Walking a Tightrope towards Sustainability

A multi-level transition analysis of Iranian Nature Schools as an alternative educational initiative

Fateme Bashiri

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Submitted May 12, 2020

Supervisor: Ellinor Isgren, LUCSUS, Lund University

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Abstract

Sustainable development requires a change of values, norms, and capabilities within individuals and societies, and *education* is a crucial means to achieve these goals. However, transformation is not a simple task as dominant structures due to path-dependency and lock-in processes resist change, put pressure on innovative approaches, and hinder their potential for change. Thus the question is how such educational innovations come about and handle the pressures. This thesis, by taking a dual agency-structure stance towards social change, investigates a case of educational innovation in Iran called *Nature School*, to understand the dynamics of innovation development under the existing structural pressures. Four years after their establishment, Nature Schools were severely constrained through legal injunctions, yet developed various strategies of persistence. In this thesis, a unique model of *Multi-level perspective* is applied to analyze the interaction between niche innovation and dominant structures, suggesting concepts of *free social spaces* for understanding the dynamics of niche development and persistence. The results reveal that the legal restrictions had undeniable negative impacts on the development dynamics of the Nature Schools, such as limiting the capacities for networking and learning opportunities and increasing the cost of stakeholders. However, after the removal of governmental support Nature School pedagogues adopted creative and flexible strategies less dependent on unstable institutional support. Through learning processes, schools adapted social innovation to local cultures and expectations, rendering the initiatives resilient through gains in sociocultural support. Despite this, learning remains an area for further development for the Nature School, following its legal constriction. In this context, further research studying innovative pedagogical ventures will be crucial for providing robust knowledge and further niche development. While the role of agency remains poorly explored in transition studies, this thesis demonstrates the significance of agent-level dynamics on niche development. It indicates that legal means may catalyze the process of change, yet are not capable of determining the existence of niche innovation.

Keywords: Education for Sustainable Development, Social Innovations, Iran, Multi-Level Perspective, Free Social Spaces, Nature Schools

Word count (thesis): 11978

چکیده:

توسعه پایدار نیازمند تغییر در ارزش ها، هنجارها، و توانمندی های فردی و اجتماعی است و "آموزش "ابزاری ضروری برای دستیابی به این اهداف است. با این وجود، تغییر، کار ساده ای نیست چرا که ساختارهای غالب به دلیل وابستگی به مسیر و قفل شدگی، نسبت به تغییر، مقاومت نشان داده و بر رویکردهای نوآورانه فشار می آورند و از ظرفیت تغییرشان می کاهند. بنابراین سوال اینجاست که در چنین شرایطی چگونه نوآوری های آموزشی شکل گرفته و فشارهای ساختاری را بر می تابند؟ این پایان نامه، با نگاهی به تغییر اجتماعی که برگرفته از دوگانه ی عاملیت و ساختار است، موردی از نوآوری آموزشی در ایران به نام "مدرسه طبیعت" را بررسی می کند تا درکی حاصل نماید از پویایی های توسعه نوآوری تحت فشارهای ساختاری موجود. مدارس طبیعت، چهار سال پس از تاسیس، توسط اعمال محدودیت های قانونی، در فعالیت و گسترش این ایده با مشکل مواجه شدند. در این تحقیق، مدل منحصر به فردی از "چشم انداز چند سطحی" برای قرائت اثرات متقابل این نوآوری اجتماعی و ساختارهای مرتبط استفاده شده است که از مفاهیم "فضای آزاد اجتماعی" برای درک پویایی های توسعه و تداوم مدارس طبیعت الهام گرفته است. نتایج نشان می دهند که چالش های قانونی اثرات منفی اجتناب ناپذیری بر توسعه مدارس طبیعت داشته است؛ همچون محدود شدن ظرفیت های توسعه شبکه و فرصت های یادگیری و همچنین افزایش هزینه برای ذینفعان. با این وجود، برداشت حمایت های موسساتی سبب شد که مدارس طبیعت راهکارهای خلاقانه و منعطف تری پیش گرفتند که وابستگی کمتری به حمایت های ناپایدار موسسات دارند. بر اثر یادگیری، مدارس توانستند این نوآوری اجتماعی را با فرهنگ و انتظارات بومی تطبیق بیشتری دهند و متعاقبا در سایه حمایت بیشترِ فرهنگی-اجتماعی، تاب آوری بیشتری را تجربه کنند. با این وجود، در شرایط کنونی، تولید دانش در زمینه مدارس طبیعت یکی از حوزه هایی است که نیازمند توسعه بیشتر می باشد. تحقیقات گسترده تر بر روی نوآوری های آموزشی می تواند دانش ارزشمندی را در جهت توسعه ابتکارات اجتماعی تولید نماید. از آنجایی که در مطالعات گذار به نقش عاملیت کمتر پرداخته شده، این پایان نامه اهمیت ویژه پویایی های عاملیت را در توسعه نوآوری های اجتماعی به تصویر می کشد و در فرآیند تغییر، ابزارهای قانونی را به عنوان تسهیل کننده تشخیص می دهد، نه تعیین کننده.

کلید واژگان: آموزش برای توسعه پایدار، نوآوری های اجتماعی، ایران، چشم انداز چند سطحی، فضاهای آزاد اجتماعی، مدرسه طبیعت

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List of abbreviations

DoE - Department of Environment

ESD - Education for Sustainable Development

MLP - Multi-Level Perspective

SNM - Strategic Niche Management

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1. Introduction

It is half a century since the global community began to bring the socioecological issues of the contemporary world on the global agendas; from 1972, Stockholm's Earth Summit, declaring warnings regarding climate change, to the UN's 1987 Environmental Perspective that the notion of *Sustainable Development* was set forth for the very first time (Jackson, 2007). As the global effort around Sustainable Development targets was gaining momentum, the transition pathways with all their contextual complexities were called into question. Sustainable development means a transformation in all sectors that requires new forms of knowledge and skills (Leicht et al., 2018). Therefore *Educational transformation* has been regarded as indispensable since more sustainable paradigms require societies to readjust their norms, values, attitudes, capabilities, and skills (UNESCO, 2020).

The discourse around Education for Sustainable Development (ESD) was being put forth by international bodies while more than 70 million children didn't have access to primary education (Roser & Ortiz-Ospina, 2020) which indicates the sheer challenges and complexities of such pathways. Given the inequalities in distribution and access to resources as well as the local sociocultural specifications of different countries and regions, in achieving sustainable development, one recipe for all is out of the question. Therefore, countries are paving their way to achieving sustainability at different speeds and trying out diverse pathways, while some prioritize national agendas over those staged by the UN (Guterres, 2019; Horn & Grugel, 2018). As many governments fail to prioritize the wellbeing of their societies and the environment, the role of civil society actors in opposing the status quo, demanding, and creating alternatives becomes more significant (Rowlands, 2018).

Iran is a country with unique historical background and geopolitical characteristics. Although the country is located in an oil-rich region, it is constricted in many ways by four-decade-long international isolation and socioeconomic pressure due to sanctions (Levs, 2012). The political system of Iran is based on Sharia law (Fox, 2018) and the country has experienced unfavorable political encounters with Western countries (Tavana, 1995; Bertelsmann Stiftung, 2020). The formal education in Iran is built on a centralized homogenous system that has not yet well-accommodated diversity, participation, and alternative approaches (Safari & Pourhashemi, 2012; Paivandi, 2012; Nemati & Ghaffarian Panahi, 2018). In the face of the societal need for educational reforms towards sustainability, given the aforementioned characteristics, the interface of the civil society and the governance system takes shapes that are interesting to study.

1.1. Case Study of Nature Schools

To understand the complexities of these interactions, this thesis explores a case of social educational innovation in Iran. The initiative called 'Nature School'[1] is founded on the ecological notion that children require the immediate experience of nature in their childhood to develop affection and sense of protection for the environment (DoE, 2014; Soleimani et al., 2019). 'Nature School' goes beyond solely environmental purposes, and claims to address social issues stemming from the inadequacy of urban lifestyle and educational system in providing children with an enriching environment for their multidimensional development in early childhood (Kavikonj, n.d.a; Soleimani et al., 2019). Nature Schools had a short life in their official institutional form (Shahrvand Newspaper, 2018), but showcases the dynamics of innovation development in phases of peaceful interaction with formal entities, to conflictual events leading to legal restrictions for them, and eventually dynamics of survival without any institutional support.

1.2. Aim of the Research

In this study, I want to understand the dynamics that potentially emancipate and empower human beings in a context of limited agency and within a centralized rigid system of governance. I hope that the scrutiny to answer these questions can bring together and synthesize the unique but unwritten experiences of Nature School pedagogues in Iran. I hope this project provides an external, critical perspective of potential value for future educational policies as well as stakeholders and professionals within the pedagogic sector.

1.3. The Guiding Theoretical Approach and Research Questions

I ontologically ground my research approach on the duality of structure and agency informing the dialectical process of social change. Therefore I utilize the multi-level perspective transition framework (MLP) to study 'Nature School' as an emerging innovative pedagogical model. Within the MLP framework, for comprehending structure-agency dialectical processes, three levels are enacted, namely niche (social innovation), regime (the hegemonic structures), and landscape (the rather-exogenous context).

[1] In this thesis, I use the term Nature School in three various forms; first as the pedagogical model/the novel discourse when I use 'Nature School' (in single quotation marks), second an individual local project/the physical space that the concept is practiced in when I use Nature School in singular form, and at last when referring to several local projects/the national network/the broader movement when I use Nature Schools in plural form.

My overarching research question in this thesis is "**How has 'Nature School' as an innovative pedagogical model persisted in Iran?**" with guiding subquestions:

1. ***How have Nature Schools emerged and evolved in light of political opening and closing?***
2. ***What specific mechanisms and processes have affected the ability of 'Nature School' to persist as a pedagogical alternative?***

1.4. Contribution to Sustainability Science

The contribution of this thesis to sustainability science is to shed light on sustainability pathways pursued by practitioners of transformative educational models. Since the danger of marginalization in transdisciplinary sciences has been a persistent challenge (Briggs, 2013; Chilisa, 2017), this work will try to give voice to the periphery, as for many reasons the local experiences and efforts in Iran does not get the chance to make its way to the formal scientific bodies (Mohammadbeigi et al, 2015; Mohammadi, 2019).

2. Background

2.1. Transformation in Iran

Iran, as one of the biggest Greenhouse Gas emitters (Gabbatiss, 2020), is one of the 196 nation-states signing the Paris Agreement (UNFCCC, n.d.) and committed to fighting climate change (DoE, 2015). This is in addition to a variety of disrupting environmental challenges Iran is encountering, including water scarcity, drought, desertification, air pollution, and dust storms that pose health and economic threats to people and has led to internal displacement in many cases (Tahbaz, 2016; Madani et al., 2016). Iran has not succeeded to address environmental issues by developing proper institutional capacities and governance structures (Hedayati et al., 2018; Madani et al., 2016).

Since the inception of the Islamic Republic of Iran in 1979, efforts have been put into structural transformation to incorporate Islamic views into existing institutions and securing the Iranian-Islamic culture from the influence of Western culture (Tavana, 1995). One of the areas affected by ideological transformations after the revolution is the formal educational institution. The most fundamental reform in this area is called *the Cultural Revolution* that occurred between 1980 and 1983 (Razavi, 2009). Cultural Revolution meant a transformation in all curricula and adaptation of educational contents to Islamic principles as well as the requalification of teachers and academics based on their trustworthiness to principles of Islam and Islamic revolution (Razavi, 2009).

The two main poles of political parties consist of conservatives and reformists, while the reformists are leaning towards relatively democratic reforms within the same framework of the Islamic Republic (Bertelsmann Stiftung, 2018). In terms of political choice, qualification processes that exist for candidates of the parliament and presidency are known to hinder the political power of civil society by curbing their choices (Bertelsmann Stiftung, 2018) and has been criticized even by the actors within the political establishment like Hassan Rouhani, the president of Iran (BBC, 2020).

Concerning Iran's economic history, a limiting external component has been four-decades-long international economic sanctions (Fathollah-Nejad, 2014). These sanctions have had tremendous negative economic and humanitarian impacts on Iranian society (Human Rights Watch, 2019). In contrast to the narratives justifying the use of sanctions as a tool for political change, economic restrictions have exacerbated the political conflicts between Iran and the West while at the same time weakening the civil society in their capacity for transformation (Fathollah-Nejad, 2014). However, despite the lift of the sanctions in 2015 that was perceived to improve the socio-economic wellbeing in Iran, Iran's economic

stagnation remained a major persistent challenge for the country (Bertelsmann Stiftung, 2018). The economic stagnation signals to the more profound structural root-causes such as oil-dependent economy, centralized institutional structures, corruption, and inefficiency in the governance system that hinder the implementation of technical expert views (Amuzegar, 2009; Bertelsmann Stiftung, 2018).

The report of Bertelsmann Stiftung (2020), which assesses transformation in governance, economy, and politics, ascribes the overall status index of 2.83 (on 1-10 scale and 1 being the lowest) to Iran and reveals an overall falling trend in transformation index from 2006 to 2020 (the years the report is available). As the structures of governance persistently fall short of those transformations required to achieve sustainability, this raises attention to the important role of civil society actors as agents of change in bringing about changes required for sustainable development.

2.2. Education for Sustainable Development

Education is widely acknowledged as an essential means for the transformation of societies towards sustainability. Within the international community, ESD gained momentum since 1992 when it was elaborated by the UN as an essential part of the pathway towards Agenda 21 and further emphasized by Johannesburg world summit as the decade of 2005-2014 was predicated on ESD (Leicht et al., 2018). UNESCO, as one of the main forerunner international bodies in the area of education, refers to ESD as "helping people develop knowledge, skills, values, and behaviors needed for sustainable development", they add "[in ESD] Individuals are encouraged to be responsible actors who resolve challenges, respect cultural diversity and contribute to creating a more sustainable world" (UNESCO, 2020).

Alongside international organizations, academia has been actively engaged in ESD with soaring numbers of research on education and sustainability since 1992 (Grosseck et al., 2019). Van Poeck and Loone (2011), scholars of this field, by accentuating the practical dimension of education in bringing about a more liveable future for all, argue for the evolving nature of this field as many aspects of our future are uncertain and complex. Grosseck et al (2019) through a review of literature in the field of ESD, identified gaps in research regarding educational approaches, tools, methodologies, new learning environments, use of technology, and so on. This means that in light of the need for achieving sustainable societies more enabling learning environments and techniques have to be designed, studied, and evaluated.

2.3. Outdoor Learning Models

As learning starts from an early age through children's experience of the natural and social world, the development of research on education and sustainability extended to early childhood (Davis, 2014). Scholars and practitioners of early childhood education, are increasingly emphasizing on the shortcomings of the modern urbanized environments for providing children with the experience of nature (Kahn & Kellert, 2002; Vahabzadeh, 2020; Behruz & Zarghami, 2018). While more recognition has been gained on the importance of interaction with nature for children's development, models of outdoor learning have gained attention internationally (Rea & Waite, 2009) and many outdoor learning models such as Udeskole in Denmark (see figure 1), Swedish Forest Kindergartens, and Forest Schools in England emerged with a slight difference in their philosophical origins (Waite et al., 2016; Huang & Ho, 2018).

Appealing to a more humanistic approach towards learning, these pedagogical models respect the autonomy of the child and believe that the outdoor environment better sparks learning than any classroom and thus some argue it can be even a substitute for conventional schools (Rea, 2008). Research on the impacts of these pedagogical models on children has revealed promising findings in areas namely children's mental and physical health (Molania & Arman, 2018), improvement of their social capabilities such as teamwork and meaningful participatory experiences (Tillmann et al., 2018), as well as the development of environmentally-friendly worldviews in children (Turtle et al., 2015).

Figure 1. A snapshot of the documentary 'Nature Play - take childhood back' that showcases Udeskole in Denmark. On the internet homepage of the documentary they say: "Natureplay features a surprising endangered species in the wild today - Our Children, and devises ways to save humanity's connection to nature in the next generation - Back from the Brink of Extinction" (NaturePlay Film, n.d.).

While most of the existing outdoors pedagogical models remain limited to mainly-Western examples, in 2014 'Nature School' as a localized version of an outdoor learning model was introduced to Iranian society. The initiative was given legal support by the Department of Environment (DoE) and immediately gained momentum by rapidly expanding to almost all provinces and contributed to a new discourse around early childhood learning. In 2017, Nature Schools have been legally restricted by the government, however, some of them have managed to adapt to the new circumstances and stay operational. 'Nature School' as a transformative educational innovation, well-illustrates the interface of civil society and structural pressures. This initiative is taken as a case of a social innovation under structures that resist transformation.

3. Literature Review

Thus far, the conceptual origins of 'Nature School' as an alternative outdoor-learning model have been briefly introduced. In this research, I am essentially concerned with the transition trajectory of 'Nature School' as a path-breaking social innovation. Therefore, my endeavor to understand the existing debate around research questions channeled to the areas of *education and pedagogy*, *innovation studies*, *social movements*, and *transition studies* in Iran or a context referred to as developing economy or global south within the literature. This review of the literature available was informed by a multi-level theoretical perspective and contributed to painting a picture of potential structural pressures and niche development strategies. In these fields, I have captured innovative approaches as 'a social movement' or 'an innovative educational reform'. Although these innovative approaches represent distinct social phenomena they cater to the purpose of this review to capture the multi-level dynamics of change.

Regarding the contextual setting, Fadaee in her study of environmental movements in Iran argues that poverty and unemployment rate can potentially shape the social hierarchy of needs in a way that hinders mass mobilization for social innovation (Fadaee, 2011). Some scholars of Social Movements claim that in Iran the support and pressure from transnational networks have an insignificant influence on the openings within the political structures (Keck & Sikkink, 1998; Moghadam & Gheytanchi, 2010). This is also evident in the case of ESD as Iran has faced internal resistance in the implementation of the 2030 agenda for education (IFP News, 2018).

The literature within the field of education posits 'culture' as an essential structure motivating the religiously-informed educational structures (Soleimani et al, 2019; Paivandi, 2012). Additionally, lack of critical thinking and existing power-relations (i.e. a culture of authoritarianism) within conventional schools in teacher-student and principal-teacher relationships has been identified by Safari and Pourhashemi (2012) as barriers to exercise critical pedagogy in Iranian classrooms. Research also identifies the governance structure as problematic for educational reforms and innovative approaches, pointing to the top-down centralized governance system (Paivandi, 2012; Nemati & Ghaffarian Panahi, 2018), problematic bureaucracy (Soleimani et al, 2019), and conflicts and lack of uniformity among regime actors (Nemati & Ghaffarian Panahi, 2018; Byrne, 2009; Campbell and Sallis, 2013).

Wieczorek (2018), reviewing more than 100 literature on niche innovations in developing countries, building on lack of uniformity and instability of regime in developing contexts, recommends civil society organizations to make their "bottom-up innovations less dependent on unstable institutional conditions"

(p. 213). Although destabilizing conditions can be utilized by niche actors as windows of opportunity (Törnberg, 2018), Wieczorek is warning niche actors about development models that 'rely' on support from such unstable institutional arrangements. The interplay of hegemonic structures is further demonstrated in Abdi's et al (2014) study of innovations in Iran, as they criticize the research mechanisms for entailing high influence of government, low investment in research, and generally weak academic capacities in innovation studies.

The literature suggests some common features and dynamics within the innovation spaces that are relevant to this study. Some problematic features comprise weak networks (Mohammadi, 2007) and lack of political alliance (Moghadam and Gheytanchi, 2009). The predominantly non-commercial nature of social innovation positions niche actors as disadvantaged compared to practitioners of technical innovations who can incentivize mobilization through economic means (Safari & Pourhashemi, 2012). Additionally, transition studies in developing contexts draw attention to the failure of those transferred innovations that do not take contextual and local specifications of the developing destination into account (Wieczorek, 2018).

One the other hand, for internal dynamics and strategies that positively contribute to innovation development, most insights have been drawn from Social Movements studies. They point out *indirect activism* (Fadaee, 2011; Mirshak, 2019; Rivetti, 2017), and *diversification* as crucial features of collective and individual initiatives in countries like Iran and Egypt (Rivetti, 2017, Mirshak, 2019). Indirect activism implies that, in order to survive, movements sometimes must resort to the margins, be less visible, and raise less attention. As a result of informalization, activists gain more autonomy and independence, that is, more 'room to maneuver' (Rivetti, 2017). In line with indirect activism, avoiding any political and ideological framing is also a strategy widely used by movements to reduce the state's sensitivity (Fadaee, 2011; Moghadam & Gheytanchi, 2009). Diversification, also emphasized by Gramsci on education for emancipation, means actors try to use all potential spaces for educational purposes (Mayo, 2016). Diversifying spaces can occur concurrently with the active assessment of safe spaces for activism (Rivetti, 2017).

For engaging in critical and innovative pathways that are challenging in essence, some of the literature discuss personal/psychological measures such as mental preparedness for challenges as crucial (Safari & Pourhashemi, 2012). Also, according to Gross et al (1983), striking a balance between instrumental objectives of the movement and the personal/social needs is key to the survival of actors.

This review of literature provides helpful insights for analysis, but from a multi-level perspective, investigations into social innovative phenomena remain scant. Hence, in this research, I address the identified gap by taking 'Nature School' as a case of social pedagogical innovation in a rigid sociopolitical context.

4. Methodology

4.1. The Emergence of the Thesis Idea

This topic and research question result from a curiosity throughout the LUMES master's programme for application of concepts, theories, and learnings to a context of rigid sociopolitical conditions, where bringing about change puts significant pressure on civil society. I came across 'Nature School' when I was in Iran in 2016. My contact with some Nature School pedagogues and children situated me as a fairly close observer of this social innovation, its development over time, success stories, and eventually the legal prohibition by the government and the discourses around it.

4.2. Ethics of Research

The process of choosing this case study was never a simple one, due to the complications associated with newly-shaped politically-sensitive narratives around this initiative. Therefore, I had to look more closely into the ethics of research by having a series of discussions with different scholars and social activists, as well as a literature review on this topic.

In several ways, Nature Schools in Iran represent a pedagogical alternative vis-à-vis current Iranian politics of education. As it is difficult to follow a routine academic ethical guideline in such a context, the researcher must be open and creative in approaching the ethics, in order to protect respondents while least-compromise the critical voice in their research (Törnberg, 2017; Allan, 2017). This invocates an understanding of research as a negotiation in relation to the current political orientation, as Joann Allan (2017) points out in her research on Western Sahara:

> Firstly, research amongst resistance activists demands a highly-nuanced and politically-aware approach with regards to ethical considerations. Secondly, however, the researcher under review can only demand such flexible treatment if she is prepared to actively contribute to the resistance struggle that she studies. This is because an activist standpoint is the only ethical response [...] to the particular ethical challenges associated with researching resistance to an authoritarian regime. In summary, we need an understanding of activist ethics from researchers (p. 89).

Through personal experience, conversations with participants, and research, I tried to cater to the potential sensitivities connected to the research field. At the same time, I am aiming to contribute to the

discussion of alternative and creative pedagogies in pursuit of sustainability awareness. Hence I chose to include the voices of the participants by including them in the research process wherever possible and most relevant.

4.3. Case Study Research

The overall methodological approach of this thesis is a *case study* research. A case study as a method of research carries out an in-depth investigation for understanding a "contemporary phenomenon" within its broader context (Yin, 2014, p. 16-17). I approach this case study with an already-established theoretical lens: the co-existence of structure and agency. The data collection and analysis are guided by the theoretical model explained in section 5 of this thesis. In a case study, there is more than one variable being studied and therefore there is potentially a need for several sources of data collection (Yin, 2014). As such, I needed multiple sources of data collection for painting a comprehensive picture for understanding the social phenomena of this case.

4.4. Data Collection for the First Research Question

The first research question demanded an investigation into the history of the case. The data collection for this question was predominantly informed by secondary data available on published sources such as websites, magazines, conference proceedings, and some journal publications mainly in Farsi. Large parts of the background data on the case were only available on websites that called for continuous digital reliability judgments, particularly for more controversial data. While this research engages with qualitative data, for understanding the extent of the case study I also provide quantitative data on the numbers of Nature Schools. These numbers (before the legal prohibition) were more clearly and formally stated. But currently, due to the informality of Nature Schools, obtaining an accurate number for the operational Nature Schools is complicated and only viable through estimation. For this purpose, I asked three individuals with insights within the network of Nature Schools, and an approximate interval has been presented.

4.5. Data Collection for the Second Research Question

The event of legal prohibition for Nature Schools represents the institutionally limiting context that this thesis is trying to address. Therefore, the second research question is concerned with the internal dynamics within the protective space for those Nature Schools that could remain operational after the

legal restrictions. Guided by the theoretical model, I conducted iterative semi-structured in-depth interviews with Nature School pedagogues to collect primary qualitative data. As mentioned before, the informality of work restricts access to respondents and therefore random sampling was impossible. Plan A (elaborated in appendix 1) was interrupted by the COVID-19 outbreak and access to respondents was further constrained. Through a plan B, for capturing data for the second research question, I interviewed six 'veterans' from five different Nature Schools that are well-informed and seriously-engaged with this initiative. All the participants were chosen conditioned to having the experience of involvement both before and after the legal restrictions.

My approach to data collection had been iterative (O'Reilly, 2012), as I returned to the respondents for more data whenever required in the analysis. I conducted the interviews over video calls but had several written correspondence with all participants for complementary data collection and regarding ethical considerations. The interviews were conducted in Farsi then translated into English. Table 1 summarizes the short background stories on participants' involvement with 'Nature School'. Additionally, field notes and personal observations (from plan A) and unsystematic conversations with some experts in this area were used and helped deepen my insights for the data analysis.

The theoretical model developed in section 5, guided me in developing the interview questions (see the interview guide in appendix 2). As the theoretical model consists of jargon, I tried to make the language of the interview-guide more accessible to the respondents by using concepts, terminology, and examples that are familiar to them.

4.6. Data Analysis

Data analysis for the first research question resulted in a descriptive narrative on the history of Nature Schools guided by the MLP model (figure 3). Data analysis for the second research question was more analytical and was assisted by Nvivo computer software for categorization and coding. I converted the collected data to the categories suggested by the theoretical model (shielding, network, expectation, and learning). Due to novelty of application to a case of social innovation, however, the theoretical model fell short of suggestions for subcategories; therefore for instance under 'shielding' I allowed for subcategories ('legal', 'organization', 'sociocultural', and 'financial') to emerge inductively.

Table 1. A descriptive overview of participants and their engagement with 'Nature School'

Participant 1 & 2	They were engaged with environmental issues around sustainable livelihoods before embarking on the journey of 'Nature School'. They were mostly working with NGOs, trying to drive action in people by raising awareness. The realization that action is driven by insights, not merely by knowledge, gave them clues to seek processes that bridge knowledge to insight and made them more critical of the educational system. Concurrently they came across the 'Nature School' initiative which seemed to connect the dots for them. 'Nature School' for them corresponds to broader and deeper issues than just environmental ones, the problems lying in our childhood upbringing that the environmental crisis is one of their implications.
Participant 3	They[2] were engaged with the Philosophy of Science in academia. Their attempt to trigger curiosity, critical thinking, and motivation in students most of the time disappointed them: "*It seemed something was so spoiled in these students and so hard to retrieve at this stage*". Then they moved one step towards the younger generations by taking Philosophy for Children. On this path, they realized children were more motivated and excited in these classes compared to other classes, but there seemed to be something missing again. Children still didn't want to stay indoors and asked for more time out in the yard and playing. When they got familiar with the concept of 'Nature School', it seemed unbelievable to them that just leaving children alone, setting them free to experience nature with their peers, can be such an enriching environment, and a response to many of the social and environmental issues.
Participant 4	They had environmental concerns especially in the area of sustainable and locally-sensitive urban and rural architecture. They decided to pursue sustainable architecture academically, but while preparing for that, they got familiar with the idea of 'Nature School' and seemed like finding a response to their questions: "*Society needs children who have developed an understanding and passion for their local habitat so they can preserve it in the future*". They were so intrigued by this idea that they dismissed their educational plans, and decided to follow their dream in 'Nature School'. They realized that 'Nature School' is the real university where they can learn from children.

[2] "They" is used as a genderless pronoun to protect the identity of the participants

Participant 5	Working with ecotourism and concerned with sustainability issues, their attention was constantly drawn to engagement with education for youth, as a way to cultivate the love for nature and internalize sustainability values in the society. When they came across the 'Nature School', for them the word "school" sparked immense interest and excitement. They participated in the workshops and throughout their experience in Nature School, they were fascinated by how a child in interaction with nature can learn much more than respect for the environment. They were moved by the realization that a childhood enriched with the experience of nature can help "*find that lost piece in life"* and through consciousness, curiosity, and observation a child can experience multi-dimensional growth and *"discover their deep desires and hold on to them for the rest of their life*".
Participant 6	They were engaged in active social commitment for many years, working with charities especially in the area of education and empowerment for marginalized children. Through their experience, they figured the inadequacy of the current educational structure in response to the needs of the marginalized children. Therefore, they began research on alternative educational models. The quest for the betterment of their educational model led to conversations between them and Nature School pedagogues. They realized that 'Nature School' was in several ways corresponding to their areas of concern: in education, environment, research, culture, and social work. That is when they decided to become a Nature School facilitator.

5. Theoretical Framework

5.1. Overview of the Theoretical Approach

The theoretical approach in this thesis (illustrated in figure 2) is based on theories of *Structure-Agency* as the ontology informing the notion of social change. Then *education* is brought into the theoretical focus as the tool used by hegemonic structures to reproduce the status quo and maintain power, while at the same time transformative education/pedagogy can be used as a means of emancipation and empowerment of the subordinate. For operationalizing this theoretical understanding, I use the Multi-level Perspective transition framework (MLP) to map out the dynamics and interactions of structure-agency. Nevertheless, the main focus of this study will be on the niche level where social actors under structural pressure work in *free social spaces* opting strategies to protect and nurture their innovation to eventually influence the hegemonic structures.

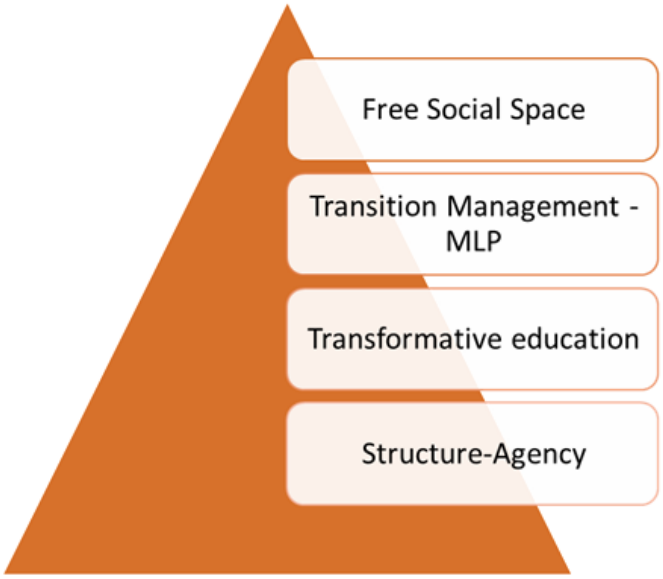

Figure 2. The figure shows the overarching theoretical structure of this thesis. The duality of structure-agency informs the ontological foundation of the research upon which transformative education, MLP, and free social space are enacted (Author's illustration).

5.2. Structure-Agency

Manuel-Navarrete (2020), a scholar of social transformation, by accentuating the power relations as the root causes of the environmental crisis, asserts "addressing power should go beyond the critique of current sociopolitical structures, and move toward understanding the processes through which free human beings can fully develop their creative powers" (p. 785). A theory that brings imperatives of agency and structure together and defines them as equally important to explain social phenomena is introduced

by Antony Giddens as *the theory of structuration* (Craib, 1992). In this theory, structures inform agency by influencing an individual's set of beliefs, values, and actions, while the individual's actions reproduce and maintain the structures in place (Craib, 1992). In short, Giddens argues for an ontological position based on the coexistence of structure and agency (Lamsal, 2012). To Giddens, structures are not inherently oppressive and they can constitute social arrangements and cultures that emancipate individuals (Musolf, 2017).

5.3. Transformative Education

Based on this structure-agency duality, transformative education is a more applied approach used by researchers to analyze contemporary systems of education and to identify more promising emancipatory educational practices (Freire, 1970). Some researchers in this field, affiliated with the Frankfurt School, emphasize the role of education and schools in inducing "dependency, a hierarchical understanding of power, a distorted view of history, and other taken-for-granted truths that in turn impeded social change and transformation" (Safari & Pourhashemi, 2012, p. 2549).

Like Giddens who understands structures as potential tools for emancipation, scholars of the Frankfurt School seek to promote certain educational strategies in praxis that can activate the emancipatory process of social change (Eisner, 2002; Freire, 1970). One example of such efforts has been proposed by Paulo Freire through transformative educative strategies (Safari & Pourhashemi, 2012). Transformative education will provide a theoretical perspective to understand the concept of 'Nature School' at its core as a particular type of emancipatory educational innovation.

5.4. The Multi-Level Perspective and Free Social Spaces

The field of sustainability transitions is one of the fast-growing interdisciplinary areas that brings attention to the radical changes that sociotechnical systems need to undergo to address the many sustainability challenges currently characterizing them (Markard et al, 2012). One of the more influential models for analyzing the sociotechnical transition processes is the MLP (Geels, 2002). The MLP essentially understands transitions in systems as a result of interactions between three levels: micro (niche), meso (regime), and macro (landscape), illustrated in figure 3. Within this framework, the structuration process (see Gidden's theory of structuration in section 5.2) between agents and structures happens when innovative approaches are institutionalized and regularised from niche to regime level and further to the landscape (Schot & Geels, 2008; Fuenfschilling & Truffer, 2014).

The sociotechnical regime is a set of rules and structures that shape the 'business as usual'. This level is characterized by a high degree of path-dependency and lock-in making it very resistant to change. The landscape is the wider context formed by large-scale social, economic, and environmental trends such as climate change, pandemics, and urbanization that are beyond the immediate influence of the regime and niche actors. Finally, the niche is the level where agents of change can develop innovative alternatives to the dominant practices of the regime. Transitions occur as the result of intricate interaction between these levels. Within the MLP, transitions are thought to be possible when changes at the landscape-level destabilize the regime, creating a window of opportunity (see figure 3). Niche actors can take advantage of this window of opportunity to develop and upscale innovation from a marginal position to the regime-level (Wieczorek, 2018). In the case of Nature Schools, I refer to the window of opportunity as the timespan between legalization/political opening and legal prohibition/political closing of this initiative.

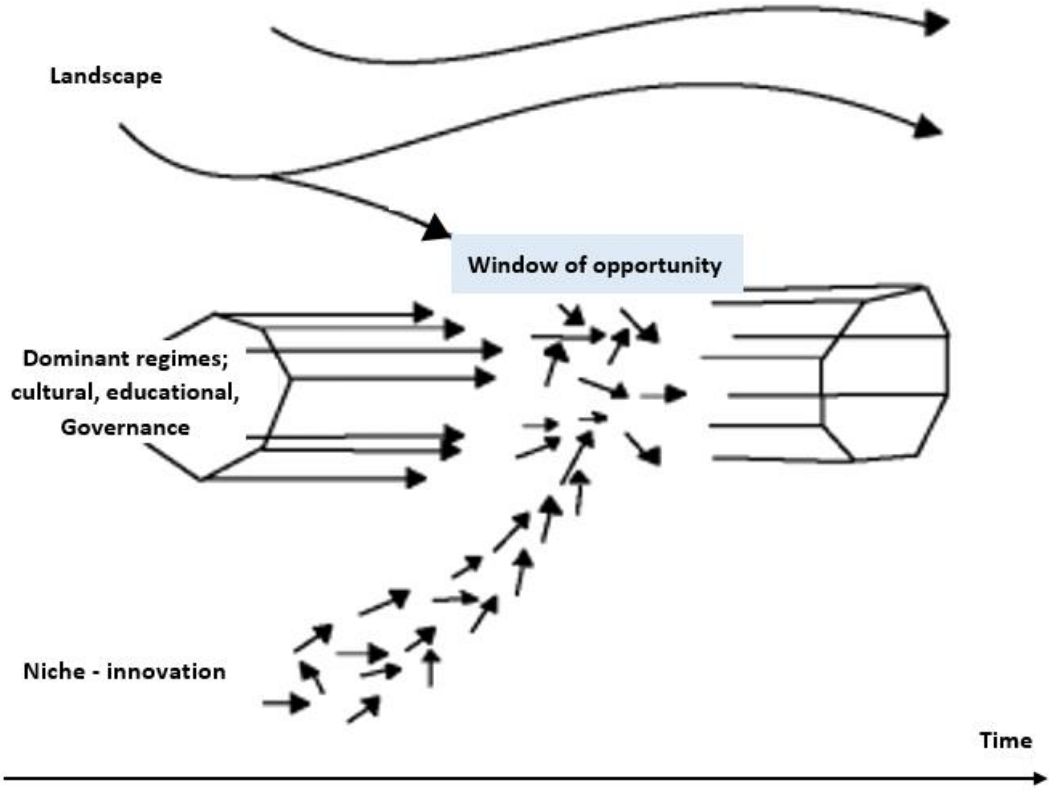

Figure 3. The MLP transition framework is informed by three levels of micro/niche innovation, meso/dominant regime, and macro/landscape. This framework will be used for data analysis in this thesis. The figure illustrates the pressure from the landscape opening a window of opportunity within the regime. The niche-innovation can benefit the opening and exert change to the dominant structures (Author's simplified illustration from Geels, 2002).

The MLP has predominantly been applied to the studies of renewable energy transition (mostly in north-western Europe) and as a result, much of the existing literature is concerned with technological rather than social innovations (Swilling., Musango, & Wakeford, 2015). One of the rare researchers applying the MLP in Social Movements' research is Anton Törnberg (2018). He broadens the original scope of the model from sociotechnical to non-technical social innovations[3]. Törnberg developed a framework integrating the concept of the *free social space* as the niche in the MLP framework, where radical emergent social phenomena are protected and developed by grassroots actors (Törnberg, 2018). Coming from the field of social movement studies, Francesca Polleta (1999) defines *free social spaces* as

> Small-scale settings within a community or movement that are removed from the direct control of dominant groups, are voluntarily participated in, and generate the cultural challenge that precedes or accompanies political mobilization (p. 1).

Although 'Nature School' is not a political project or aiming at any political goals, free social spaces contain elements of envisioned alternatives, strategic planning, skill learning, networking, collective identity, and solidarity that are mutually recognized within Nature Schools. The free social space represents the social equivalent for the protective space elaborated within the field of Strategic Niche Management (SNM) for technical innovations. Therefore, Törnberg (2018) adopts concepts from the SNM's protective space namely 'shielding', 'nurturing', and 'empowerment' (Smith & Raven, 2012) and argues for their usefulness for free social spaces.

5.4.1. Shielding

The evolutionary understanding of the MLP attributes environments to dominant regimes that are selective towards niche innovations, and therefore create structural impediment and *selection pressure* for path-breaking innovations (Rip et al., 1998; Geels, 2002). However, protective space around niche innovation adopts *shielding* mechanisms that protect the innovative idea from the selection pressure (Smith & Raven, 2012). Different dimensions of the regime can pose differential selection pressure that requires the niche for relevant shielding strategies to deal with them. For instance, *user relations and market*, *public policies and political power*, and *the knowledge base* are common structural advantages

[3] Caulier-Grice et al (2012) define social innovations as: "new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act." (p. 18).

that the dominant hegemonic practices benefit from and niche actors have to opt strategic approaches (e.g. lobbying and developing research plans) to overcome these pressures (Smith & Raven, 2012).

5.4.2. Nurturing

Nurturing is the practices and processes occurring in the protected space that allow the innovation to grow and develop and eventually become sufficiently empowered to challenge and even change the dominant structures (Smith & Raven, 2012). The main components of a nurturing environment are 'expectations', 'network', and 'learning' (Smith & Raven, 2012).

Geels and Raven (2006) refer to 'Expectation' as the visions and the perception of niche actors about the future of their innovation and its implications. They assume 'expectations' to be more successful if they are shared by many people, are specific, and are of high quality. The latter means expectations are practiced, resonated, and solidified through ongoing projects and practices among the actors (Geels & Raven, 2006). 'Network' is employed for referring to the social networks of actors that contribute to the development of social innovation. A network can better contribute to niche development if it is broad and deep in terms of the commitment of the actors involved (Smith & Raven, 2012).

Learning refers to the process of experimentation and knowledge production. Learning, according to Schot and Geels (2008), happens on the local experimentation sites with the contribution of the local actors, while the lessons learned are shared with the broader-level network of actors. The learning process is more impactful for niche development when it is of a second-order nature meaning that it goes beyond the generation of facts and data, and promotes cognitive transformations and develops alternative ways of valuing the niche (Schot & Geels, 2008).

5.4.3. Empowerment

Smith and Raven (2012) refer to empowerment as the kind of change a niche innovation aims to bring about on its transition trajectory which predominantly takes one of the two main forms; either 'fit and conform' or 'stretch and transform'. The former makes the niche competitive with the dominant practices, while the latter positions the niche to contribute to more radical transformative change in the mainstream practices (Smith & Raven, 2012).

5.5. The Theoretical Model

Drawing on the concepts and theories introduced above, I have developed a theoretical model (Figure 4) that allowed me to collect and interpret the data. The model draws on the *nurturing* and *shielding* components of the free social space discussed above within the larger framework of the MLP while *empowerment* remains out of the scope of this research. Although the main focus of this model is the dynamics of development on the niche level, it is sensitive to the external pressures and interactions with the regime and contextual factors in accordance with my dialectic ontology, understanding the process of change as an interaction between structure and agency.

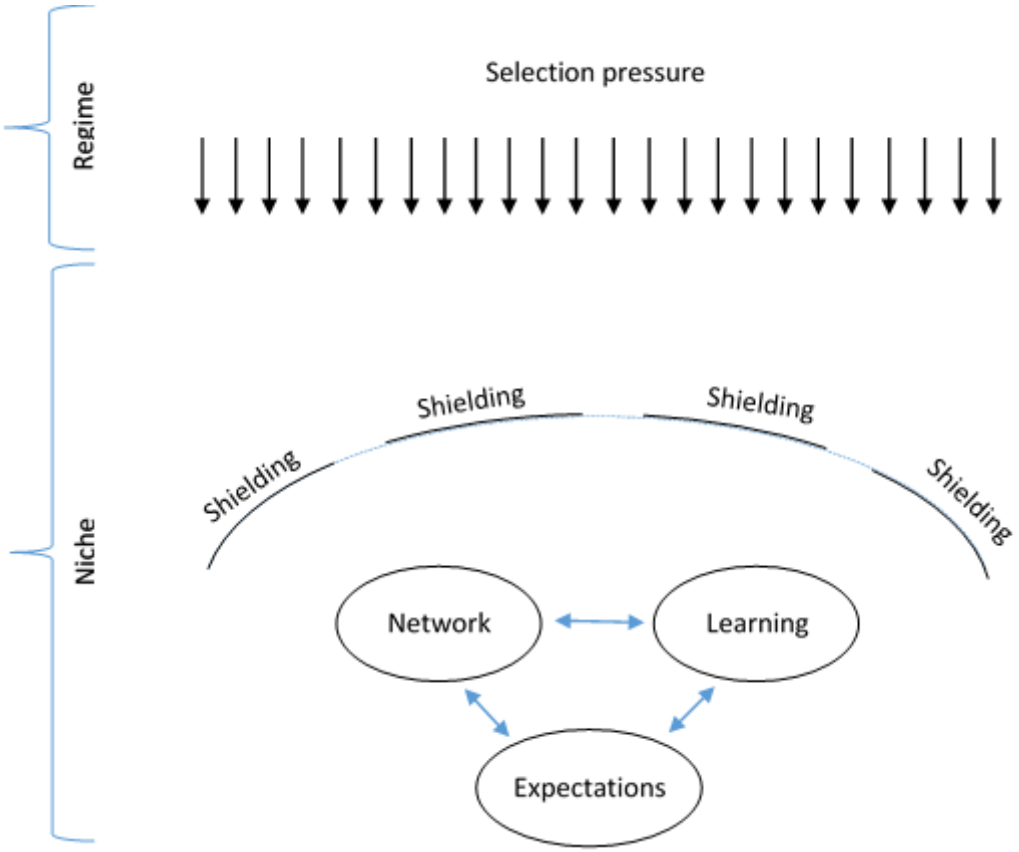

Figure 4. Theoretical model guiding the data collection and analysis. This model shows two levels of niche and regime informed by the MLP framework. The Regime poses selection pressure on niche innovation while the protective space of the niche provides shielding to keep the pressure at bay. Inside the safe space, dynamics of 'network', 'learning' and 'expectation' interact and nurture the innovation (author's illustration).

6. Analysis: Case of Nature Schools in Iran

In this chapter, I will elaborate on the findings of my research to address the research questions. In the first part, I utilize the MLP and describe the emergence and evolution of Nature Schools over time. In the second part, I zoom in on the niche level to understand dynamics within the social space of Nature Schools that protects and nurtures the innovation.

6.1. Data Analysis: Research Question 1

Research Question 1: ***How have Nature Schools emerged and evolved in light of political opening and closing?***

6.1.1. Emergence and Realization of an Idea

Abdolhossein Vahabzadeh (Figure 5) is one of the prominent environmental figures and ecologists in Iran; the winner of Iran's national environmental award of the year 2005, with more than forty years of teaching experience in ecology and environmental science in universities of Iran, translator of significant works in the area of the environment such as Rachel Carson's Silent Spring (Kavikonj, n.d.a; Shafahi, 2020). Besides his ecological expertise, he has had a deep concern about sociocultural aspects of the global ecological crisis and he is profoundly influenced by Edith Cobb and her book The Ecology of Imagination in Childhood (Azizmi, 2020).

Figure 5. Vahabzadeh the founder of 'Nature School' surrounded by children (Kavikonj, n.d.a)

Working with university students for decades seemed to him like "*planting flowers in infertile soil*" (Azizmi, 2020, p. 33). He was convinced that the educational system and the current urban lifestyle has failed to provide children with enriching environments for simply playing and experiencing nature that is needed for their development (Azimi & Gholami, 2016). About the emergence of Nature Schools he says:

> [...] we should start from somewhere. Whether I am competent or not [in the area of pedagogy], I thought I should start, and perhaps later on some people with more expertise will come and take it from me and continue (Kavikonj, n.d.a).

6.1.2. Nature School as a Transformative Pedagogical Praxis

In 2013, Vahabzadeh translated the book 'Children and Nature' by Peter H. Kahn as the main reference book for the concept of 'Nature School' (Azimi & Gholami, 2016). The idea of 'Nature School' is to provide children with the free and immediate experience of nature without any adult's intervention. This is the foundational principle of 'Nature School' for its theorizer and pedagogues, based on ecological theories and humanistic approach towards children's education (Vahabzadeh, 2020; Shafahi, 2020; Azimi, 2020). Ecological view emphasizes on the role of experience of nature in human's development (Kahn & Kellert, 2002) and the humanistic educational approach emphasizes the role of the children's choice in their path to learning, as they believe 'affective' development is as important as 'cognitive' and 'normative' development in the learning process (Kellert, 2002; Azimi & Gholami, 2016). In this approach, the child must be given the space to lead their path to education based on what they find interesting and discover themselves capable of and therefore teachers are replaced with facilitators who enable the learning environment for the child to lead their own way (Rowan, 2015). Thus I argue for 'Nature School' as a transformative pedagogical praxis as it takes a critical emancipatory stance by transforming the existing power-relations and the authoritative culture in conventional schools.

6.1.3. The Window of Opportunity Opens

In the summer of 2013, Vahabzadeh initiated *Mr. Worm's Trips* in the form of excursions aimed at giving children the free experience of nature (Azizmi, 2020). One year after *Mr. Worm's Trips*, in the summer of 2014, the first Nature School in Iran was established in Mashhad (Kavikonj, n.d.b), yet without an official license. Late December the same year, was a promising day in the history of Nature Schools when the DoE took responsibility for authorizing this initiative as well as other governmental institutions taking an appreciative stance towards it (see figure 6) (Kavikonj, n.d.b).

Figure 6. The official opening of Kavokonj Nature School, with the presence of Vahabzadeh (the founder, 8th person from the right side), and officials from DoE, Education Organization, the municipality, etc. (Kavikonj, n.d.b).

Concurrent with the opening of the first Nature School, the moderate party of Hassan Ruhani took over the government (Association for Women's Rights [AWR], 2013). With the new so-called '*Government of Foresight and Hope*', relatively reformist politicians took control over main ministries and organizations (AWR, 2013). One of them was Masoumeh Ebtekar (figure 7) who was assigned with the administration of DoE in September 2013 (Bruegl. n.d.). In her administration, was one of the most influential supporters and promoters of 'Nature School', Mohammad Darvish, who along with his authoritative power as the head of the Public Participation Office, is well-known as an environmental researcher and eremologist (Darvish, n.d.; Bukhara Magazine, 2019). He is essentially known to have been tirelessly committed to raising awareness about Iran's environmental issues through journalism as well as actively supporting and promoting citizen's campaigns (Bukhara Magazine, 2019).

The concurrent events of the new reformist cabinet and Nature Schools reaching out for license, facilitated the process of legalizing this initiative, particularly with major support of Darvish. Gradually, through a series of conferences, workshops, and outreach plans the concept disseminated and Nature Schools opened one after another in different parts of Iran, up until 2018 when there were more than 80 Nature Schools in almost all provinces of Iran (Fararu, n.d.).

Figure 7. Masoumeh Ebtekar (the person cutting the ribbon), the former head of DoE and Mohammad Darvish (the person with sunglasses), the head of DoE Office of Public Participation, at the opening of the 50th Nature School in Iran (Fararu, n.d.).

6.1.4. The Window of Opportunity Closes

In 2017, under the governance of the same president, Rouhani, Isa Kalantari took charge of DoE as the new head of the department. He took an opposite position towards Nature Schools by explicitly rejecting responsibility for this initiative and denouncing its founders and the legitimacy of Nature Schools on the ideological and institutional grounds (Fararu, n.d.). In a national TV program he said about Nature Schools:

> They had to be closed down. When my deputy of Education and Research in December 2017 told me these schools are illegal, he brought me their educational content, the educational content and the talks of those gentlemen [ironically used] who made that place a center for promoting Marxism [...] They tell children there is no creation, it's all evolution. Even Darvin could not brainwash children like this. How can I, as a Muslim, watch this happen? (Tasnim News, 2019)

Darvish, as a main critic of Kalantari, eventually resigned from his chair in this organization (Zistboom, 2017), which did not sound promising to Nature Schools as they lost an important supporter with legal

power. Attacks against Nature Schools on sensitive ideological and political grounds (Fararu, n.d.) posed a higher risk of involvement for supporters and therefore increased the drop-outs.

After the DoE completely removed their legal support, one by one all Nature Schools were closed down. Although it is difficult to gain actual numbers for the Nature Schools that are still active, it is estimated that after the legal restrictions around 30-40 of the Nature Schools are operational in one way or another.

6.1.5. Seeing Through the MLP

In this section, I draw on previous chapters and apply the MLP framework to the historical path of Nature Schools. 'Nature School' indicates a niche innovation on MLP. This study has revealed the main explicit transformational targets of Nature Schools are 'educational' and 'cultural' structures, while 'governance' is the rather implicit integral structure having a concurrent immediate influence on the niche. Data from the case study complemented with the literature review reveals relevant themes for landscape and regime components. The religiously-informed educational system that depends on early childhood direct education for ideological purposes (Soleimani et al., 2019; Paivandi, 2012) is inherently incompatible with the concept of 'Nature School' that opposes direct education for children. Additionally, the existing power-relations within the educational system (Safari and Pourhashemi, 2012) pose potential pressure on this new transformative pedagogical model. Governance features (also unfolded within the literature review) such as centralized structures (Paivandi, 2012; Nemati & Ghaffarian Panahi, 2018) and problematic bureaucracy (Soleimani et al., 2019) have mainly negative implications on Nature Schools at a grassroots level. The top-down governance mechanisms constrain the transformative power of 'Nature School' as a bottom-up niche innovation.

Literature suggests poverty and unemployment (Fadaee, 2011), international pressure for implementation of ESD, and the reluctance of the Iranian government to respond to international pressure (Keck & Sikkink, 1998; Moghadam & Gheytanchi, 2010) as potential influential landscape-features for innovative trajectories in Iran. However, the Landscape per se, as the rather exogenous context to the regime-niche interactions is not informative to the scope of this research.

For Nature Schools, I take the provision of legal support by DoE as the window of opportunity. T1 and T2 in figure 8 are the key events marking the opening and closing of this window of opportunity. For Nature Schools, I identified internal contradictory standpoints of governmental actors (also discussed by following scholars: Nemati & Ghaffarian Panahi, 2018; Byrne, 2009; Campbell & Sallis, 2013; Wieczorek, 2018) as the main factor determining the opening and closing. Figure 8 is a temporal MLP illustration of

Nature Schools' development. A more in-depth analysis of the internal dynamics of niche innovation and their change over time will be elaborated in the next section.

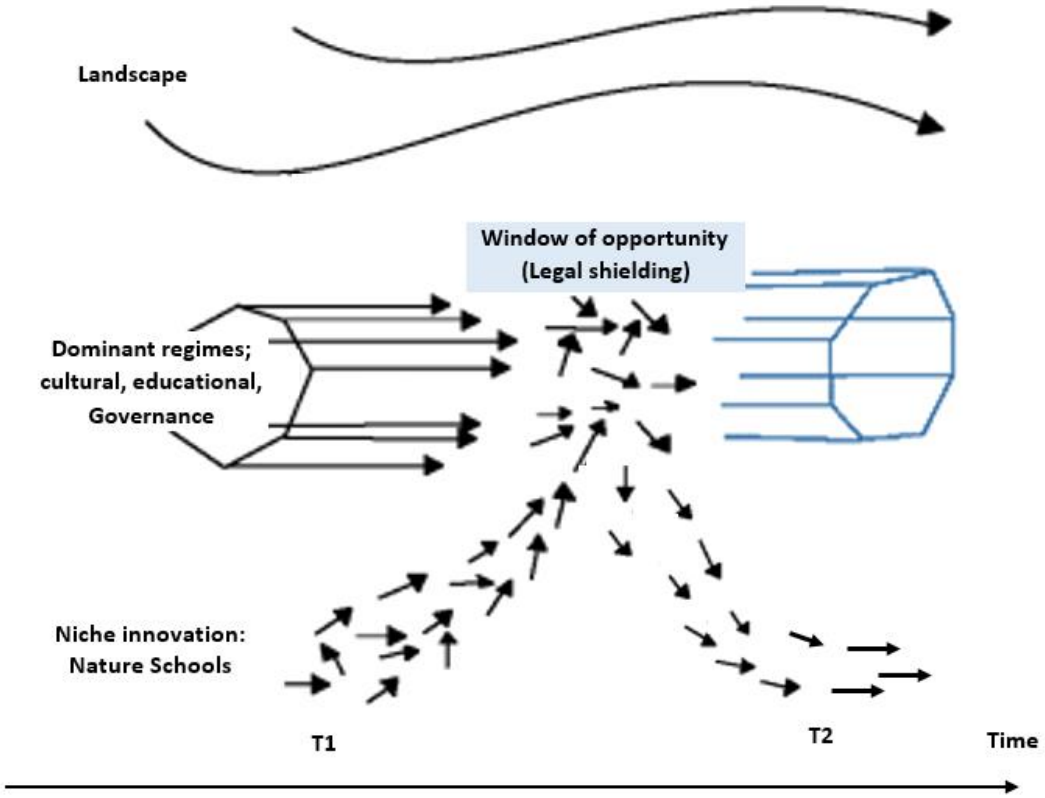

Figure 8. Nature Schools' development process within the MLP framework: the figure illustrates the result of the analysis for the first research question. T1 the time when Nature Schools were given governmental permission and T2 represents the time when their governmental permission was removed. The window of opportunity is the timespan between T1 and T2 (Author's simplified illustration from Geels, 2002).

6.2. Data Analysis: Research Question 2

Research Question 2: ***What specific mechanisms and processes have affected the ability of 'Nature School' to persist as a pedagogical alternative?***

In this section, I apply the theoretical model (figure 4) for exploring the free social space dynamics for Nature Schools. The concept of free social space is suitable to analyze Nature Schools in several ways: Nature Schools provide small-scale spaces for people who actively engage with public debates and represent new cultural discourses. Nature Schools have been pushed out of the official sphere after legal

restrictions, resulting in an increase in the relative autonomy of their social space. In the following, the dynamics of free social space will be investigated particularly in light of the legalization and shutdown.

6.2.1. Selection Pressure

In order to understand what shielding means, this section explores the selection pressures against which innovation attempts to shield. This study has identified several selection pressures on Nature Schools. First is the *newness of 'Nature School's discourse* and lack of trust towards its potentials; particularly with families to accept this novel learning approach while the dominant discourse around learning is based on direct education from early childhood. Also, 'Nature School' as an outdoor learning environment had to redefine hygiene and safety for families and authorities that mostly believed a small scratch on a child was unacceptable. The second pressure arises from the *perceived ontological clash with the hegemonic formal education* on how human beings are defined in relation to the natural world. While formal education is based on religious notions of creation by God and not welcoming ecological stances, 'Nature School' is founded on ecological theories yet not denying the concept of creation (in fact some facilitators in Nature Schools were very religious).

Unsustainable institutional (legal) support is another selection pressure that was elaborated in section 6.1. *Competing alternative approaches* in other pedagogical/environmental initiatives can pose pressure as they might pursue epistemological approaches clashing with those of Nature School practitioners. For instance, environmental activists brought in a challenge to Nature School pedagogues as they questioned how children occasionally cause harm to animals and insects and the pedagogues do not stop such incidents. And finally, *instability of income* has been a major pressure on Nature School workers as they were not receiving any external funds from the government, and the source of income has been mainly from families or donors.

6.2.2. Shielding Mechanisms

In relation to the aforementioned pressures, Nature School actors have been utilizing shielding strategies to create a safe space for niche innovation. I have classified the emergent shielding mechanisms for Nature Schools in four main themes:

- Sociocultural: gaining active support from social groups and creating cultural value around the innovation
- Legal: establishing institutional arrangements that enable formal practices

- Financial: securing revenue and providing infrastructures such as land and equipment that are required for maintaining the project operational
- Organizational: developing proper and necessary organizational arrangements and individual/collective capacities

As follows I will elaborate on the particular meaning of these shielding mechanisms for Nature Schools, however, it is notable that shielding mechanisms (that I divided into the four aforementioned themes) are interdependent, interacting, and constantly changing as they rely on actors that provide them.

Regarding the support groups, data revealed facilitators, children, and their families as the pivotal supporters and protectors of Nature Schools. Compared to individuals and civil society organizations (like NGOs) that demonstrated relatively reliable and consistent support over time, governmental institutions displayed critically low stability in their position towards this initiative. However, individuals within the institutions took various stances and some provided significant critical support to the initiative (e.g. the role of Mohammad Darvish discussed in section 6.1.3). As such, according to participants, school teachers were also more consistent in their support compared to the Educational Organization.

The short window of opportunity for Nature Schools had positive impacts on their development; for instance, it helped the initiative to be experimented on more local sites and more knowledge to be produced. One participant explained that although some people criticize the rapid expansion of Nature Schools, the fast use of this opportunity made it possible for the innovation to reach a broader audience and attract those dedicated members that are still working and carrying on the innovation in the lack of institutional support.

It is important to remember that legal prohibition for Nature Schools was not just abolishing the licenses but also labeling and framing the 'Nature School' as a political/ideological project (see section 6.1.4) which makes it even more challenging for Nature School pedagogues and their supporters to attain license from any other organization. Although the implications had been slightly different based on regional cultural and institutional dynamics surrounding each Nature School, one rather common implication had been for those who relied on governmental resources (such as land and equipment). Withdrawal of governmental support meant a loss of infrastructures for those projects and resulted in temporary vulnerability in financial shielding. Additionally, due to the (mainly) non-commercial function of 'Nature School' as a social innovation (Safari & Pourhashemi, 2012), they predominantly rely on sociocultural shielding that creates social demand and stabilizes income for these groups.

Nature Schools, for obtaining sociocultural shielding, had been actively promoting this school of thought through expanding their formal network and use of formal venues for creating spaces for discussion and sharing the knowledge which was facilitated by the legal permission. These possibilities were eliminated after the legal prohibitions. However, a major part of the 'Nature School' discourse that was occurring in the society on a face-to-face level, had been least-affected by lack of legal protection.

Organizational shielding is well-represented in one of the projects. In this Nature School the strong bonds, friendships, and sense of belonging and inclusion through a democratic organizational structure (adopting non-hierarchical and horizontal organizational structure) were influential for their survival in the face of legal pressure. The flat organizational structure proved for them to substantially enhance their resilience under external pressures. This emphasizes the importance of movement processes that take personal satisfaction of the activists into account (Gross et al., 1983). Moreover, all the participants mentioned a mentality accepting difficulty and challenges as integral to their cause, helped increase their individual and collective resilience in the face of problems. Therefore organizational shielding seems essential in inducing rather resilient expectations and maintaining a committed network of actors.

6.2.3. Informalization, Indirect Approaches, and Diversification

Under structures of political dominance, activists gain relative autonomy and independence from the selection pressure, and therefore more 'room to maneuver' through indirect and informal activism (Fadaee, 2011; Mirshak, 2019; Rivetti, 2017). This might be acknowledgeable for Nature Schools too, but the negative implications, especially on networks and learning capacities, are highly considerable.

For Nature Schools, the room to maneuver was further expanded by transcending its fixed and spatially-bounded form and more foundational attention to principles of 'Nature school' as a new *discourse* around current educational and sociocultural shortcomings. Therefore 'Nature School' was no longer treated as a *place* that children should go to for receiving service, but a *concept* that can flow in any space in society (households, yards, schools, neighborhoods) and based on capacities of people and spaces anyone can live up to the principles of 'Nature School' and provide such services to children in any context. This approach made the concept even more accessible to a broader population and more flexible to use the capacities available in the society and the institutions. In this regard, one of the participants asserts the following on their approach towards pupils who both go to a conventional school and the Nature School:

> What Nature School offers is to make families aware of this concept and what families provide in the house for children can also follow the same principles and therefore they are not just bound to specific days. For instance, now families who bring their children to Nature School don't register their children in those conventional schools that are strict with exams and homework.

This strategy diffuses the concept to a broader audience and the selection pressure will be distributed among a wider network rather than a few pedagogues (Rivetti, 2017). The openness and flexibility give pedagogues more creativity and diversified strategies and therefore more resilience (Rivetti, 2017, Mirshak, 2019). As an example, one Nature School that never succeeded to find a fixed land took the leadership in creativity long before others. They chose to take a mobile form and use public lands and therefore their legal permission was issued from a different governmental organization than the rest of Nature Schools. This Nature School that pursued a different approach (still abiding by the same core principles) and benefited from a distinct governmental license, more smoothly navigated the legal challenges.

Through the MLP's quasi-evolutionary lens, the core principle of 'Nature School' toward children's development can be seen to reflect how the institution itself develops. 'Nature School' argues that one-dimensional growth makes children vulnerable in the face of a rapidly changing future. For children to be able to adapt and empowered in the future, their capabilities must be improved through multidimensional development. Nature Schools, too, must learn from direct experience within their habitat to develop in different forms, and gain the capabilities required to survive under selection pressures.

6.2.4. Networks for Nurturing

The network consists of support groups that engage with the innovation, contribute to the local experiments, and share visions and expectations about the innovation. Network actors have been partly introduced in the shielding section as those who directly or indirectly contribute to protecting the initiative from pressure; such as parents, children, facilitators, individual supporters, and governmental and non-governmental institutions.

The formal and national network of Nature Schools has been interrupted after the legal restrictions as they are prohibited from working under Nature School's title. Most of the participants were introduced to 'Nature School' through events and conferences, indicating the crucial role of these formal events on attracting potential committed members. Nevertheless, with more flexible and diffused strategies of the

Nature Schools after legal restrictions, it is arguable that Nature Schools' network is (or has the potential of) expanding again; a network perhaps with no particular name but spreading to different layers of the society. Moreover, the local network around each Nature School still exists for pedagogues to resort to. This is partly due to inconsistencies in the bureaucratic structure leaving room to maneuver for local pedagogues to navigate the legal restrictions differently (Nemati & Ghaffarian Panahi, 2018; Byrne, 2009; Campbell & Sallis, 2013).

Given the inconsistent support of the governmental institutions, families were the ones Nature Schools brought their primary attention to. It was challenging but crucial to put forth this new discourse with families because eventually, it is among families that the demand for a new learning environment has to be shaped. After the withdrawal of governmental support, those families continuing collaboration with Nature Schools revealed a new subjectivity in relation to this initiative. As three of the participants explicitly framed it, families gradually transformed from being "service-receivers" to "service-providers". After the suspension of legal permissions, these families provided critical support to Nature Schools such as financial support, equipment provision, seeking legal solutions, and forming parents' cooperatives for more in-depth engagement in this area.

Almost all of the participants mentioned that, despite falling numbers of direct supporters after the legal challenges, the quality of support for remaining stakeholders increased tremendously. One participant framed the legal prohibition as a "filter": the individuals remaining in the projects (both facilitators and parents) were highly dedicated to the cause. However, many who left tried to take 'Nature School' to their new working environments, should it be a kindergarten for an ex-facilitator or home for ex-parents.

6.2.5. Expectations for Nurturing

Expectations entail understanding and visions of the local actors and are manifested in the promises made to the broader audience such as families, social and environmental activists, and authorities. The visions and promises are under continuous reformulation as a result of learnings from local experiments.

Five themes emerged as for the promises made by Nature Schools to audience groups. Due to distinct needs and concerns of different groups involved in Nature School's discourse, promises made to them were slightly different from one audience group to another. Nevertheless, *children's multidimensional development* and '*Nature School' as a social discourse* were two core shared visions that Nature School pedagogues communicated across all audience groups. 'Nature School' as a social discourse means

treating it as a concept that needs to be discussed among different social groups and aims to redefine some taken-as-given concepts like ‘childhood’, ’playing’, ’learning vs. education’, and ’hygiene’. It means ‘Nature School’ is not a final answer, but a starting point for a social discussion on the foundational needs of the children of Iran (especially urban children) and has to be developed through experiment and learning.

For social or environmental activists, Nature Schools addressed the themes of *environmental protection* and *social wellbeing*. These two themes entail visions on how ‘Nature School’ can potentially lead to the betterment of society by having members that are capable, problem-solvers, curious, critical thinkers, and have developed a sense of belonging, love, and caring for their country and their natural habitat. The last theme, *economic benefits,* comes in addition to the rest of the themes when promises are made to authorities. This theme comprises arguments on the low cost of investment on children as a social group (especially low costs for Nature School’s infrastructure), creating employment for young facilitators, and the potential of a better economy in hands of a capable and creative future generation.

The rich international scientific findings in the area of outdoor learning supplied ‘Nature School’ pedagogues with strong evidence to make robust claims and promises. However, in transferring ideas, local cultural and contextual specifications are critically important to innovation’s success (Wieczorek, 2018). When 'Nature School' lost its institutional support, it had been in its earliest phases of implementation and in need of more local experiments for adaptation of ‘Nature School’ to Iran’s local context. Even in the short time of legal opening, local experiments radically transformed the visions and expectations of the stakeholders.

6.2.6. Learning for Nurturing

Learning here refers to how actors deepen their understanding about their project, produce local knowledge, and share the knowledge they produced with others. It is through learning that actors and the broader audience articulate new visions about the innovation. As a result of reshaped visions, the network rearranges and the newly-arranged network affects the shielding they provide.

One area that in-depth learning proved critical was in interaction with parents. For Nature Schools, a deeper knowledge of parents' needs and preferences in line with adaptation to local and cultural needs and specifications proved to enable them to respond according to the unique conditions of each family. This, in turn, provided them with a more robust network of supporting parents who were more engaged with the concept and provided Nature Schools with sociocultural shielding. The second area of major

learning is an in-depth understanding of 'Nature School' in theory and practice for its pedagogues that has led to more creativity in the use of local infrastructures and resources available. These two examples elucidate perspectives on second-order learning. The second-order learning processes engage value construction and mindset transformation (Schot & Geels, 2008). These processes seem significant in the persistence of Nature Schools as all the participants acknowledged in one way or another that they underwent a personal transformation throughout their experience with this initiative. Response to their personal questions and needs, through second-order learning, kept them committed to their cause.

As demonstrated in the previous section, scientific knowledge on local social and environmental impacts of 'Nature School' is crucial for advocating these visions in an Iranian context. One of the participants explained:

> The research is the missing part! They [the decision makers] can confirm [what we claim about 'Nature School'] based on their personal experiences and support this idea, but when they want to make a decision, they can't do so… we need thinktanks, some research institutions, with pilot projects for some years that can produce knowledge and be critically analyzed and assessed. We are missing this. We don't have universities that have critical eyes on policy makings and different practices... We have sent proposals to universities to take Nature Schools as a pilot study, but they haven't paid attention.

The crucial role of research is emphasized by participants and also confirmed by Soleimani et al (2019) in their study of Nature Schools. A conversation with a professor engaged with research on this initiative helped to clarify the role of research on the development of Nature Schools. They[4] explain that in some developed countries even with a longstanding history of similar alternative educational models backed up with robust bodies of knowledge, yet these models encounter immense difficulty to get their governments onboard. They add:

> We have so much research conducted in many fields that their results are deserted at universities… maybe for convincing the policy-makers, governors, decision-makers, and so on, research alone is not enough [...] However it is doubted that the current state of research is adequate for defending the legitimacy of 'Nature School' and its unique impacts.

[4] A genderless pronoun used to protect the identity of the participant

Emphasizing on the importance of bottom-up approaches towards change, they draw on international examples that despite the lack of attention from the government they carried on continuous monitoring and studying of the outcomes of their approach:

> In Iran, similarly, many families and many semi-governmental and private institutions can be the audience of this initiative. For instance, many kindergartens are adding the 'experience of nature' to their options and advertising for it. They need such background studies to convince their audience.

The aforementioned arguments lead to the conclusion that research and knowledge production might not have an immediate political impact but is essential for the development of niche innovation. However, Nature School pedagogues were given a hard time creating learning and knowledge sharing opportunities; for instance, gathering venues were shut down and their councils and conferences are no longer allowed to run. Although some projects have tried to more systematically document their experiences, inter-project knowledge sharing is highly constricted. Among the limited scientific studies available, research on Nature Schools remains limited to the pedagogical model itself, while in local projects many organizational and methodological learnings have been attained with major implications on persistence and development of niche innovation from a transition perspective.

6.2.7. Key Findings and Summary of Analysis for the Second Research Question

Throughout section 6.2, I elaborated on findings for the second research question on specific processes, dynamics, and strategies within Nature Schools that were determining their ability to persist under structural pressures. Figure 9 illustrates a holistic view of Nature School's free space in relation to the selection pressure. One the one hand, the selection environment within the educational, cultural, and governance regimes due to path-dependency and lock-in processes pose selection pressure on 'Nature School'. On the other hand, the free social space provides the 'Nature School' initiative with shielding against selection pressure and nurtures the innovations. The shielding dynamics (sociocultural, legal, financial, and organizational) interact with each other and with nurturing dynamics (network, expectations, and learning). Notably, the linkages in figure 9 are not representing a snapshot but the state of knowledge accumulated over time informing the potential interlinkages of these dynamics; for instance, the potential impacts of legal shielding on other dynamics were informed by both the legalization and the shutdown.

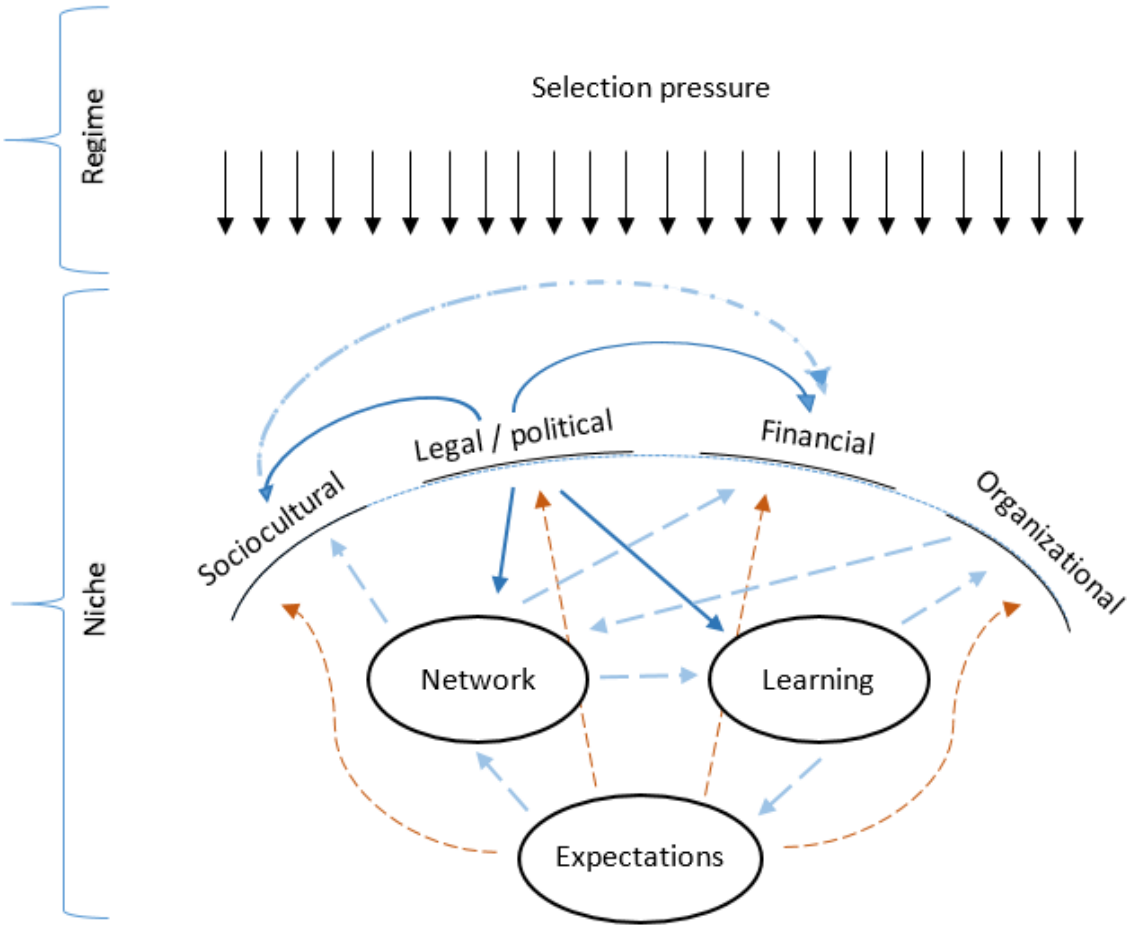

Figure 9. This figure demonstrates the result of the analysis for the second research question that is guided by the theoretical model developed in section 5.5. The arrows, based on the findings of this study, represent the most prominent interactions between free space components for Nature Schools. Guiding examples for reading arrows: Learning informs expectations, expectations influence the network and the network facilitates learning (Author's illustration).

Dynamics of niche development (nurturing and shielding) for 'Nature School' demonstrated interdependencies that do not allow a fine categorized distinction among them. Nevertheless, a summary of the key findings presented in Table 2 entails both the overarching concepts used and the interdependent microdynamics that emerged in this analysis.

Table 2. Key findings of data analysis for the second research question

Shielding	➔ Termination of the legal shielding has influenced other shielding mechanisms, both negatively and positively ➔ Reliance on unstable institutional support made the innovation development (at-least temporarily) vulnerable ➔ Many individuals within the dominant institutions, despite their institutions, provided critical support to the innovation ➔ Sociocultural shielding from children, families, and facilitators was the most determining is Nature School's persistence ➔ Attention to the cultural and discursive dimension of 'Nature School' increased flexibility, diversity of strategies, and resilience of the initiative
Network	➔ The network provides social innovation with financial, legal, and sociocultural shielding ➔ Gradually Nature School pedagogues' main audience group changed from authorities to families hinting to the bottom-up essence of this pedagogical initiative ➔ Nature Schools' network expanded rapidly in light of the window of opportunity, after the legal restrictions the network shrank in numbers but those remaining demonstrated higher quality support ➔ Although the national and formal network has been disrupted by legal prohibition, the local informal networks still exist ➔ More diffused concept of 'Nature School' and informalization has made the boundary of Nature Schools' network blurry
Expectation	➔ Promises of Nature Schools is different for distinct groups of actors, however, *children's multidimensional development* and *'Nature School' as a social discourse* are commonly communicated across actor groups ➔ Through experience and reflexivity and In-depth understanding of 'Nature School', adjusted visions and expectations have led to more creativity of pedagogues in the use of infrastructures and resources available
Learning	➔ 'Nature School' is enriched with theory and practices from international experiences giving pedagogues more clear and stronger expectations, however, for an Iranian context this initiative needs more local experiments for making robust promises ➔ Second-order learning processes entailing value construction and mindset transformation for parents and pedagogues played a significant role in the ability to persist ➔ The knowledge production capacities after legal prohibitions are constrained

7. Discussion

7.1. Reflection on Findings and the Theoretical Framework

Thus far, the case of Nature Schools and its contentious encounter with the legal system has demonstrated the institutional instability within Iran's governance system to provide adequate support to innovative approaches required for a sustainability transition. These problematic governance structures and lack of institutional capacities for accommodating innovative approaches ties back to low structural transformability in Iran (see section 2.1) and is emphasized by many scholars from fields of innovation, environmental, and transition studies (see section 2.1 and 3). Nature Schools' rapid growth in light of the legal support indicates a societal need for educational reform; a need profound enough that the initiative has overcome the institutional pressures after legal prohibitions through predominantly sociocultural support.

In this thesis, I have addressed one critique of the MLP which feeds into the interplay of institutional support and niche innovation. This critique points out that the role of agency compared to the structure is underplayed within the MLP framework (Smith et al., 2005; Nastar, 2014) which is also acknowledged by Geels (2011). Hence this thesis has contributed to this debate by bringing attention to the importance of dynamics within the network of agents, and demonstrated the significance of such dynamics in the development and durability of niche innovation, particularly under structures that are resistant to transformation. The results show that legal shielding acts as a catalyst for furthering and accelerating the dynamics of development, but not as an absolute determinant to the existence of niche innovation. In fact, those cases that did not rely on institutional supports from the very beginning indicated high resilience in the face of legal restrictions. Additionally, agent-level dynamics such as second-order learning and expectations (entailing shared values, understandings, and visions) proved capable of compensating for losses from the withdrawal of institutional and legal support.

It could be expected that Nature Schools' ambition to transform the formal educational system has been weakened or even abandoned after the legal prohibition. But this has not been the case. Here, the structure-agency perspective can effectively take away part of the burden from niche-level actors in face of the drawbacks, as the dialectical understanding of the process of social change includes inevitable structural pressures as part of the picture. Concurrently, this perspective informs an emancipatory understanding since it accounts for niche-actors as power-holders capable of bringing about change while recognizing that they are also subject to exogenous limits. In this case study, I could uncover some of

those strategic or contingent dynamics of empowerment making niche innovation more persistent to existing pressures, such as attention to local cultural specifications, constant reflexivity, and more flexibility in the use of available resources.

In this research, I demonstrated that most of the knowledge produced on 'Nature School' is concerned with the pedagogical model itself while the movement's strategies and organizational dynamics have gained critically low attention. In upscaling and mobilizing an innovative approach, scholars of transition studies, by acknowledging the importance of the innovation per se, emphasize the significance of an in-depth understanding of persistent forces impeding the realization of change at the institutional and political level (Nastar, 2014; Wieczorek; 2018). This emphasizes the importance of transition perspective for the development of niche innovations. As a result, this is one main contribution of my research to study Nature Schools in light of interactions across different levels of transition and elucidate the exogenous and tenacious forces and potential effective countermeasures to navigate those pressures.

Neither 'Nature School' nor any other transformative educational model in Iran has so far been studied from the multi-level perspective. Thus with this research, I have contributed to the field of transformative education in Iran and similar contexts, by developing a multi-level dialogue between niche and regime dynamics for such innovative approaches. Another contribution of this research has been to the field of sustainability science and transition study as I adopted a relatively novel theoretical approach by applying the MLP to a social/non-technical innovation in the scientifically marginalized context of Iran.

Since the use of the MLP for non-technical innovations is a rather unorthodox approach, this thesis has shown the usefulness of the theoretical framework for studying the development and transition dynamics of *non-technical* solutions. The case of 'Nature School', as a social innovation in the context of Iran, revealed two main differences when compared to technical innovation in the context of a developed country. First, Nature Schools are dealing with institutional arrangements that are rarely and randomly supporting the initiative, if at all. Secondly, 'Nature School' is a social innovation in the realm of transformative education which means gaining sociocultural support is a goal per se. Transformative education serves as a bottom-up emancipatory process dealing with cognitive transformation in society. As a result, Nature School does not benefit from the privileges of technical innovation in a developed context such as the provision of government subsidies for renewable energy technologies. However, 'Nature School' as an alternative pedagogical approach nonetheless represents an inherently emancipatory innovative praxis towards change from within the existing system of power relations.

7.2. Limits of the Study

One component influencing the transition pathway of Nature Schools that is left out due to the limited scope of this master's thesis is the influence of landscape dynamics on the regime and the niche. As I discussed in section 6.1.5, the role of transnational actors and support networks in Iran's national policy is one example of landscape-regime interaction with implications for niche innovation. However, one might need to be cautious since the definition of landscape as the exogenous slow-changing context, has conceptually and analytically challenged scholars of transition studies in the developing context as "the timescale in which changes occur in emerging economies is incomparably shorter than in the Western context" (Wierczock, 2018, p. 209). Nevertheless, a historically-informed political and economic analysis of landscape vis-à-vis dominant regimes (see works of Baker et al (2014) and Nastar (2014) for inspiration in this regard) could provide in-depth insights into understanding the existing hegemonic structures that impede the bottom-up processes of social change.

In this research, I took an outsider's lens on social innovation, while some aspects of social innovations and niche development (e.g. empowerment) can be better discussed from an 'insider ontology' (Smith & Raven, 2012). It is through narratives that the status quo is criticized and new visions are formulated and shared among actors. Such a perspective calls for a distinct set of research methods that could not be utilized by the scope of this thesis. Hence a discursive insider approach, as recommended by Smith and Raven (2012), could complement the outsider analysis of niche dynamics that I presented in this thesis.

7.3. Potential Areas for Further Research

Both my specific approach to Iranian Nature Schools and the use of Törnberg's integrated model of free social spaces and multi-level perspectives are novel. This means that there are multiple trajectories for further research to explore the subject and the theoretical approach in more depth. I found, for instance, the role of agents within the dominant regime (known as *'elite alliance'* in social movement studies [Caniglia, 2001]) in providing critical support to the niche-level innovations to be significant. This finding could inform and enrich an ongoing social debate in Iran where people are unsure whether participating in political processes makes any difference or if their voice is being neglected. An investigation into the long-term implications of electing political parties that allows for such key individuals to hold power can be beneficial input into this social debate.

Another interesting area of inquiry emerged as Nature School pedagogues and some parents expressed having been immensely inspired and personally transformed through their engagement with 'Nature School'. This suggests that the theory and practice of 'Nature Schools' holds the power to deeply influence personal lives. I assume the Nature School mindset can provide environmental and climate activists with a new approach towards activism and thus a study of Nature Schools can further enrich the understanding of grassroots movements with an alternative approach towards conceptualizing and analyzing dynamics of resistance.

8. Conclusion

My thesis research has gravitated around an inquiry into the potentials of sustainability transformation in contexts with low structural transformability. I have used 'Nature School' as a case to illustrate a path-breaking innovative pedagogical approach towards sustainability in a rigid sociopolitical context.

My analysis has shed light on the turbulent history of the emergence and reception of this social innovation, as it rapidly expanded with legalization only to be banned again on ideological grounds in the wake of governmental changes. My research demonstrated the role of legal shielding in facilitating the transition trajectory, but not determining it. The institutional support functions as a resource to pave the way towards transformation, build bridges and tunnels, and facilitate the change, but its absence does not defeat social entrepreneurs. It is through innovation that actors must broaden their horizons, diversify their approaches, adapt their path to local specifications of the landscape, and best utilize the potentials and resources available to them, to persist selection pressures. Nature Schools demonstrate that a robust committed network of actors can compensate for the lack of institutional support. Even if the innovative model has scientifically proven to be catering to a sustainable future, as long as it is unable to build a dialogue with social actors and correspond to their foundational needs, it cannot recruit enough social capital to carry the innovation on the harsh path of transformation.

With this thesis, I have contributed to the field of transformative education/pedagogy in Iran as well as sustainability science and transition studies by utilizing Törnberg's novel theoretical model to study an alternative pedagogical approach in a geographically marginalized context within the field of sustainability science. Given the limited scope of this research combined with shortcomings of the theoretical framework, I have suggested potential areas for further research (e.g. the role of transnational support and a study of cognitive changes among Nature School actors) to broaden the capacities of this framework. Immersing myself in the case of 'Nature School' as an emancipatory pedagogical praxis that is walking the tightrope towards social and institutional acceptance has broadened my horizons as a sustainability student. It has deepened my conviction that transition to a sustainable future begins in the marginalized spaces of progressive education where human minds are transformed and the seeds of a more sustainable and socially just future are planted and nurtured.

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10. Appendices

Appendix 1: Extension to Methods Section (Insights From Behind the Scene)

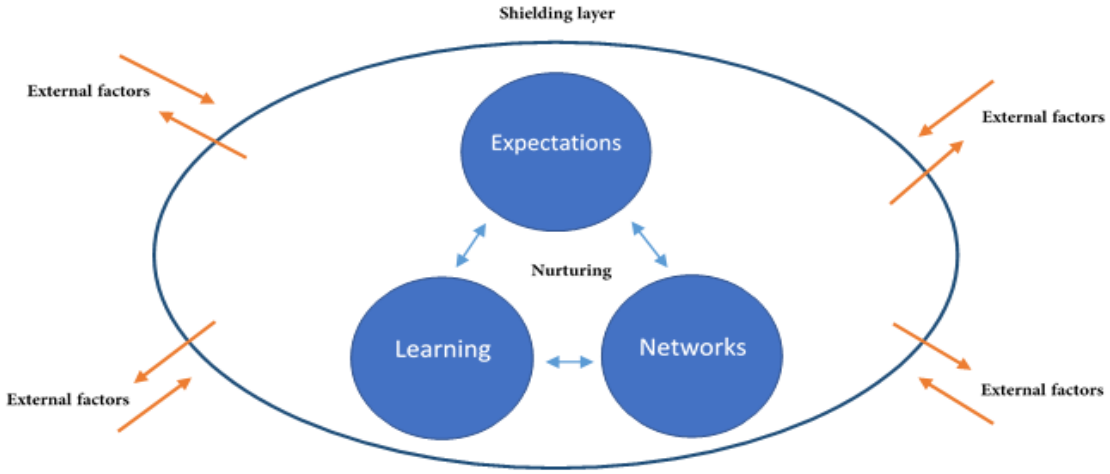
Before the field: Like many of my peers doing research at this time of the COVID-19 outbreak (WHO, n.d.), being in the field, especially overseas, is complex and highly unpredictable. When I embarked on my research journey to Iran (before Corona becoming a pandemic and much of an issue for traveling abroad), traveling to Iran was discouraged by many governments due to the Ukrainian flight incident (Perraudin et al., 2020). Therefore, for someone being surrounded by this international distressing debate, even as an Iranian citizen it was a tricky decision whether or not to go to Iran in person for research. For whatever aspiration, I made the choice to go, with all the uncertainties.

In the field: I was planning to look at the individual experiences of Nature School pedagogues from two different projects and then a focus group meeting to capture the collective aspects of their work. When I arrived in Iran, I managed to conduct 5 interviews with pedagogues from 2 Nature Schools. Unfortunately, two concurrent events hindered the realization of the rest of my research plan. The first was the COVID-19 outbreak in Iran resulting in countries closing borders to Iran and leaving no choice for me than to immediately leave the country. The evacuation plan in process, I was notified that one of the Nature Schools withdrew from collaboration in the research for untold reasons, meaning 3 out of 5 interviews could not be used as a data source anymore. As emotionally overwhelming as the conditions where I had no other choice as to focus on the evacuation and reflect on the circumstances and their implications on my research later on.

After the field: Reflecting on all that happened in such a short period of 12 days, I was wondering did all of this worth it? If I was asked this question a million times, I would still say each time “YES YES YES”. My direct experience of the projects and the people made a significant difference in the trust and bonds shaped between me and the participants in that short time, on my sense of belonging to this whole research. Hence, plan B most probably would not have emerged without that short field trip. New opportunities ascended on the horizon as the contact from the second Nature School (that I met in the field) was passionately helping out to find other potential Nature School pedagogues as participants. Therefore, in light of new hopes for data collection, I tweaked my strategy to focus on multiple Nature Schools and engage with veterans in each project. The new participants had a longstanding experience of working in their respective Nature School project (some since the establishment). In short, this entire thesis project is based on plan B, while built from the (crumbled) grounds of plan A.

Appendix 2: The Interview Guide

In this research, I am trying to understand the factors that help or challenge the persistence of Nature School as social innovation. I have developed a model that motivates my study. You can see it below. This model shows protective and nurturing components that influence social innovation to develop sufficiently that it can influence the dominant discourses.

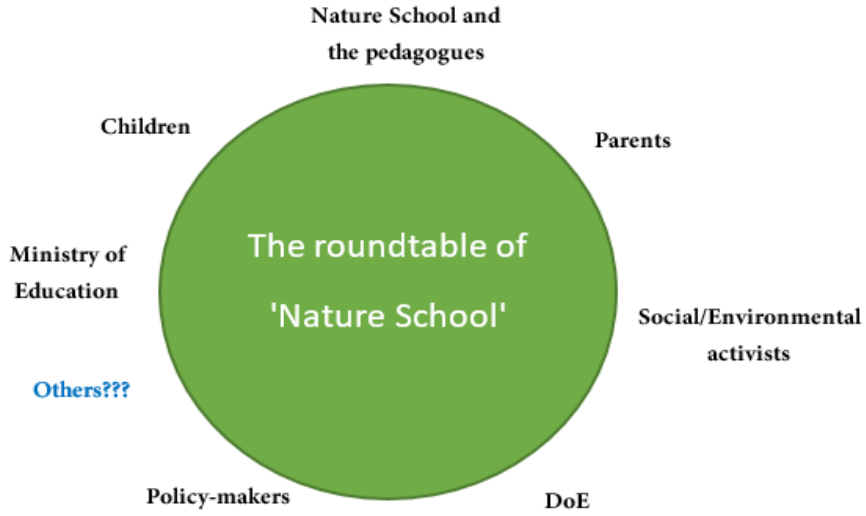


Before starting, I want to review some points with you. I want to make sure that you are aware that your participation in this research is voluntary. You can withdraw from this interview any time you wish without any implications for you. Also, you have the right to not respond to specific questions. This interview is anonymous and your identity will be protected throughout this research. All data will be only used for academic purposes. I record this interview and the data collected will be confidentially stored. Finally, the result of this study will be published on the public website of Lund University.

Question:

1. Tell me about yourself. Since when are you engaged with Nature Schools?
2. Imagine I want to register my child to a Nature School. What would you tell me about the impacts of Nature School on my child? How did these promises change compared to your first days?
3. Imagine I am a social/environmental activist. What would you tell me about the benefits/impacts of Nature School? How did these promises change compared to the first days?
4. Imagine I am a government official. What would you tell me about the benefits/impacts of Nature School? How did these promises change compared to the first days?

5. For pupils, what mechanisms did you consider to make it possible for them to take part in Nature School?
6. What kind of support does Nature School provide to the families who choose Nature School over conventional schools? Has this changed over time?
7. Imagine there is a round table. Nature School, Ministry of Education, DoE, the policy-maker, the Social/environmental activist, Parents, and the child are sitting around this table. Imagine your experience in Nature School has been like a few hours of discussion around this table.



   a. In your experience, are there any groups of social actors that have to be added or removed?
   b. Which groups and in what time-frames provided support to the Nature School?
   c. How did the quality and quantity of their support change over time?
   d. Which ones provided you with financial and legal support? How did it change over time?
   e. In your experience, which of these groups around the table significantly influenced each other?
   f. Which of the groups were posing challenges for you?
   g. How did you manage to get over the challenges? What visions or insights helped you?
   h. What kind of insight and learning has your experience created for you?
   i. Could you share these insights and learnings with others? How?
8. Any other points that you want to share?