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Tracing future education reforms: policy mobilities within and between Taiwanese, Australian and global networks

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ABSTRACT

The global policy discourse surrounding future education has propelled reform movements worldwide. This study explores the policy mobilities and assemblage of New Pedagogies for Deep Learning (NPDL), an edu-business that has rapidly expanded to promote its distinct future learning models. Specifically, it investigates the adaptation of NPDL policy within Taiwan, while concurrently exploring the service provided by the NPDL global network, and the transnational policy learning between Taiwan and Australia. First, we analyse the integration of NPDL into Taiwan's national reform agendas by tracing the interactions amongst diverse actors and organisations. Second, we explore the policy recontextualisation process by following Taiwanese policy actors as they travel to Sydney to engage with their Australian counterparts. A central argument is that future education policy is shaped beyond national borders and continuously evolves through the interplay of (sub)national, transnational, and global actors, where ideas and practices are reconfigured as they move across spaces.

KEYWORDS

Education policy; mobility; network; policy borrowing; future education; global governance

关键词

教育政策，流动，网络，政策借鉴，未来教育，全球治理

追踪未来教育改革的轨迹：台湾、澳大利亚和全球网络间的政策流动

摘要

关于未来教育的政策论述已推动全球各地的改革运动。本研究探讨近年来迅速扩展的"深度学习教学法"，考察其所推广的独特未来学习模式如何在不同国家政策间进行流动与组合。具体而言，本研究特别关注"深度学习教学法"迁移至台湾时与当地政策适应的情况，同时分析其全球网络在这一过程中所提供的服务，以及台湾和澳大利亚之间的跨国政策学习。首先，我们通过追踪不同行动者和组织之间的互动，分析"深度学习教学法"被纳入台湾国家改革议程的过程。其次，我们通过追踪前往悉尼的台湾政策行动者与澳大利亚同行的互动，进一步探讨该政策再脉络化的过程。本研究的一个核心论点是，未来教育政策受国内外因素的共

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同影响，并随着（次）国家、国家和全球行动者之间的相互作用而不断演变，由此，当政策概念与实践在不同场域移动时，亦会被重新配置与转化。

Introduction

Future education has emerged as a new 'vehicular idea' (Temenos and McCann 2013), transcending national boundaries and fostering global attention. It has become a globally recognised movement that advocates a shift from traditional, test-based education towards learner-centred pedagogies to meet the demands of a changing landscape (Sakata et al. 2024; Wang and McLaughlin 2024). This linear view – which posits that certain actions will produce clear and predictable outcomes (Decuypere and Simons 2020) – has become enshrined as a guiding principle in 'governing the future(s)' within education policies (Mertanen and Brunila 2022). International organisations, national governments, edu-businesses, and philanthropic foundations have embraced this nebulous, yet self-proclaimed critically important, policy direction. Concurrently, various strategies have been proposed to develop an education system purportedly equipped to meet future demands and challenges, including personalised learning, the integration of artificial intelligence, virtual reality classrooms, and an emphasis on sustainability (Duobliené, Kaire, and Vaitekaitis 2023; Robertson and Beech 2024; Sakata et al. 2024).

This study examines the policy mobilities of New Pedagogies for Deep Learning (NPDL) – an emerging global edu-business that (re)defines the contours of future education. Founded in 2013 by Canadian scholar Michael Fullan, alongside international entities, such as the OECD, Intel, and Microsoft, NPDL can be conceptualised as a new form of 'promissory governance' (Robertson and Beech 2024). It problematises the current education system, asserting that the system set up 150 years ago is no longer suited for the present time (NPDL 2018b), while seeking to 'transform education for every learner by fostering the deep learning competencies for the future' (NPDL 2018b, xiii). As such, NPDL positions itself as a key broker of future-oriented educational practices, asserting that its New Pedagogies for Deep Learning Framework offers a solution to the perceived inadequacies of traditional schooling. It has since gained prominence in future education policy discourses with over 2,000 schools – from Finland to Singapore to South Africa to Colombia – joining its global partnership. Far from being a specific, singular policy, NPDL exists as an unbounded policy network and conduit for the flow of ideas and strategies (Thomas and Xu 2023) that enable 'future education' to adapt to varied national systems.

Amidst the rise of NPDL and its influence on global education governance, this paper specifically explores the policy formation processes of NPDL in Taiwan. Responding to political anxiety about preparing younger generations for an uncertain future, the Taiwanese government introduced national curriculum reform aimed at shifting away from excessive rote learning towards future-oriented pedagogical approaches. This shift created an entry point for NPDL, which was officially adopted as 'the strategy for implementing the new curriculum policy' in 2019 (MOE 2020). Beyond allocating significant resources to integrate NPDL into local educational structures and policies, the government also supported policy actors in learning from and borrowing the practices of their NPDL counterparts. Crucially, it facilitated exploratory visits to Australia, allowing

Taiwanese policymakers to observe how NPDL had been adapted within a different educational context, and to explore strategies for aligning its implementation with Taiwan's curriculum reform.

Utilising a Policy Mobilities and Assemblage Theory conjoined approach (see Baker and McGuirk 2017; Lewis 2021; Lewis and Spratt 2024; McCann and Ward 2012; Prince 2017), this study traces two critical periods of movement and transformation of NPDL-driven future education policy. First, it examines how NPDL policy travelled and was adapted to align with Taiwan's curriculum reform. Although substantial literature has employed the policy mobilities and assemblages to explore global education governance in federal systems (e.g. Lewis, Savage, and Holloway 2019; Savage and Lewis 2018), scant studies have either paid attention to non-federal systems or overlooked power dynamics, simply treating them as static unit. Our argument is that the education system of Taiwan, despite not being a federal system, manifests power relations between the central government and special municipalities that created various possibilities for receiving global policy discourses and practices, warranting an in-depth exploration. In this regard, we seek here not to understand the specific impacts of NPDL on individual schools or the local implementations; rather, we aim to understand how the power relations amongst actors and organisations have shaped and recontextualised the NPDL's ideas and practices to align with recent policy shifts towards learning for the future in Taiwan.

Second, we are motivated by a desire to investigate the mobilities in both discursive and physical forms of Taiwanese policy actors travelling to Australia to learn and observe how NPDL has been enacted in a network of independent schools in Sydney. This enables us to examine how Taiwanese policy actors de-structured their initial NPDL ideas and practices and re-structured another set through these transnational interactions. These movements highlighted in this study are not simply about the policy transfer from the NPDL's central hub in Canada to Taiwan, or policy borrowing from Australia. Instead, ideas and practices move multilaterally and 'contingently' within the NPDL global network, within Taiwan's context, and through the interactions between the policy actors of Taiwan and Australia.

Methodologically, this paper is guided by digital and network ethnography to follow and examine both policy mobilities of NPDL ideas and practices and their mutations (see also Adhikary and Lingard 2018; Ball 2016). Specifically, this study focuses on tracing the physical and virtual movements of actors, ideas, and practices to unpack the complexities of policy mobilities and assemblage. It incorporates a thorough examination of documents and interviews with key policy actors from both Taiwan and Australia. It is further enriched by observations gathered during an international visit from Taiwan to Sydney. This methodological approach facilitates a deep exploration of how specific policy assemblages are constructed and dynamically transformed in response to local conditions, thus contributing nuanced insights into the intra-national and trans-national flow of educational policies and practices (Gulson et al. 2017; Lewis and Spratt 2024; McCann and Ward 2012; Peck and Theodore 2015).

In what follows, we briefly provide an overview of the roles of NPDL programs and partnerships, as well as the theoretical and methodological approaches that guided this study. We then examine the introduction of NPDL in Taiwan, highlight some of the policy influences and actors contributing to the policy formation processes, and analyse the emergent assemblage of ideas, practices, and techniques (re)configured between the relevant actors and organisations of Taiwan and Australia. The paper concludes by

offering further insights into the mobilisation of NPDL in global education policy and its impact on education in Taiwan.

The emergence of NPDL: future education through deep learning pedagogies

Since the early 2000s, envisaging future education has become a global focus (Robertson 2005). 'The future', as Robertson and Beech (2024) note, is portrayed as 'increasingly unpredictable, uncertain, and hazardous' (7). Now, 'future education holds a special place in global education policy' (Mertanen and Brunila 2022, 1), where the future is treated as an imperative – one that urges government to reform their current education systems in pursuit of a better world.

While this linear view of the future can be criticised as simplistic and even naive (Decuypere and Simons 2020), it is nonetheless argued that education systems are evolving in response to a purportedly changing world of work (Robertson and Beech 2024). This orientation to the 'future' is envisioned as one requiring continuous knowledge production and adaptability, primarily driven by the principles of a knowledge economy where economic growth is fuelled by the quantity and quality of innovation, rather than simply by physical production. Such an understanding has reinforced calls for a transition from test-based education towards learner-centred pedagogies and real-world experiences, fostering 'future learners' who are adaptable, entrepreneurial, and equipped to navigate an ever-evolving world (Sakata et al. 2024; Wang and McLaughlin 2024). As these ideas gain traction, governments and international organisations have proposed various kinds of strategies and programmes to reform their education systems in line with this future education movement (Decuypere and Simons 2020; Robertson and Beech 2024). Concurrently, cross-border policy borrowing has accelerated, with countries such as Australia, Canada, Finland, and Singapore successfully positioning themselves as national models of education. Both public and private sectors in these countries actively export their strategies to nations seeking best practices for future education (Takayama and Okitsu 2024).

Within this context, in 2013, NPDL emerged as a unique global policy network focusing on future education. Founded by Canadian scholar Michael Fullan in collaboration with the OECD, Microsoft, and Intel, it seeks to address the limitations of traditional schooling where student engagement is often waning, and participation is driven by grade incentives rather than genuine interest (NPDL 2018b). NPDL argues that such longstanding and 'outdated' educational settings can be transformed through its New Pedagogies for Deep Learning Model and six Global Competencies (6Cs) – including character, communication, collaboration, critical thinking, creativity, and citizenship – that enable 'students [to] contribute to the common good, address global challenges and develop the competencies needed to flourish in a complex world' (Quinn et al. 2019, 3).

At its inception, NPDL was implemented in approximately 600 schools across six countries: Australia, Canada, Finland, Netherlands, New Zealand, and Uruguay (NPDL 2016, 2). Since then, it has expanded into the U.S. in 2018 (NPDL 2018a)[1] and, by 2024, reached over 2,000 schools in 20 countries (NPDL 2024). Upon becoming a member school, with an annual fee of $2,000 USD, schools gain access to a broad range of communication channels and implementation support for NPDL-accredited future learning, including the Deep Learning Hub, a suite of tools and resources, global moderation,

online forums, professional consultancies, blogs, and publications. The Deep Learning Hub provides selected 'best practices' and feature stories, while global moderation facilitates collaborative evaluative processes for national and global learning designs. Regular online forums serve as a reference for NPDL partners, connecting global members around priority issues. Moreover, member schools within the same country can form a 'cluster' by paying a registration fee of $200,000 USD annually, unlocking additional benefits such as invitations to monthly Virtual Cluster Collaboration Meetings, access to the latest ideas and practices in deep learning, and opportunities to engage with NPDL leaders' expertise (NPDL 2015, 5).

The expansion of NPDL varies across countries, involves a different cast of new actors, discourses, and ideological commitments beyond the prefigured boundaries of the nation state (Gulson et al. 2017). For instance, in Australia, the Department of Education has taken a leadership role in the states of Victoria and Tasmania, while in New South Wales (NSW), the development of NPDL has been driven by the Association of Independent Schools of NSW (NPDL 2018b, 165). In Uruguay, the NPDL policy is centrally implemented by Ceibal, a government-funded but independent agency (NPDL 2018b, 168). Additionally, NPDL has formed partnerships with private organisations, such as the Australia-based Centre for Strategic Education and Finnish Edita Publishing, as well as transnational actors like the Inter-American Development Bank. These networks and interactions have contributed to the unique *place-specific* assemblage (see also Lewis, Savage, and Holloway 2019) that configures social, cultural, and economic forces, and local actors, and relations associated with its multi-directional networks. Through building local, regional, transnational, and multisectoral partnerships, NPDL's programs are enabled to 'highly align with the culture and context' (Quinn et al. 2019, 21) – allowing students worldwide to engage in deep learning experiences that develop their capacity to respond effectively to various future scenarios.

Policy mobilities and assemblage of NPDL

In our analysis, we draw on scholarship from a policy mobilities and assemblage theory conjoined approach (Baker and McGuirk 2017; Lewis 2021; Lewis and Spratt 2024; McCann and Ward 2012; Prince 2017) to delve into the policy formation processes of NPDL in Taiwan and their interactions between the Australian, Taiwanese, and networks. A considerable body of literature has utilised policy mobilities (e.g. Ball 2016; Gulson et al. 2017; Williamson et al. 2019), or, assemblage (e.g. Lewis, Savage, and Holloway 2019; Savage and Lewis 2018; Savage, Gregorio, and Lingard 2022) to examine the global movements of discourses and practices or the ongoing transformation of national (or subnational) policies across different spaces and scales. Despite this, growing complex policy phenomena also manifest that a single-theory approach has not been sufficient to capture their dynamics. The policy mobilities and assemblage theory conjoined approach thus seeks to pave new avenues for examining not only how policies travel and adapt, but also how they are assembled and reassembled in different contexts (Lewis and Spratt 2024).

The focus of policy mobilities in this analytical framework poses a challenge to traditional views of policy borrowing, transfer, and learning for their linear and overly simplistic approach, treating policies as stable packages that could be simply transferred from one place to another. It emphasises the dynamic and evolving nature of policies

as they move through space and time, often undergoing significant transformations due to local contexts and actors (Clarke et al. 2015; Peck 2011). By advocating for theoretical-methodological openness, the policy mobility perspective treats policy as a phenomenon that unfolds across multiple scales, influencing and being influenced by actors operating at various levels, where people, organisations, and governments have the capacity to 'mobilise and modify policies according to a variety of purposes, aspirations, and commitments' (Williamson et al. 2019, 705).

Assemblage theory complements the study of policy mobilities by providing a lens to view the complex and heterogeneous connections that facilitate or constrain policy movement (Lewis and Spratt 2024). It conceptualises policies as continuously changing, made of various elements that come together in specific but temporary configurations. In other words, policies emerge through the interaction of multiple elements – such as regulations, funding, and actors – where power dynamics play a crucial role in shaping how these elements interact, ultimately determining which policy configurations are possible and which are not (Savage 2019, 3–4). In sum, the analytical framework of a policy mobilities and assemblage theory conjoined approach is 'not merely a sum of these respective parts, whereby a dash of policy mobility and a sprinkle of assemblage theory provide more than each could possibly do in isolation' (Lewis and Spratt 2024, 48). Rather, it enables policy researchers to provide nuanced analysis of 'multiple relationships inherent in mobilities of policies, people and places, the various discursive and materials flows' (Gulson et al. 2017, 235), and the heterogeneous and emergent assemblage of ideas, practices, actors and organisations (Savage and Lewis 2018, 119) that evolve over time.

This theoretical framing is particularly relevant for this paper, as multilateral movements, complex (re)configurations, and relational networks have driven the emergence and evolution of NPDL in Taiwan and globally. On a global level, NPDL has established itself as a policy-assemblage-powerhouse with broad-based connections to corporations, professional associations, supranational organisations, and prestigious academic institutions. Functioning as a global policy network, NPDL both constitutes and operates within a heterarchical form of diffused governance (see also Adhikary and Lingard 2018). These actors, including those on the NPDL Board of Directors, possess specialised expertise (e.g. organisational coaching and strategies) and the capability to raise capital from public, corporate, and philanthropic sources including membership fees paid by governments and schools, and donations from transnational companies like Microsoft and Pearson. Furthermore, the NPDL network wields considerable influence through its ability to craft and disseminate compelling narratives that persuade governments, policymakers, and donors to invest in the future schooling and deep learning framework it advocates.

However, the expansion of the NPDL network is not linear; rather, it undergoes significant transformations shaped by local and transnational contexts as it moves through space and time (see also Clarke et al. 2015; Peck 2011). The emergence of NPDL in Taiwan coincided with a period of curriculum reform, aiming at transforming the school system from the 'traditional rote-oriented' approach towards one focused on 'learning for future'. This created a space where the adoption of NPDL was viewed as a strategic response to concerns about equipping the younger generation for future challenges and successfully 'aligning' with the local context. Consequently, the deep learning framework of NPDL is positioned as a tangible pathway to the 'future'

by providing its 'Suite of Tools' – which defines what it means to be a future learner and outlines how to transition from traditional to future learning (NPDL 2024). Moreover, the adoption and evolution of NPDL are not confined to bilateral interactions between Taiwan and the NPDL headquarters. Through regular online workshops and seminars involving NPDL headquarters and other member schools globally, Taiwanese policy actors have been able to learn about diverse possibilities of NPDL implementations and 'foreign' elements. In this vein, Australia's engagement with NPDL has been vital for Taiwanese policy actors in shaping future education strategies through ongoing dialogue with Australian NPDL policy actors and, most importantly, their visits to NPDL-partnered schools in Sydney. This illustrates the multilateral processes of de-assembling and re-assembling the NPDL within the Taiwanese contexts, underscoring the complexity of policy mobilities and assemblage and the subtleties of their interconnections.

Methodologically, we drew on digital and network ethnography (Ball 2016) – wherein researchers examine education policies, online documents, multimedia contents, and social networks to better understand how policy assemblages form and function – to explore the emergence, adaptation, and transformation of NPDL. Our data collection comprised four categories: face-to-face interviews, reflective commentaries shared by participants on Padlet about the reform during their exploratory visit to Sydney, observational data, and digital materials relevant to NPDL.

First, we conducted semi-structured interviews with seven Taiwanese NPDL policy actors, either during or subsequent to their international visits to Sydney. Second, we collected the perspectives of four policy actors who documented their reflections and opinions on Padlet during the international visit. Third, an NPDL workshop tailored by the Association of Independent Schools of New South Wales (AISNSW) office for Taiwanese policy actors was meticulously observed and recorded by Author 3. Last, we collected and reviewed materials published in English and Traditional Chinese, including official NPDL reports (6), NPDL website pages (2), digital publications from Taiwanese governments that reference NPDL (13), and related online news articles, updates, speaker bios, LinkedIn, and Facebook extracts featuring discussions about NPDL (9).[2]

Data analysis in digital and network ethnography is not singular, fixed, and static; rather, Ball (2016) emphasises that network ethnography involves 'following people, things, money, and reform' (4). The analysis used in this study employed two different approaches to trace the dynamics of people, places, and stories within the NPDL networks. First, a thematic analysis was conducted by developing a start list of codes through immersive reading of interview transcripts, notes on Padlet, relevant reports, and multimedia content. These codes were then iteratively identified and allocated to themes or discourses based on emerging patterns in the data. Second, the observations recorded and the field notes were analysed to explore the nuanced discussions amongst policy actors, particularly during their international visit, thus examining how policy was de-/re-assembled through transnational movements and interactive processes. Four key processes of policy mobilities and (re)assemblages were identified: (1) narratives on future education; (2) the networked relations of NPDL policy; (3) travel to Sydney for policy learning; and (4) (re)assembling the NPDL for future education (Table 1).

Table 1. List of interview participants (on page 8).

Code	Background	Data acquisition date	Type
P01-0320-I	Principal	2023.03.20	Interview
T02-0301-I	Teacher	2023.03.01	Interview
D03-0301-I	Dean	2023.03.01	Interview
D04-0301-I	Dean	2023.03.01	Interview
D05-0228-D	Dean	2023.02.28	Document
D05-0301-I	Dean	2023.03.01	Interview
T06-0301-D	Teacher/NPDL advisory team member	2023.03.01	Document
P07-0301-D	Principal	2023.03.01	Document
P07-0627-I		2023.06.27	Interview
P08-0301-D	Vice principal/ advisory team member	2023.03.01	Document
P09-0314-I	Principal/NPDL advisory team member	2023.03.14	Interview

Emergence of NPDL as a strategic response to reform challenges

Before Taiwan joined the NPDL global network, the nation's educational landscape underwent significant reforms, particularly through the introduction of the *108 Curriculum Guideline* policy in 2014. This reform aimed to dismantle the entrenched culture of schooling, characterised by an overemphasis on rote learning, substantial investment in private tutoring, and a deeply ingrained focus on academic rankings, where schools prioritised quantifiable outcomes – primarily the number of students admitted to prestigious universities – over genuine engagement with learning (Liu 2013). This has been increasingly recognised by the government as an obstacle to 'developing future-oriented skills' (MOE 2014, 1). In response, the *108 Curriculum Guideline* policy, centred on 'competency-based education', was proposed to 'reorient student motivation from a narrow focus on grades to fostering deep learning, essential for future challenges' (MOE 2014, 8).

Despite being announced in 2014 with a planned rollout in 2019, schools displayed a marked reluctance to adopt the competency-based curriculum policy, due to accountability measures tied to student performance in tests. More critically, the lack of concrete strategies for implementing competency-based pedagogies and course design led to a widespread sense of unpreparedness amongst schools, which became the primary barrier to implementing the reform. Principals and teachers frequently experienced confusion over the concepts of 'competency' and 'learner-centred education', resulting in substantial interpretative variabilities at the ground level, further complicating the transition (Chen, Ko, and Lin 2021).

These challenges pushed the government to search for 'best practices' as 'importable goods' (Takayama and Okitsu 2024). In 2019, Taiwanese policymakers travelled to Finland and, during their visit, one of the schools they encountered happened to be an NPDL partner. That school's principal highlighted the value of NPDL's 6Cs framework in fostering a learner-centred and future-oriented curriculum (MOE 2023). Upon returning to Taiwan, the futuristic orientation of NPDL – which emphasises 'compassion, entrepreneurialism, and related skills necessary for high functioning in a complex universe' (NPDL 2018b, 16) – became a focal point in discussions about integrating NPDL with Taiwan's competency-based curriculum reform (Chen, Ko, and Lin 2021). This initiative quickly gained support from the former deputy education minister and other senior policymakers, as one policy actor explained:

> While promoting the new curriculum, it is challenging to implement the competency-based education; there's no specific explanation … However, with NPDL, I have guidance that indeed provide a roadmap for schools. (P01-0320-I)

In October 2019, the MOE officially endorsed NPDL as a viable and tangible model compatible with the goals of the *108 Curriculum Guideline* policy, announcing that selected schools will engage with the NPDL network to incorporate its insights into existing strategies to enhance the effectiveness of the competency-based curriculum. By June 2020, 22 schools had signed contracts with NPDL's central hub in Canada, officially joining the global network (MOE 2020).

The networked relations of NPDL policy

Although the decision to integrate NPDL with the *108 Curriculum Guideline* was made by the MOE, it would be misleading to characterise NPDL policy as merely a 'top-down' imposition by the central government. Rather, the policy formation processes involve 'orchestrating cooperation amongst various actors cutting across central-local, public-private boundaries and bureaucratic divisions to develop a nationally coordinated policy approach' (Takayama and Okitsu 2024, 2) that aligns NPDL with existing education structures. Tracing the development of NPDL policy allows us to examine its architecture and the tensions, contradictions, and negotiations amongst the actors and organisations, which can be summarised by the following three facts.

First, NPDL policy processes have unfolded across three distinct clusters demarcated by jurisdictional lines: schools governed nationally and those within the special municipalities of Taipei and New Taipei cities. Each cluster independently finances NPDL membership fees and cultivates professional learning communities within its respective jurisdiction. This structural arrangement reflects Taiwan's educational governance system, which comprises a central governmental agency (i.e. MOE) and 22 local Departments of Education – encompassing six special municipalities and 16 counties and cities. Despite the MOE traditionally wielding considerable influence over educational governance, the Departments of Education across six special municipalities possess enhanced legal and fiscal autonomy regarding the establishment, regulation, and funding of schools, particularly evident in the economically and politically affluent municipalities of Taipei City and New Taipei City. Hence, when an MOE-funded NPDL pilot initiative was launched in December 2019 to encourage participation amongst 'national schools', schools in Taipei City promptly expressed interest, followed by subsequent engagement from New Taipei City as part of their efforts to position their schools as future-ready.

Second, while these member schools receive funding, coordination is centrally managed by an intermediary advisory team. This *ad hoc* entity – whose members include academics, representatives from the MOE, Taipei and New Taipei City Departments of Education, the National Academy for Educational Research, a philanthropic foundation (i.e. Lotus Creek Educational Foundation), and retired principals – is tasked to facilitate the contextual adaptation of NPDL as well as mediate a diverse range of interests, resources, and rationales (Chen, Ko, and Lin 2021). Its responsibilities include fostering the professional learning communities across the clusters, supporting the translation of NPDL materials into Traditional Chinese, and crucially ensuring the cohesive integration

of the NPDL toolbox (a set of resources and strategies for implementing 6 Cs) into the national curriculum. It is also noteworthy that the initial stages of the NPDL policy implementation, particularly the coaching workshops designed to enhance the capabilities of the advisory team and some policy actors, received financial backing from the Lotus Creek Educational Foundation. To date, these donations continue to support the engagement of schools that have not yet been officially incorporated into the NPDL network in Taiwan.

Third, while the advisory team has been pivotal in coordinating efforts across administrations to maintain support for member schools, the attitudes and ambitions of the local education departments often exert a significant influence on the nature and implementation of the NPDL activities and arrangements. For instance, the New Taipei City Government has taken the lead ahead of central and other local governments in holding the NPDL policy briefings. Its Education Department Director Ming-wen Chang stated:

> New curriculum guidelines and global education trends are really important to us, so New Taipei City Government will keep promoting NPDL in the future. (New Taipei City Government 2021, February 5)

Apart from this official statement, the New Taipei cluster was the pioneer in organising a city-wide NPDL curriculum sharing symposium to 'demonstrate how the NPDL can be pragmatically incorporated into the existing curriculum within the New Taipei City context' (New Taipei City Government 2021, February 5). To compete with its counterpart of New Taipei City, the Taipei NPDL cluster organised seven member schools, through the support of university researchers, to foster the city-level approach to integrate the NPDL's 6Cs into the member schools in Taipei City. Despite these efforts and strategies, the implementation of the NPDL policy in the 'national' cluster has been the most stable, benefiting from consistent funding from the MOE and being less affected by the outcomes of 2022 local elections.[3]

Not surprisingly, the interactions between these policy actors and clusters showed that collaborative, competitive, coordinative relationships were *simultaneously* at work. Indeed, some leaders of the three clusters have expressed concerns about the long-term sustainability of this collaboration given the inherent tension between cooperation and competition. Despite these concerns, networked collaborations across entities, places, and policy actors remain crucial for NPDL's success in Taiwan. The 'services' provided by the NPDL's central hub – including online courses, webinars, workshops, and guidance – rely heavily on 'adaptation and translation strategies' implemented by the advisory team to align the NPDL programme with the national curriculum policy. The clusters have also collaborated and coordinated on various fronts, particularly in optimising the budget for professional learning. Although receiving funding from respective authorities, they regularly co-fund international conferences to share their advancements and, crucially, invite NPDL practitioners from countries like Australia, New Zealand, Canada, and Finland to exchange strategies.

Contingent suggestion: travel to Sydney for 'policy learning'

The participation in NPDL's Asia-Pacific regional forum marks a turning point for NPDL policy in Taiwan. Through an impromptu contact with Jorga Marrum and Chris

Morris – prominent NPDL figures in Australia, Taiwanese policymakers realised that Australia represents one of the successful NPDL partners, currently comprising approximately 100 primary and secondary partner schools. Initiated by the support of the State Department of Education in 2014, Victoria pioneered participation, with subsequent involvement from Tasmania, Queensland, and NSW. In particular, NSW has seen a remarkable increase in member schools, significantly bolstered by the Association of Independent Schools of New South Wales (AISNSW). This support has manifested in a significant escalation in the number of member schools in NSW, notwithstanding the considerable pressures emanating from student performance and parental expectations, specifically due to the National Assessment Program – Literacy and Numeracy (NAPLAN) and the NSW High School Certificate examinations. As such, Morris's proposal for Taiwanese officials to visit NPDL-partnered schools in Sydney was justified by the analogous pressures from high-stakes examinations, motivating Taiwanese policy actors to understand how AISNSW could facilitate the implementation of NPDL. Following the reopening of borders after the COVID-19 pandemic, the MOE and two local governments decided to endorse and co-fund a NPDL visiting programme, devised as a strategy to explore practical support from Australian NPDL-partnered schools, thereby enabling them to mediate learning for the future alongside high-stakes examination (MOE 2023).

The preparatory phase featured two online meetings between visiting policy actors from Taiwan and the AISNSW, along with 47 email communications. These preliminary discussions enabled Taiwanese policy actors to articulate their expectations for the government-funded visit, specifically focusing on understanding how the NPDL framework could be adapted for future education within the context dominated by high-stakes examinations. These negotiations and clarifications formed the basis for policy actors from both sides to co-develop a suitable NPDL programme for Taiwan, including the selection of specific NPDL initiatives in Sydney to be integrated into the visit itinerary. In the end, the AISNSW arranged a programme for the visiting policy actors from Taiwan, scheduled from 25 February to 4 March, consisting of two main components: a two-day face-to-face workshop on exploring Deep Learning in the AISNSW headquarters, and a three-day series of visits to six NPDL-partnered schools in Sydney.

This initiative of visiting NPDL counterparts in Sydney can be understood as 're-assemblage' *in formation*. According to Savage (2019), any given assemblage is highly unstable and contingently evolving over time. This perspective resonates with Ozga's (2019) view of policy, who understands policy as 'made and remade in process; as multi-site, fluid, and unstable; and as open to contestation' (p.9), or of McCann (2011, 145, emphasis in original), who contends that 'policy assemblages are always coming apart as much as coming together, so their existence in particular configurations is something that must be continually *worked at*'. In this instance, we argue that the decision to visit NPDL member schools in Sydney created new possibilities of *becoming*, or a process of potentially 're-arranging' the initial assemblage, as stressed by McCann and Ward (2012) as 'potentially pulling [the initial assemblage] apart' (328). This manifestation of simultaneous re/dis/assembly (see also Savage and Lewis 2018) guides our analysis of the visit to Sydney, as it represents the mobility and mutation of NPDL policy, where existing formations are dismantled and reassembled through interactions with new components.

(Re)assembling the NPDL for future education

Our approach to analysing the visit foregrounds the 'processes, practices, and resources brought together to "construct, mobilise and territorialise" policy knowledge' (Baker and Temenos 2015, 825; emphasis in original). The two-day coaching workshop represented a seminal event for Taiwanese policy actors to directly engage with the NPDL's policy insights in person. Although the NPDL cases utilised by the AISNSW during the workshop were context-specific (i.e. Sydney), the discourses and techniques that emanated from the Canadian central hub of NPDL equipped both Taiwanese and Australian policy actors with an epistemological toolkit. This toolkit enabled them to reference, compare and benchmark each 'place-specific assemblage', especially for Taiwanese actors, to critically evaluate their own implementation of NPDL policy. Insights from two policy actors underscored this dynamic:

> I believe that this [NPDL] provides a common language, better facilitating discussions and dialogues about the implementation on an international level. (P09-0314-I)

> When I listen to their experiences, I often feel a deep connection with them. It's as if there's a checklist in my mind, allowing me to understand their practices. As I listen, I find myself thinking, Yes, I do this too, then this, and that. (D05-0301-I)

These reflections show that NPDL policy actors from Taiwan and Australia are intricately interconnected within a network, possessing recognised expertise of NPDL-relevant policy knowledge. Despite divergences in the enactments, structures, languages, and actors of NPDL policy between Australia and Taiwan, visiting policy actors did not feel unfamiliar with those practices but perceive them with a sensation of being at home and within their zones of comfort and familiarity (Lewis and Spratt 2024).

This sentiment was further reinforced by the analogous structure of high-stakes examinations, intensifying these 'feelings of belonging' (Lewis and Spratt 2024, 44). One interviewed policy actor shared:

> At our school, NPDL is highly regarded, but implementation is feasible primarily for teachers from non-exam subject backgrounds, like physical education. For the exam subject teachers, it's less viable. (Observation notes taken on 28 February 2023)

The perception of examinations as barriers to transitioning towards 'future education' (Chen and Hung 2024) has exacerbated concerns about the challenges of adopting the NPDL programme and fostering a future-oriented learning environment. Therefore, mediating the relationship between high-stakes examinations and the implementation of NPDL emerged as a central theme during discussions amongst the visiting policy actors, and it was frequently addressed in their conversations with their Sydney counterparts. Two interviewees expressed their views on the varying attitudes towards high-stakes examinations:

> The challenges faced by teachers in Taiwan and Australia share similarities: parental expectations with hopes of their children becoming lawyers, doctors, or engineers, the pressures of high-stakes examinations, and resistance to change from some teachers within schools. These are commonly heard expressions from practitioners in Taiwan. However, Australian actors began with incremental steps to implement the NPDL policy even though they have pressures from NPDL and HEC [Higher School Certificate] … (P08-0301-D)

> This has made me realise that the pressure of university entrance examination should not be an excuse for us to avoid deep learning for the future. (P07-0627-I)

The statement 'the pressure of university entrance examination should not be an excuse' marks a significant shift in perspective, prompting Taiwanese policy actors to critically reassess their own NPDL policy processes by comparing them with the Australian counterpart. As Lewis and Spratt (2024) argue, this realisation triggers a process of de-structuring the original policy assemblage, leading to the emergence of a new assemblage that, while influenced by the original, is never exactly the same as before. In other words, while both groups share commonalities in the components emanating from Canada and face the pressures of high-stakes examinations, their employment of different implementation strategies offers an instructive and reflective lens for Taiwanese actors through the Australian experience.

Beyond differences in attitudes towards high-stakes examinations, the Taiwanese delegation also identified a more adaptable approach to implement the NPDL policy amongst their Australian counterparts. Prior to their visit, Taiwanese policy actors generally mandated schools to develop semester-long NPDL courses, seeking to establish a comprehensive future education system through the implementation of an 18-week course saturated with NPDL elements. However, the interactions during the AISNSW-led workshop and school visits revealed an alternative perspective held by NSW actors, who advocated for initiating modest, manageable projects as practical entry points in varied educational settings. This pragmatic, yet novel, approach was captured in one participant's reflections:

> Perhaps, given the current constraints, there's no need to rush the implementation of NPDL within the mandated curriculum. I'll try it out as an elective course without the pressure of grading. This way, if the students are happy, I'm happy too. I won't stress myself out. I think it's better to start with small steps and practice first. When I have a better grasp of the NPDL programme, then I can think about expanding its implementation. (D03-0301-I)

This emerging discourse about 'starting small' resonated amongst the Taiwanese participants, illustrating a process of de-stabilising and *unbinding* Taiwan's existing NPDL policy. One policy actor noted:

> Starting small can provide significant benefits for teachers who are already burdened with administrative workload and face pressures concerning student performance. Knowing that they only need to focus on a small portion or a single unit of the curriculum can significantly boost their motivation to join NPDL, making it easier for them to get involved. (P01-0320-I)

In light of DeLanda's (2006) argument that 'a component part of an assemblage may be detached from it and plugged into a different assemblage in which its interactions are different' (10), we see this as a mutation of the initial policy assemblage; namely, the original arrangement of policy ideas, practices and actors forged to integrate the NPDL framework into the *108 Curriculum Guideline* could no longer sustain its prior structure and alignment once Taiwanese policy actors recognised alternative, more adaptable approaches. Moreover, 'by following the actors we can begin to see how ideas travel with/in them and orthodoxies become consolidated' (Ball 2016, 14). In this case, the NPDL visiting programme concluded with a nationwide forum in Taiwan upon the

return of the Taiwanese delegation. Through the dissemination of insights observed abroad, policy ideas were mobilised within the Taiwanese network. Especially those policy actors who did not participate in the international visit, were encouraged to connect these practices with the existing implementation approaches and adapt their strategies to incorporate NPDL into the competency-based curriculum policy, manifesting how policies move and are created and recreated (McCann and Ward 2012).

Concluding remarks

This paper began by examining the global discourse wherein education is increasingly tasked with fostering 'future learners' who are adaptable and entrepreneurial, capable of navigating an ever-evolving world. Taiwan, as a case in point, introduced the *108 Curriculum Guideline* policy to reform its education system by employing competence-based pedagogies and other approaches designed to cultivate future readiness. We traced the emergence of NPDL within this context, noting that Taiwanese policy actors encountered NPDL's future learning model through a recommendation from a Finnish school principal. Furthermore, we explored the intricate NPDL policy formation processes in Taiwan, analysing how Taiwanese policy actors engaged not only with the central hub in Canada but also with their NPDL counterparts in Australia, observing the adaptation of the framework within a distinct educational context. Both the emergence of NPDL and its integration into the national curriculum reform reveal an intricate web of mobilities and (re)assemblages that destabilise the conventional distinction between the 'in here' local (i.e. Taiwan) and 'out there' global (i.e. the NPDL global movement) 'through' the transnational (i.e. learning from Australia).

There are several implications for the broader international scholarship on global education governance. First, we have demonstrated how visions, techniques, and programs associated with future education continue to circulate across national boundaries, expanding their influence through the networks they establish (Savage, Gregorio, and Lingard 2022). For example, while NPDL originated in Canada, its recognition by Finland – a nation widely regarded as a model of educational excellence – facilitated its acceptance by Taiwanese policy actors. Specifically, the program and services provided by the central hub in Canada became further entangled with global policy discourses on future education, with Finland's endorsement positioning NPDL as a compelling framework for aligning with the *108 Curriculum Guideline* policy.

Second, our study contributes to scholarship on policy mobilities and assemblage by providing empirical insights from a non-federal context. This is mostly clearly demonstrated in Taiwan's governance transition from the traditional centralised-decentralised approach, dominated by either the Ministry of Education (MOE) or local education departments, towards a more participatory and coordinative mechanism. This mechanism was designed to align the global NPDL framework with the national reform efforts. While the NPDL's central hub in Canada served as the global 'supplier' of strategies, resources, and training programmes, the Taiwanese advisory team was established as intermediaries to facilitate the adaptation of 'foreign' elements into localised and practical policy developments. This included supporting professional learning communities across jurisdictional clusters and tailoring the NPDL framework to specific local contexts in collaboration with respective educational authorities. Moreover, the participatory approach enabled the

negotiation and resolution of diverse interests and contextual conditions. For example, although the MOE and advisory team wield considerable influence, the municipalities of Taipei and New Taipei have continued to shape the policy through their funding schemes and administrative support, ensuring their perspectives are integrated. This is particularly salient for these municipalities as they strive to maintain their schools 'future-ready', thereby sustaining competitiveness in the education marketplace.

Third, the integration of NPDL into the national structure of the *108 Curriculum Guideline* demonstrates that specific ideas and practices associated with 'future education' do not 'simply flow "fully formed" into new environments, but instead undergo complex forms of translation and re-assemblage to take on context-specific forms' (Lewis, Savage, and Holloway 2019, 4; emphasis in original). Its emergence in Taiwan was not a straightforward case of policy importation from Canada's central hub, but rather challenged traditional notions of policy transfer and borrowing (see also Gulson et al. 2017; Peck and Theodore 2015). Instead, the NPDL policy processes in Taiwan emerged through dynamic networks linking a myriad of physical and virtual spaces, places, actors, and movements. For instance, the adaptation of NPDL policy was driven by the advisory team's coordination amongst the MOE, local governments, and member schools, as well as the services provided by Canada's central hub. These processes involved both the physical relocation of objects – such as the NPDL handbook, which was shipped from Canada to Taiwan and later translated and distributed across three clusters of schools – and the virtual transmission of NPDL knowledge through online workshops, seminars, and conferences with participants from Canada, Finland, New Zealand, and Australia.

Finally, by following the policy learning visit to Australia and AISNSW member schools in Sydney, we further highlighted the networked and continually evolving nature of global education governance. A key factor facilitating the visit was the shared policy language inherent within the NPDL framework, which enabled Taiwanese policy actors to observe, recognise, and compare different policy enactments in Sydney. This physical mobility, and particularly the in-situ school observations, created opportunities for Taiwanese policy actors to deconstruct their initial understanding of NPDL ideas and practices and subsequently reconfigure their approaches to integrating the NPDL framework into the national curriculum. Rather than conceptualising the strategies utilised by Australian actors as being 'transferred' to Taiwanese contexts, or Taiwanese actors simply 'borrowing' them from Australia, it is crucial to understand this 'visit' as a site of NPDL policy formation, where the policy is re/disassembled through particular mobilities in new, often unexpected, ways (Clarke et al. 2015).

Across both national and transnational movements, ideas, individuals, and their respective locales are intertwined within dynamic networks that extend well beyond their immediate geographies. The NPDL policy in Taiwan, consequently, is shaped not solely by local actors or within Taiwanese confines but through a dynamic and interactive web involving participants from diverse nodes of the NPDL network. Therefore, a full understanding of the NPDL policy formation processes in Taiwan requires moving beyond traditional topographical models of governance that assume policy is prescribed by Canada and implemented through a top-down process led by the MOE. Instead, it is essential to trace the intricate flows and exchanges, evolving relationships, and diverse mobilities that have shaped particular assemblages of ideas and practices across multiple interconnected networks.

In sum, the case of NPDL policy formation processes in Taiwan illustrates the complexity of global education governance. Rather than a one-way flow of policy learning from a role model country or a straightforward process of policy borrowing, the NPDL policy formation emerged through dynamic interactions amongst a wide range of actors, ideas, and strategies operating across global, transnational, national, and local scales. These processes highlight the role of multiple networks and evolving mobilities in shaping policy within specific contexts, demonstrating how policy is continuously negotiated, reshaped, and adapted to serve particular strategic ends.

Notes

1. The expansion of the NPDL partnership appears to have deviated from its initial projections. For instance, the 2014 report claimed that the initiative was collaborating with countries including Australia, Canada, Colombia, Finland, Latvia, the Netherlands, Portugal, Senegal, the United Kingdom, the United States, and Uruguay (NPDL 2014, 11). However, only six of these were identified as founding members (NPDL 2016). A similar inconsistency emerged in the 2016 report, which announced an expansion to include Denmark, Norway, Sweden, and the United States (NPDL 2016, 2). Nevertheless, the first three have not been listed as member countries (NPDL 2024).
2. We have included English translations for key Traditional Chinese phrases and concepts from government and NPDL materials. Google Translate and ChatGPT were used to create preliminary English translations, which were then reviewed and edited by each author, who are fluent in both languages.
3. The election resulted in a shift in Taipei City's mayoral office from the Taiwan People's Party to the Kuomintang, which subsequently unveiled its white paper on future education policy.

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