which contextual factors affect the success of particular approaches to reform.

References

Autti, O. and Bæck, U.D.K. 2021. Rural Teachers and Local Curricula. Teaching Should not be a Bubble Disconnected from the Community. *Scandinavian Journal of Educational Research.* **65**(1), pp.71–86.

Braskén, M., Hemmi, K. and Kurtén, B. 2020. Implementing a Multidisciplinary Curriculum in a Finnish Lower Secondary School–The Perspective of Science and Mathematics. *Scandinavian Journal of Educational Research.* **64**(6), pp.852–868.

Chen, W. 2013. School Leadership in ICT Implementation: Perspectives from Singapore. *Asia-Pacific Education Researcher.* **22**(3), pp.301–311.

Chua, C.S.K. and Chai, C.S. 2019. Information Communication Technology *In*: B. Wong, S. Hairon and P. T. Ng, eds. *School Leadership and Educational Change in Singapore.* Singapore: Springer International Publishing, pp.149–168.

Chua, P.M.-H., Toh, Yancy, He, S., Jamaludin, Azilawati and Hung, David 2019. Centralised-Decentralisation in Singapore Education Policymaking *In*: D. Hung, Y. Toh, L. Wu, S. Lee and A. Jamaludin, eds. *Innovations in Educational Change.* Singapore: Springer, pp.3–21.

Curdt-Christiansen, X.L. and Silver, R. 2013. New wine into old skins: The enactment of literacy policy in Singapore. *Language and Education.* **27**(3), pp.246–260.

Dimmock, C. and Tan, C.Y. 2013. Educational leadership in Singapore: Tight coupling, sustainability, scalability, and succession. *Journal of Educational Administration.* **51**(3), pp.320–340.

Dimmock, C. and Tan, C.Y. 2016. Explaining the Success of the World's Leading Education Systems: The Case of Singapore. *British Journal of Educational Studies.* **64**(2), pp.161–184.

Dimmock, C., Tan, C.Y., Nguyen, D., Tran, T.A. and Dinh, T.T. 2021. Implementing education system reform: Local adaptation in school reform of teaching and learning. *International Journal of Educational Development.* **80**.

Ekstam, U., Linnanmäki, K. and Aunio, P. 2015. Educational support for low-performing students in mathematics: the three-tier support model in Finnish lower secondary schools. *European Journal of Special Needs Education.* **30**(1), pp.75–92.

Fusarelli, L.D. 2002. Tightly coupled policy in loosely coupled systems: Institutional capacity and organizational change. *Journal of Educational Administration.* **40**(6), pp.561–575.

Gelfand, M.J., Jackson, J.C., Pan, X., Nau, D., Pieper, D., Denison, E., Dagher, M., Van Lange, P.A.M., Chiu, C.Y. and Wang, M. 2021. The relationship between cultural tightness–looseness and COVID-19 cases and deaths: a global analysis. *The Lancet Planetary Health.* **5**(3), pp.135–144.

Gelfand, M.J., Nishii, L.H. and Raver, J.L. 2006. On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology.* **91**(6), pp.1225–1244.

Gérin-Lajoie, F. 2015. *Implementation of educational change in Finland : The case of the undivided basic education reform.* Turku: University of Turku.

Greene, J. 2012. Best Practices Are the Worst. *Education Next.* **12**(3).

Haapaniemi, J., Venäläinen, S., Malin, A. and Palojoki, P. 2021. Teacher autonomy and collaboration as part of integrative teaching–Reflections on the curriculum approach in Finland. *Journal of Curriculum Studies.* **53**(4), pp.546–562.

Hairon, S. 2020. Back to the future: Professional learning communities in Singapore. *Asia Pacific Journal of Education.* **40**(4), pp.501–515.

Hairon, S. and Dimmock, C. 2012. Singapore schools and professional learning communities: Teacher professional development and school leadership in an Asian hierarchical system. *Educational Review.* **64**(4), pp.405–424.

Hairon, S., Goh, J.W.P. and Chua, C.S.K. 2015. Teacher leadership enactment in professional learning community contexts: Towards a better understanding of the phenomenon. *School Leadership and Management.* **35**(2), pp.163–182.

Hakala, J.T., Uusikylä, K. and Järvinen, E.M. 2015. Neoliberalism, curriculum development and manifestations of 'creativity'. *Improving Schools.* **18**(3), pp.250–262.

Hardy, I., Heikkinen, H. and Olin, A. 2020. Conceptualising and contesting 'fast policy' in teacher learning: a comparative analysis of Sweden, Finland and Australia. *Teacher Development.* **24**(4), pp.466–482.

Hargreaves, D.H. 2011. System redesign for system capacity building. *Journal of Educational Administration.* **49**(6), pp.685–700.

Hautala, T., Helander, J. and Korhonen, V. 2018. Loose and tight coupling in educational organizations – an integrative literature review. *Journal of Educational Administration.* **56**(2).

Ho, J., Ong, M. and Tan, L.S. 2020. Leadership of professional learning communities in Singapore schools: The tight–loose balance. *Educational Management Administration and Leadership.* **48**(4), pp.635–650.

Hogan, D., Chan, M., Rahim, R., Kwek, D., Maung Aye, K., Loo, S.C., Sheng, Y.Z. and Luo, W. 2013. Assessment and the logic of instructional practice in Secondary 3 English and mathematics classrooms in Singapore. *Review of Education*. **1**(1), pp.57–106.

Huang, J.S. 2019. Diffusing Innovative Pedagogies in Schools in Singapore: Case Studies on School Leaders' Diffusion Approaches and Their Rationalisations *In*: D. Hung, Y. Toh, L. Wu, S. Lee and A. Jamaludin, eds. *Innovations in Educational Change*. Singapore: Springer, pp.205–222.

Hung, D., Lee, S.S. and Wu, L. 2015. Toward an educational view of scaling: sufficing standard and not a gold standard. *Educational Research for Policy and Practice*. **14**(1), pp.77–91.

Jahnukainen, M. 2015. Inclusion, integration, or what? A comparative study of the school principals' perceptions of inclusive and special education in Finland and in Alberta, Canada. *Disability and Society*. **30**(1), pp.59–72.

Kadir, M.A.A. 2017. Engendering a culture of thinking in a culture of performativity: the challenge of mediating tensions in the Singaporean educational system. *Cambridge Journal of Education*. **47**(2), pp.227–246.

Lim-Ratnam, C., Atencio, M. and Lee, C.K.E. 2016. Managing the paradox of control: the case of ground-up implementation of active learning in Singapore's primary schools. *Educational Research for Policy and Practice*. **15**(3), pp.231–246.

Lim-Ratnam, C.T.L., Lee, C.K.E., Jiang, H. and Sudarshan, A. 2019. Lost in adaptation? Issues of adapting Japanese lesson study in non-Japanese contexts. *Educational Research for Policy and Practice*. **18**(3), pp.263–278.

Lim, P. and Pyvis, D. 2012. How Singapore junior college science teachers address curriculum reforms: A theory. *Issues in Educational Research*. **22**(2), pp.127–148.

Mølstad, C.E. and Hansén, S.E. 2013. The Curriculum as a Governing Instrument–A Comparative Study of Finland and Norway. *Education Inquiry*. **4**(4).

Mourshed, M., Chijioke, C. and Barber, M. 2010. *How the world's most improved school systems keep getting better*. McKinsey&Company.

Ng, P.T. 2008. Educational reform in Singapore: From quantity to quality. *Educational Research for Policy and Practice*. **7**(1), pp.5–15.

Ng, P.T. 2017. *Learning from Singapore: The Power of Paradoxes*. New York: Routledge.

Nguyen, D.T., Ng, D. and Yap, P.S. 2017. Instructional leadership structure in Singapore: a

co-existence of hierarchy and heterarchy. *Journal of Educational Administration.* **55**(2), pp.147–167.

Niemi, K. 2020. 'The best guess for the future?' Teachers' adaptation to open and flexible learning environments in Finland. *Education Inquiry.*, pp.1–19.

OECD 2019a. *Country Note Finland - Results from PISA 2018*. Paris: OECD.

OECD 2013. *PISA 2012 Results: What Makes Schools Successful? Resources, Policies and Practices, Volume IV*. Paris: OECD.

OECD 2019b. *PISA 2018 Results: What Students Know and Can Do, Volume I*. Paris: OECD.

Paulsrud, D. and Wermke, W. 2020. Decision-making in Context: Swedish and Finnish Teachers' Perceptions of Autonomy. *Scandinavian Journal of Educational Research.* **64**(5), pp.706–727.

Peck, J. and Theodore, N. 2015. *Fast Policy: Experimental Statecraft at the Thresholds of Neoliberalism.* Minneapolis: University of Minnesota Press.

Pietarinen, J., Pyhältö, K. and Soini, T. 2017. Large-scale curriculum reform in Finland–exploring the interrelation between implementation strategy, the function of the reform, and curriculum coherence. *Curriculum Journal.* **28**(1), pp.22–40.

Pyhältö, K., Pietarinen, J. and Soini, T. 2012. Do comprehensive school teachers perceive themselves as active professional agents in school reforms? *Journal of Educational Change.* **13**(1), pp.95–116.

Pyhältö, K., Pietarinen, J. and Soini, T. 2018. Dynamic and shared sense-making in large-scale curriculum reform in school districts. *Curriculum Journal.* **29**(2), pp.181–200.

Pyhältö, K., Soini, T. and Pietarinen, J. 2011. A systemic perspective on school reform: Principals' and chief education officers' perspectives on school development. *Journal of Educational Administration.* **49**(1), pp.46–61.

Ratnam-Lim, C.T.L. and Tan, K.H.K. 2015. Large-scale implementation of formative assessment practices in an examination-oriented culture. *Assessment in Education: Principles, Policy and Practice.* **22**(1), pp.61–78.

Retna, K. and Ng, P.T. 2016. Singapore principals' understanding and perceptions of the challenges of teach less, less more policy. *International Journal of Education Reform.* **25**(4), pp.426–442.

Sahlberg, P. 2015. *Finnish Lessons 2.0: What Can the World Learn from Educational Change in Finland?* 2nd ed. New York: Teachers College Press.

Säily, L., Huttunen, R., Heikkinen, H.L.T., Kiilakoski, T. and Kujala, T. 2020. Designing education democratically through deliberative crowdsourcing: the case of the Finnish curriculum for basic education. *Journal of Curriculum Studies*., pp.1–16.

Saloviita, T. 2020. Attitudes of Teachers Towards Inclusive Education in Finland. *Scandinavian Journal of Educational Research.* **64**(2), pp.270–282.

Santos, Í. and Centeno, V.G. 2021. Inspirations from abroad: the impact of PISA on countries' choice of reference societies in education. *Compare: A Journal of Comparative and International Education*., pp.1–18.

Simola, H. 2005. The Finnish Miracle of PISA: Historical and Sociological Remarks on Teaching and Teacher Education. *Comparative Education.* **41**(4), pp.455–470.

De Souza, D.E. 2018. Educational change in Singapore and its 'tinkering' around the edges: A critical realist perspective. *Journal of Educational Change.* **19**(1), pp.19–49.

Spillane, J.P., Reiser, B.J. and Reimer, T. 2002. Policy Implementation and Cognition: Reframing and Refocusing Implementation Research. *Review of Educational Research.* **72**(3), pp.387–431.

Sullanmaa, J., Pyhältö, K., Pietarinen, J. and Soini, T. 2019. Curriculum coherence as perceived by district-level stakeholders in large-scale national curriculum reform in Finland. *Curriculum Journal.* **30**(3), pp.244–263.

Sundqvist, C., Björk-Åman, C. and Ström, K. 2019. The three-tiered support system and the special education teachers' role in Swedish-speaking schools in Finland. *European Journal of Special Needs Education.* **34**(5), pp.601–616.

Sundqvist, C. and Hannås, B.M. 2020. Same vision–different approaches? Special needs education in light of inclusion in Finland and Norway. *European Journal of Special Needs Education*., pp.1–14.

Tan, C. 2017. The enactment of the policy initiative for critical thinking in Singapore schools. *Journal of Education Policy.* **32**(5), pp.588–603.

Tan, C. and Ng, P.T. 2007. Dynamics of change: Decentralised centralism of education in Singapore. *Journal of Educational Change.* **8**(2), pp.155–168.

Tan, C.Y. and Dimmock, C. 2014. How a 'top-performing' Asian school system formulates and implements policy:The case of Singapore. *Educational Management Administration & Leadership.* **42**(5), pp.743–763.

Tan, K.H.K. 2017. Asking questions of (what) assessment (should do) for learning: The case

of bite-sized assessment for learning in Singapore. *Educational Research for Policy and Practice.* **16**(2), pp.189–202.

Tan, S.C., Cheah, H.M., Chen, W. and Choy, D. 2017. Insights and Learning from ICT Integration in Education in Singapore *In*: *Pushing the Frontier: A Cohesive System-wide Approach to Integrating ICT into Education.* Singapore: Springer Nature Singapore, pp.129–141.

Thuneberg, H., Hautamäki, J., Ahtiainen, R., Lintuvuori, M., Vainikainen, M.P. and Hilasvuori, T. 2014. Conceptual change in adopting the nationwide special education strategy in Finland. *Journal of Educational Change.* **15**(1), pp.37–56.

Tian, M. and Risku, M. 2019. A distributed leadership perspective on the Finnish curriculum reform 2014. *Journal of Curriculum Studies.* **51**(2), pp.229–244.

Tikkanen, L., Pyhältö, K., Pietarinen, J. and Soini, T. 2020. Lessons learnt from a large-scale curriculum reform: The strategies to enhance development work and reduce reform-related stress. *Journal of Educational Change.* **21**(4), pp.543–567.

Toh, Y., Hung, W.L.D., Chua, P.M.H., He, S. and Jamaludin, A. 2016. Pedagogical reforms within a centralised-decentralised system: A Singapore's perspective to diffuse 21st century learning innovations. *International Journal of Educational Management.* **30**(7), pp.1247–1267.

Wang, L.Y., Chen Victor, D.T. and Neo, W.L. 2019. Studying the enactment of School-Based Curriculum Development (SBCD) in Singapore. *Educational Research.* **61**(3), pp.337–355.

Weick, K.E. 1976. Educational Organizations as Loosely Coupled Systems. *Administrative Science Quarterly.* **21**(1), pp.1–19.

Wong, H.M., Kwek, D. and Tan, K. 2020. Changing Assessments and the Examination Culture in Singapore: A Review and Analysis of Singapore's Assessment Policies. *Asia Pacific Journal of Education.* **40**(4), pp.433–457.