Exploring the Role of Externalization of Shared Values for Sustainability Transformation: Empirical Lessons from China

Yanyan Huang  黄妍妍
Propositions

1. Shared values constitute a foundational factor for change towards sustainability transformations. (this thesis)

2. Shared values are really shared only if they are converted into explicit knowledge via *Externalisation*. (this thesis)

3. Although time is running out, time consuming forms of participatory governance and deliberative democracy are the only way forward to address current climate crisis.

4. Consideration and integration of local knowledge in the project design of sustainable development are necessary to make the design socially robust.

5. Undertaking a PhD during the COVID-19 pandemic presents an opportunity for transformative learning for the candidate.

6. Researchers working in cross-cultural environments should be capable to identify and accommodate various sets of values involved.

Propositions belonging to the thesis, entitled

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*Empirical Lessons from China*

Yanyan Huang 黄妍妍
Thesis committee

Promotors
Prof. Dr A.E.J. Wals
Personal chair at Education and Learning Sciences Group
Wageningen University & Research

Prof. Dr M.K. Harder
Professor, Department of Environmental Science and Engineering
Fudan University, People’s Republic of China
Professor, Research School of Architecture, Technology and Engineering
University of Brighton, United Kingdom

Co-promotors
Dr R. Wesselink
Associate professor, Education and Learning Sciences Group
Wageningen University & Research

Other members
Prof. Dr E. Huijbens, Wageningen University & Research
Prof. Dr D. Fischer, Leuphana University, Lüneburg, Germany
Prof. Dr S. Sun, Fudan University, People’s Republic of China
Dr. S. Karlsson-Vinkenhuizen, Wageningen University & Research

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Empirical Lessons from China

Yanyan Huang

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To my mom, Min Liang.
Others can tell whose daughter I am at a glance.

谨以此博士论文献给我的妈妈梁敏。
旁人一眼便能看出我是谁的女儿。
Abstract

This thesis presents an in-depth exploration to unravel the roles/potential of the externalization of shared values in facilitating sustainability transformation. Although the need for sustainability transformation is increasing globally and the profound influence of values for sustainability transformation is already established, there is still not sufficient understanding in how to purposefully navigate values for sustainability transformation. This thesis strives to fill this gap by introducing a new perspective: conceptualizing values as tacit knowledge and leveraging the SECI model from the Knowledge Creation Theory. Synthesizing results from empirical data collected from cases conducted in Shanghai, China, this thesis identifies the roles of externalization of shared values with respect to its outcome (shared values) and the procedure (externalization) for sustainability transformation. Further, this thesis presents discussions of the underlying mechanism through which shared values, when externalized, facilitate substantial sustainability transformations, and reflections on the implication for researchers from the field of sustainability science. For those who aim to promote sustainability transformation, this thesis not only enhances the understanding of the dynamic interplay between shared values and sustainability transformation, but also provides a specific roadmap to unleash the potential of the externalization of shared values for sustainability transformation to respond to the above-mentioned gap. With its new perspective, this thesis also underscores the necessity of considering the procedures through which values/shared values are involved.
Acknowledgement

It's weird, yet expected somehow, that I am the one having problem articulating my acknowledgement and appreciation to those who have supported me in different ways, although my thesis is all about being able to be explicit. Here comes the dilemma: Meanings can sometimes be enough, yet are never enough. So, here is the thing, I would like to do it in a movie manner with everyone's name shown but without specific order. For every special moment with you, make this movie possible.

I dedicate this work to my mother. Mom, I spend every day of my life proud to be your daughter. I also would like to express my sincere appreciation to my aunt who has always been on our side whenever whatever happened. Aunt, hope I have made you proud. My heartfelt gratitude extends my family for their support throughout this journey.

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I am indebted to the participants of this work, whose willingness to dedicate their time and share their voices was crucial to the fulfillment of this work. Hooray, engagement and participation!

Pursuing a PhD degree during the COVID era, with a desire to understand people’s shared values and a focus on empirical learnings, made this trajectory challenging, meaningful and transformative. We’ve suffered, leant, and hopefully evolved.

Again, the essence of this work as well as the major learning from this PhD journey, is to underscore/strengthen the unique role of our ‘experience’, from a scientific perspective and an experiential demonstration of mine. The process of creation of meaning, knowledge, reality out from our experience directs our path to ourselves and the ultimate unity.

成为你自己。

You shall become the person you are.

黄妍妍
Yanyan Huang

2023年11月，于上海/海牙
Nov, 2023 at Shanghai/The Hague
家人 Family

梁敏 MIN LIANG  JIARONG ZHONG  钟家蓉

导师团队 Supervision Team

ARJEN E. WALS  MARIE K. HARDER
RENATE WESSELINK

论文评审委员会 Thesis Assessment Committee

EDWARD H. HUIJBENS  SHAOJING SUN  孙少晶
DANIEL FISCHER  SYLVIA KARLSSON-VINKHUYZEN

朋友 Friends

王笑 XIAO WANG  HUAJUN YU  俞华军
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尚前 QIAN SHANG  WEI XIE  解伟
路彤 MASAH FIROOZMAND  CHENG LUO  罗成

参与者 Participation Team

Attention! Research ethics! All Anonymous!
# Table of Contents

<table>
<thead>
<tr>
<th>Abstract</th>
<th>vii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgement</td>
<td>ix</td>
</tr>
</tbody>
</table>

## Chapter 1 General Introduction  21

1.1 Sustainability transformation    23
   1.1.1 The important role of sustainability transformation  23
   1.1.2 The ‘inner’ dimension in sustainability transformation  24
   1.1.3 Consideration of values in the inner dimension of sustainability transformation  25

1.2 Current engagement of values in sustainability transformation literature  28

1.3 A new perspective for navigation: values as tacit knowledge  31
   1.3.1 Considering values as tacit knowledge and the common practice of making values explicit as externalization  32
   1.3.2 The Knowledge Creation Theory and the SECI model  34

1.4 The narrowed context – sustainability transformation in China  37

1.5 Knowledge gap and research questions  40

1.6 Research design  41
   1.6.1 Paradigm – social constructivism and qualitative approach  42
   1.6.2 Operationalization of the concept of externalization – WeValue InSitu process  43
   1.6.3 Data collection and analysis methods – interpretive case study, coding strategy and synthesis  45

1.7 Thesis structure  46
Chapter 2 Understanding successful responsibility-driven collective action through a shared-values lens: role-values alignment and values-complementarities

2.1 Introduction

2.2 Background Literature

2.3 Methodology and Methods

2.3.1 Case study description

2.3.2 Data collection and analysis

2.3.3 Overview of the WeValue InSitu Approach

2.4 Results

2.4.1 Village Management structure – three layers

2.4.2 Crystallizing drivers of key RDCA agent groups – Alignment of role and shared-values

2.4.3 Considerations of linkages between key stakeholder groups – Complementarities of shared-values

2.5 Discussion

2.6 Conclusion

Chapter 3 Perceptions of climate change impacts on city life in Shanghai: through the lens of shared values

3.1 Introduction

3.2 Background and theory

3.3 Methodology

3.4 Results

3.4.1 Pre-PEX results

3.4.2 PEX results

3.4.3 The Conceptual Model

3.4.4 Inputs into Urban Policy

3.5 Discussion

3.6 Conclusions
Chapter 4 Enabling shared values for sustainability transformation: empirical lessons from a case of bringing cross-cultural groups together in China

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Introduction</td>
<td>107</td>
</tr>
<tr>
<td>4.2</td>
<td>Theoretical foundation</td>
<td>110</td>
</tr>
<tr>
<td>4.2.1</td>
<td>Transcendental values within an individual boundary</td>
<td>110</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Shared values with a normative intention</td>
<td>112</td>
</tr>
<tr>
<td>4.2.3</td>
<td>Transcendental values as tacit knowledge and the SECI model</td>
<td>113</td>
</tr>
<tr>
<td>4.3</td>
<td>Methods</td>
<td>114</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Case description: Bringing cross-cultural groups together through shared values development in an international school</td>
<td>114</td>
</tr>
<tr>
<td>4.3.2</td>
<td>The case: Values as tacit knowledge and an intervention design informed by SECI model</td>
<td>115</td>
</tr>
<tr>
<td>4.3.3</td>
<td>Data collection and analysis</td>
<td>121</td>
</tr>
<tr>
<td>4.4</td>
<td>Results</td>
<td>121</td>
</tr>
<tr>
<td>4.4.1</td>
<td>Development of shared values</td>
<td>121</td>
</tr>
<tr>
<td>4.4.2</td>
<td>Perceived transformation</td>
<td>124</td>
</tr>
<tr>
<td>4.5</td>
<td>Discussion</td>
<td>126</td>
</tr>
<tr>
<td>4.5.1</td>
<td>Empirical realization of Perspective 1 and 2: the role of shared experience</td>
<td>127</td>
</tr>
<tr>
<td>4.5.2</td>
<td>Interaction of the Four Perspectives: Surfacing values as the starting point for individual transformation</td>
<td>129</td>
</tr>
<tr>
<td>4.5.3</td>
<td>The intervention design for sustainability transformation: researcher’s role and transdisciplinary collaboration</td>
<td>131</td>
</tr>
<tr>
<td>4.6</td>
<td>Conclusion</td>
<td>132</td>
</tr>
</tbody>
</table>

Chapter 5 General Discussion and Conclusion

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Aims and approach of this chapter</td>
<td>137</td>
</tr>
<tr>
<td>5.2</td>
<td>A short summary of the empirical chapters</td>
<td>138</td>
</tr>
<tr>
<td>5.3</td>
<td>Synthesis of the research from the theoretical perspective of Knowledge Creation Theory</td>
<td>140</td>
</tr>
<tr>
<td>5.3.1</td>
<td>The roles of shared values for sustainability transformation</td>
<td>140</td>
</tr>
</tbody>
</table>
List of Tables

| Table 1.1 | Summary of basic information of empirical studies | 39 |
| Table 2.1 | Grounded themes from values-in-action from across all 6 stakeholder groups | 67 |
| Table 3.1 | Key characteristics of the participating groups | 88 |
| Table 3.2 | Themes, sub-themes and sample data (quotes) from the focus group discussions about perspectives of climate change and impacts on participants’ life in Shanghai | 94 |
| Table 4.1 | Details of the intervention design and implementation | 116 |
| Table 4.2 | Shared values statements constructed by teachers from the school when envisioning a common future from CI.3 | 122 |
| Table 4.3 | Synthesized perceived transformations through the process of shared values development | 124 |
| Table 5.1 | The roles of shared values for sustainability transformation | 141 |
| Table 5.2 | Effects of externalization of shared values on individual level, collective level | 153 |

List of Figures

| Figure 1.1 | The four quadrants of how people understand and experience reality (adapted from Esbjörn-Hargens et al., 2010, p. 36). | 25 |
| Figure 1.2 | Conceptual framework of navigating diversity and conflict in social values for sustainability (adopted from Kenter et al., 2019, p. 1440). | 29 |
| Figure 1.3 | Navigating the conceptual framework (a) horizontally across abstractness and (b) vertically across context dependence (adopted from Rawluk et al., 2019, p. 1196). | 30 |
| Figure 1.4 | Spiral Evolution of Knowledge Conversion (adopted from Nonaka & Konno, 1998, p. 43). | 35 |
| Figure 1.5 | Schematic illustration of five stages in WeValue InSitu process. | 44 |
| Figure 2.1 | Management structure of Xulian Village. | 60 |
| Figure 2.2 | The shared values framework of Village Committee. Each statement starts with “It is important to us that...”. | 62 |
Figure 2.3  Alignment and complementarity of shared values-in-action across the six, key, stakeholder groups. Themes with continuous lined arrows refer to those themes present across all groups, while dotted ones refer to those which were commonly shared by most groups with the exemption of the WS and EC groups.

Figure 3.1  An illustrative example of a Shared Values Framework produced through the WeValue InSitu process of tacit-to-explicit translation of shared values-in-action, for a work-based group. It is accompanied by a Narrative from the group, which explained that the lower tier represented their ‘foundational’ values; the top tier their ‘aspirations, and the middle tier their pathways.

Figure 3.2  A conceptual model of residents’ perceptions of climate change in Shanghai, comprising themes related to their Awareness, ‘Red Lines’ and Attractions for living in Shanghai, and related Actions.

Figure 4.1  A heuristic representation of the Four Perspectives (based on Horcea-Milcu et al., 2019).

Figure 4.2  Schematic illustration of how Perspective 1, Perspective 2 and Perspective 4 are realized through our intervention design based on the SECI model. Two types of language-groups first articulate their shared values, then exchange articulated versions of them, with illustrative examples, then meet in mixed groups to negotiate their cross-shared values, enabling subsequent transformations to occur.

Figure 4.3  A shared values framework constructed by one of the WVIS workshop groups from EI.1. All shared values statements shown in grey boxes begin with “it is important to us that...”. Photos were chosen by participants in the Photo Elicitation stage, removed from sight, and then allocated a position in the final after it was constructed, as a test to see if the concepts had been included.

Figure 4.4  Schematic illustration of how Perspective 1, Perspective 2 and Perspective 4 are empirically realized through the intervention design based on the SECI model.

Figure 5.1a  Illustrations of roles of shared values as ‘a research object’ in Case 1, leading into identification of informative linkages between them.

Figure 5.1b  Illustrations of roles of shared values as ‘a perception lens’ in Case 2 through them a conceptual framework about climate change could be constructed.
| Figure 5.1c | Illustrations of roles of shared values as a 'transformation lever' in Case 3, working on which can lead to an improvement of cross-cultural groups collaboration. |
| Figure 5.2a | Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 1. |
| Figure 5.2b | Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 2. |
| Figure 5.2c | Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 3. |
| Figure 5.3 | Ontological shifts in the knowledge creation spiral (Reinterpretation by the author based on Nonaka and Takeuchi, 2021). |
| Figure 5.4 | The knowledge creation spirals on individual level (in blue) and collective level (in red). |
| Figure 5.5 | The relationship among individual as participant, individual as researcher and group. |
Chapter 1

General Introduction
Abstract

In this Chapter I present a general introduction to the background and development of this thesis. Considering the increasing challenges concerning the depletion of natural resources, environmental degradation, climate change and social inequity, it is urgent for human beings to respond to the current sustainability challenges in a fundamental way. That is, to pursue sustainability transformation. Increasingly, more attention has been paid to the inner dimension of sustainability transformation which is closely related to people’s values, i.e., what is important to them. While engaging with values has been identified to be promising for promoting sustainability transformation, and there are reports of increasing research efforts, the complexity of conceptualizing values and operationalization that conceptualization has so hindered progress. Here I propose a new perspective: to consider the nature of values as tacit knowledge and to conceptualize the common practice of making values explicit as ‘externalization’ (as defined in Knowledge Creation Theory). I then can explore the use of values towards sustainability transformation in empirical settings, to help improve understanding and prescription of them for future use. I ask the primary research question “What is the role/potential of externalizing shared values, in getting people onto their pathways towards sustainability transformation?”. The empirical setting is Shanghai, China. The empirical operationalization of fieldwork is realized through a well-establish method known as ‘WeValue InSitu’, which assists in the crystallization of shared values of naturally occurring groups (experience-based). Using a social constructive approach, this work thus explores how the process of externalizing shared values within three different social groups and contextual settings contributes to transformation.
1.1 Sustainability transformation

1.1.1 The importance role of sustainability transformation

Considering the increasing challenges concerning the depletion of natural resources, environmental degradation, climate change and social inequity, it is urgent for human beings to adapt the current sustainability challenges in a fundamental way (Blythe et al., 2018). The need for sustainability transformation has been expressed from the scientific community (Marshall et al., 2012; Meadows et al., 2018; O’Brien, 2012; Rees, 2021) to the global wide. Such transformation has been proposed as a practical future vision for society, given the challenges our current development trajectories pose to living conditions for humanity (Díaz et al., 2019) but also for most other species (Watson et al., 2019).

It remains challenging to define both sustainability and sustainability transformation. Although sustainability transformation as a term is used more as a metaphor and still lacks consensus in its definition in sustainability literature (Feola, 2015), it commonly involves a systemic or paradigm shift (Lonsdale et al., 2015) or a structural change (Feola, 2015) of a complex system. The specific definition of "sustainability transformation" differs from people or groups involved and “it is not always clear what exactly needs to be transformed and why, whose interest these transformations serve, and what will be the consequences” (O’Brien, 2012, p. 16). Questions such as what is meant by sustainability transformation, whether these transformation processes can be observed empirically and with what methods (Patterson et al., 2017), are not new. Related discussions have been going on in a distinct field called ‘sustainability science’ (Kates et al., 2001; Komiyama & Takeuchi, 2006). One emerging discourse in this field mainly focuses on the transformational aspect (O’Brien, 2018) involving diverse application contexts, e.g., climate change, biodiversity, resource conservation and pro-environmental behaviour change), as well as philosophical debates and conceptual and theoretical elaborations. What is clear is that sustainability transformation as a research topic has grown in importance (Patterson et al., 2017).
1.1.2 An ‘inner’ dimension in sustainability transformation

A relatively useful and frequently adopted (e.g., Ives et al., 2019; Grenni et al., 2020) framework for conceptualizing sustainability transformation is based on Wilber’s (2005) Integral Theory. Yielded by two fundamental distinctions of viewing everything: interior and exterior, individual and collective, four quadrants are proposed to represent four dimensions of reality (intentional, behavioural, cultural, social), or four irreducible perspectives to understand and experience reality (subjective, intersubjective, objective, and interobjective). Four basic pronouns are adopted to present the four dimensions, namely “I”, “we”, “it” and “its”. In sustainability science research, the internal dimension is also known as the inner dimension. Sustainability transformation can be promoted by different spheres (including institutional and systemic, practical and individual), the inner dimension contributes by enabling the human agency who is responsible to produce changes in these spheres. While being increasingly emphasized to be considered in development of projects seeking to address sustainable issues like pollution control, natural resource conservation, biodiversity protection, the inner dimension is often neglected while more focuses are with external dimension concerning technical development (Ives et al., 2020; Miller et al., 2014). Current effort to involve or leverage inner dimension for sustainability transformation can be found in education of sustainable development (e.g., Gray & Manuel-Navarrete, 2021) and place-shaping approach (e.g., Grenni et al., 2020).
1.1.3 Consideration of values in the inner dimension of sustainability transformation

The inner dimension, 'we' and 'I', is closely related to people's values which is a component of inner dimension (Horlings, 2015; Ives et al., 2020; Wamsler et al., 2021). The inner dimension can influence sustainability transformation by revealing deep awareness of society’s and our values and goals, building of empathy, and willingness to transcend individual paradigms (Ives et al., 2020). The inner lives fundamentally shape the kind of sustainable future that people aspire to create, because values embedded in the inner lives generate motivations and methods for pursuing sustainability and sustainable behaviours (Ives et al., 2020).

In the domain of 'we', which describes collectively experienced and internal phenomena, shared values are recognized to be crucial for sustainability transformation (Ives et al., 2020). That is because consideration and integration of shared values ensure the social

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**Figure 1.1** The four quadrants of how people understand and experience reality (adapted from Esbjörn-Hargens et al., 2010, p. 36).
robustness of decision-making for sustainability in a ‘post-normal’ world (Funtowicz & Ravetz, 1994) by increasing the plurality and diversity of stakeholder values (Colloff et al., 2017). Noticeably, both collective experience and shared values are rooted in the domain of ‘I’, i.e., the inner worlds of individual people.

As a component of the inner dimension of sustainability transformation, values have been theoretically and hypothetically seen to be a deep leverage point for sustainability transformation (Abson et al., 2017; Chan et al., 2020; Leventon et al., 2021). While higher research priority has been called to study values in sustainability transformation (Bieling et al., 2020; Fazey et al., 2018; Tschakert et al., 2016), fundamental questions such as the role of values in scientific approaches to sustainability transformation, and how to engage with values for sustainability transformation (Horcea-Milcu, 2022) requires further exploration.

Although the key role of values for sustainability transformation is established, this call for further study into the nature of values, the role of values, and how values can contribute to sustainability transformation cannot be overemphasized. Yet, due to diverse and divergent but often taken-for-granted ontological and epistemological assumptions when people conceptualize and operationalize the concept of values, there is no clear typology in values research in sustainability science.

Consequently, this ‘mess’, of diverse and divergent adoption of the concept of values hinders its advancement in sustainability transformation and the advancement of sustainability transformation itself. The most evident examples can be found in two circumstances: 1) taking into account the multiple value systems and knowledge systems in decision-making to ensure the social legitimacy of sustainability transformation (Díaz et al., 2019); 2) incorporating diverse values and worldviews into decision-making to support active transdisciplinary collaboration regarding particular transformation challenges (Kenter et al., 2019). See two examples in Box 1.1 of how a lack of consideration of this ‘mess’ can hinder the progress of sustainability transformation.
Box 1.1 Two examples of challenges for sustainability transformation caused by the complexity of conceptualization and operationalization of the concept of values

The first circumstance usually appears in the context of the evaluation of ecosystem service. It is increasingly acknowledged that economic values can only partially catering nature's value to people (Chan et al., 2016) and relational values (Tadaki et al., 2017) should be considered more. While the economic values of ecosystem services developed in the realist tradition are dominant, relational values do not share the ontology and epistemology of the realist tradition. When relational values cannot (easily) be converted into monetary values, taking both types of values into consideration becomes a barrier to defining the values of ecosystem service. Sequentially, inadequate reference is in place to guide decisions on the most sustainable way to interact with a particular ecosystem and this slows down the transformation needed to keep the balance between environment, economy, and society.

A case of the second circumstance could be researchers from different disciplines being asked to come together to work on the same sustainability transformation topic in which they need to collect data concerning people's values. Those who hold the ontological assumption that values are discrete and held, and the epistemological assumption that the sum of values of a group of people can be gained by simply aggregating personal values, will collect this data using methods like questionnaire/surveys and sum up the selections. However, those who hold the ontological assumption that values are embedded and constructed, and the epistemological assumption that the values of a group of people can be gained by social deliberative processes, will then collect this data using methods like art-based discussion. Eventually, these two groups are not able to acknowledge the significance of each other's work and come up with a method that is somewhere in between and teaching us nothing, not mentioning to effectively use the outputs to address the given topic.

Hence, I aim to add knowledge to the discourse of the inner dimension of sustainability transformation by focusing on the nature and the role of values with respect to sustainability transformation. I simultaneously consider the individual and collective dimensions of values in this work.
as they are inseparable while being interested in the interactive process between these two dimensions. In line with my theoretical choice (see section 1.3.2), I perceive values to be always individually held, no matter being held by the individual only or shared by other individuals together. In the latter case, shared values are in place.

As explained later (see section 1.6.2), I choose shared values as the starting point due to the selection of method which is influenced by operationalization of the research questions. That being said, the importance of shared values for sustainability have long been established. The Brundtland Report (WCED, 1987) defines sustainable development as meeting the present needs without compromising future generations' ability to meet their own needs. Shared values play a crucial role in guiding exploration and decision-making on those needs, ultimately defining sustainability.

1.2 Current engagement of values in sustainability transformation literature

Studies of values in sustainability transformation are currently complex and ambiguously defined. This is demonstrated in two major recent reviews by Rawluk et al. (2019) and Kenter et al. (2019), which provide comprehensive overviews of the current complex research landscape. Although neither suggests any clear typology or concrete ways forward, they each provide multi-faceted frameworks to support researchers who carry their specific stances concerning values (as decided by their specific research questions) to navigate this ‘mess’ of values.

Kenter et al. (2019) provides a multidimensional interpretation of the complex and messy social values landscape in sustainability science. Two meta-lenses (epistemic lens and procedural lens) and eight dimensions (abstractness, contractedness, normativity, rationality, elicitation, aggregation, integration, power) made up the value lens encompassing six dimensions (concept, provider, scale, intention, frame, justification). Based on this lens, seven areas of tension and 12 key avenues for future study were identified. This rather comprehensive model presents multiple filters or classifications which researchers are encouraged to consider when trying to investigate values. Figure 1.2 works as a tool to help researchers navigate this complex landscape.
Figure 1.2 Conceptual framework of navigating diversity and conflict in social values for sustainability (adopted from Kenter et al., 2019, p. 1440).

With this approach the authors showed that values can be considered as defined by different epistemic lenses and also accessed from different procedural lenses. However, this intrinsically means that the values considered here will not be comparable with each other because 1) they are not commensurable since they will have some intrinsically different nature and characteristics and 2) they are not compatible since they will practically address different things. However, what they do have in common is that they come out of studies which tended to consider values as objects, either objects involved through some procedures (e.g., elicitation, aggregation, integration) or objects informing worthiness.

Similarly, Rawluk et al. (2019) provided a conceptual framework to help navigate the complexities of ontological plurality, epistemological flexibility, and levels of abstractness of the concept of values. It is
presented as a way to represent the boundaries of a full-range consideration of cross-disciplinary dimensions. As shown in Figure 1.3, there are two major dimensions identified, namely context dependence and level of abstractness, which the authors put forward as necessary to be considered in studies engaging with values.

Figure 1.3 Navigating the conceptual framework (a) horizontally across abstractness and (b) vertically across context dependence (adopted from Rawluk et al., 2019, p. 1196).
What I have learned from the two major reviews is that the concepts of values used in sustainability transformation are not clearly relatable to each other, and current considerations would need to accommodate a variety of existing ontologies, epistemologies and contexts. This is not encouraging for researchers looking for concrete understanding about how to proceed with engaging values for sustainability transformation. On the other hand, the two reviews jointly suggest that any investigation should carefully consider the context dependence and level of abstractness of values involved, and that values can be viewed as objects but also as procedures.

### 1.3 A new perspective for navigation: values as tacit knowledge

Since the current literature, including the two reviews, do not yet propose a concrete way forward, I look for another starting point, and I note that across the literature, the studies involving values do have one thing in common: they all involve some approach to make values explicit. Different terms have been used to represent this process, e.g., “eliciting values”, “clarifying values”, and “surfacing values”. There are no explicit descriptions of what exactly the processes are, and they can be seen as overlapping. But they have different epistemological and ontological assumptions of values, and are investigated in a wide variety of application contexts. This leads me to an idea for a new approach for the study of values in sustainability transformation: to explore the different ways they are made explicit in different empirical settings.

I find that this approach, the notion of making various intangible things explicit when pushing for sustainability transformation, is already recognized by several scholars of sustainability science, e.g., explicit goals (Horcea-Milcu et al., 2022), explicit justification of scientific institutions (Jerneck et al., 2011), explicit normative assumptions (Abson et al., 2014). Uniting these is the assumption that the characteristic of being explicit is correlated to an increase in factors like transparency and trust, which can foster and harness transformation. Values, however, have not yet been considered as an object in this notion of explicitness, nor been explored in this manner.
1.3.1 Considering values as tacit knowledge and the common practice of making values explicit as externalization

In sustainability science, values, along with other types of knowledge like local expertise based on personal experience, are considered tacit (Raymond et al., 2010). They are considered necessary to be included in decision-making and planning (Van Kerkhoff & Lebel, 2006) but are hard to access. However, this nature of values from the knowledge perspective, i.e. that they are usually tacit, is neglected in the current discourse concerning values for sustainability transformation. Notions about the conversion of tacit knowledge to explicit knowledge (Polanyi, 1968) are more complicated, and encompasses richer implications, beyond considerations of increases in transparency and trust. This then inspired me to take a closer look at values from the knowledge perspective, and to leverage existing theories from that field, to support a rigorous and systematic understanding on how the process of making values explicit might potentially contribute to sustainability transformation.

The concept of tacit knowledge is attributed to the work of Polanyi (1958). It is asserted that “we can know more than we can tell” and that all knowledge is rooted in tacit knowledge (Polanyi, 1968). Tacit knowledge refers to knowledge that is highly personal and hard to formalize or codify, therefore difficult to communicate with others, and closely related to ‘doing’ (Inkpen & Dinur, 1998; Nonaka, 1991). Tacit knowledge is deeply rooted in commitments and actions, that is, experience. It is asserted that development of any form of knowledge is inseparable from subjective experiences and “personal knowledge” which remains in large part unarticulated, tacit and non-verbal (Polanyi, 1968). Tacit knowledge consists two dimensions, the technical know-how and the cognitive mental models, beliefs and values. Values by nature are often regarded to remain largely tacit (McAdam et al., 2007; Raymond et al., 2010), as a type of personal or cultural belief that can shape one’s behaviours and decision-making. They may not always be explicitly stated or easily described, but they can be shared and communicated in various ways, such as through stories, traditions, or social norms. Values are deeply ingrained in one’s experience, along with beliefs or principles that are not explicitly articulated or expressed but which guide people’s attitudes, intentions and behaviours. Individuals act in ways that allow them to express their important
values (Sagiv et al., 2017). The formation of values can be considered to go through socialization and cultural influences, and the formed values are internalized by individuals as a part of their worldview (Calcagni et al., 2019; Kenter et al., 2019). Therefore, values are generally considered difficult to articulate. For example, an individual may hold a strong value of honesty but may find it challenging to explain to others precisely why it is so important to him/her. On the other hand, some values may be more explicit and easily expressed, such as the value of teamwork or respect for diversity.

The extent to which values are tacit thus varies from individuals who intend to articulate their values and the context in which the values are expressed. Schroeder (2013) emphasized the implicit nature of values and proposed 'felt values’. He asserted felt values are context-dependent and at an implicit level of awareness, which shape and being shaped by held and assigned values that are seen to be at the explicit level. Moreover, “felt value underlies and is more fundamental than either held values or assigned values” when it comes to immediate experiences. Barkley and Kruger (2013) added that the implicit aspect of felt values is a reflection of an “internal, personal understanding of lived experience”. They took a cognitive perspective to look at making felt values into held and assigned values, and focused on the interplay between emotion and memory. Being aware of the existence of another school of thought which introduced a third concept ‘implicit knowledge’ to represent similar but slightly different meaning of tacit knowledge, I in this work choose to refer to Polanyi (1968)’s terminology and consider only tacit and explicit knowledge in my research design and discussion. I also made my theoretical framework selection based on this premise, i.e. the adoption of Nonaka (1994)’s Knowledge Creation Theory and the SECI model.

The notion of conversion between tacit and explicit knowledge has been captured by Polanyi (1968) and further developed by scholars mainly from organizational studies. For instance, cognitive account and process of tacit knowledge acquirement are provided by Sternberg (2000) in the theory of practical intelligence. Another influential and widely discussed work is from the field of organizational knowledge management from Nonaka and Takeuchi (1995). The process of converting tacit knowledge into explicit knowledge is termed as externalization, according to their Knowledge Creation Theory. Externalization is “a process of articulating
tacit knowledge into explicit concepts” (Nonaka & Takeuchi, 1995, p. 64), defined to be the process of making tacit knowledge explicit to make tacit knowledge available to be shared by others and become the basis of new knowledge. Within externalization, it is argued that conceptualization and crystallization as two sub-processes are constantly interacted on the individual level with the use of metaphor and analogy (Nonaka, 1994).

Hence, I draw on this theory and adopt the term ‘externalization’ to represent the basic process of making values explicit in this work, emphasizing the conversion of values from tacit to explicit. By synthesizing empirical findings from the case studies, this thesis aims to add knowledge towards an understanding of the role of this conceptualization in research of values in sustainability transformation. More details of the theory and theoretical framework adopted in this work will be given in the following section.

1.3.2 The Knowledge Creation Theory and the SECI model

I now introduce the Knowledge Creation Theory and its associated theoretical framework (SECI model) adopted in this thesis to support the research design, data synthesis and general discussion.

The Knowledge Creation Theory (KCT) was originated from knowledge management by Nonaka (1994) in the field of organizational learning. The knowledge creation lens holds that problems are constructed, not by information, but by knowledge which is available at a certain point of time and context. The essence of KCT is the dynamic and continuous interaction between tacit and explicit knowledge in a form of an expansive spiral through which new knowledge could continuously be created, diffused and embedded, known as SECI: Socialization, Externalization, Combination, Internalization (Nonaka, 1994; Nonaka et al., 2000). A key concept used by Nonaka and Konno (1998) is that of ‘ba’ which refers to a common space from which relationships can emerge and individual and/or collective knowledge can be constructed (Nonaka et al., 2016). The multi-layered nature of ba provides for an organic configuration in which meanings are drawn out through intersubjectivity and dialectic interactions among all individuals within the environment (Nonaka & Toyama, 2005).
Figure 1.4 Spiral Evolution of Knowledge Conversion (adopted from Nonaka & Konno, 1998, p. 43).

Socialization (tacit to tacit)
Socialization is the process through which individuals transfer, obtain and convert tacit knowledge from each other by sharing experiences via observation and imitation (Nonaka et al., 2000). The key in this mode is experience, as tacit knowledge cannot be transferred using codified languages, meanings embodied individually in tacit knowledge with a here-and-now character are hard to be passed on. Creating spaces, time and atmosphere for interaction and dialogue is often seen as ways to promote socialization in the organization.

Externalization (tacit to explicit)
Externalization is the process of translation from tacit knowledge to explicit knowledge on the individual level, through which tacit knowledge is articulated into codified form to allow people to share more easily. Creation and use of concept, metaphor, analogy and model in sequence are vital components in this process. It usually happens on
a group level, either a formally formed or self-organizing team. This mode is particularly vital as it bridges tacit and explicit knowledge, without which Socialization fails the shareability of its outcome and Combination modes loses the richness of embodied personal meaning (Nonaka, 1994). Despite the necessity, it is widely acknowledged that Externalization can be challenging and hard to be achieved (Crossan et al., 1999; Nonaka, 1994; Polanyi, 1968).

**Combination (explicit to explicit)**
Combination is the process in which articulated explicit knowledge from different resources is brought together into one context and synthesized on the organizational level systemically through meetings or computerized conversations. New knowledge is created by reconfiguring existing information by “sorting, adding, recategorizing and recontextualizing” (Nonaka, 1994, p. 19). Concepts could be breakdown during this process to provide informative operationalized explicit knowledge for manuals and databases (Nonaka et al., 2000). The knowledge outcome of this mode has the characteristic of easy transferring. Although social processes is also involved in Combination like in Socialization, the ba here emphasizes the collective and virtual nature of the interaction atmosphere given the ease of explicit knowledge exchange among people.

**Internalization (explicit to tacit)**
Internalization is the process in which systemic explicit knowledge is embodied by the individual into their own tacit knowledge through ‘learning by doing’. Simulation, experiment and reflection in reading often support this mode of knowledge conversion (Nonaka et al., 2000). Individual tacit knowledge is accumulated through internalization and becomes the routine knowledge asset. An exercising ba is required to promote this mode with an emphasis on doing rather than thinking, which is previously emphasized in the dialoguing ba for externalization (Nonaka et al., 2000).

Two main justifications are provided here to support my selection of this theory and associated theoretical framework. Firstly, values being tacit and capture the tacit-to-explicit dimension, so to use the term externalization to refer to the process I want to study in the rest of the work. Secondly, as being social constructivism, I take the stance that values are generated and applied by individuals and later
shared/exchanged through social interactions in group settings (on different scales). Therefore, an ontological shift from individual level to collective level when considering shared values is involved in this work. The KCT provides a theoretical framework which includes ontological levels of individual, group, and organization levels and presents it in a spiral manner. This allows the investigation concerning values to go beyond one single ontological level to embrace the multiple levels.

Being aware of the well-known critique on the theory by Gourlay (2006) arguing that the starting point of knowledge creation can also be in the Combination mode by facilitating creative synthesis besides in the Socialization mode by tacit knowledge transfer and learning, I take this into consideration when later discuss the role of shared experience for shared values externalization and how they may or may not have influence on sustainability transformation. Complimentarily, the work of Collins (2019) and his common conceptual language of three different types of tacit knowledge further enable my deeper understanding of shared values being a type of tacit knowledge and how this tacit nature makes a difference when made explicit.

Having introduced the theoretical framework using in this work to guide the synthesis, before I move to my research questions, I would like to introduce the narrowed context, Shanghai city of China, where empirical studies are carried out.

1.4 The narrowed context – sustainability transformation in China

Sustainability transformation in the China context is primarily linked to environmental issues, while accompanied by other related issues. Starting from the first National Environment Protection Meeting in 1973, China has been striving to achieve various aspects of further development with more consideration to maintaining the natural environment. However, like most development processes in human history, China’s has up till now generally sacrificed the natural environment for economic increase, which left severe environmental problems threatening human well-being and its longer-term development.
Probably the most widely-recognized challenge is the poor air quality due to the high concentration of PM2.5 in large cities like Beijing and Shanghai since 2010. Until then, the industry structures and energy structures were mainly designed for higher-speed production, more jobs, and economic growth. The economic increase mostly relied on coal power, and there was a lack of careful monitoring and controlling of air pollution. Noting its urgency, China put effort into its 12th and 13th five-year plans to promote a transition in industry and energy structures by replacing the coal power industry with cleaner energy (hydropower, wind power) and renewable energy (solar power), which resulted in significant improvement in air quality and related environmental pollution.

Over the past few decades China can be characterized by fast and rapid economic development. As a consequence of China’s vision of tackling the detrimental side effects of this rapid development, various initiatives and measures have been undertaken towards sustainability transformation, including the Ecological Civilization initiative which seeks to curb the emission peak by 2030 and to achieve carbon neutrality by 2060, renewable energy construction, green finance development and development of the electric vehicle industry. Being rather large-scaled and technology-driven, these initiatives demonstrate China’s desires and efforts in pursuing a sustainable future. Nevertheless, it is not sufficient yet. In recent years, Chinese policy is aiming to support the achievement of ‘green development’ and the construction of ‘ecological civilization’, under the instruction of China’s core cultural idea, ‘Tian Ren He Yi’ (promoting harmony between humanity and nature). With its promise to reach carbon peak and carbon neutrality, China is pushed to have deep reflection and fundamental transformation concerning its way of thinking and developing.

China now faces a great opportunity as it is stated that “Reaching peak carbon emissions and achieving carbon neutrality will mean a broad and profound systemic socio-economic transformation” (Xi, 2022). Reaching the carbon peak may only require transformations in technology and industry structure, which China has been working on for years. However, reaching the carbon neutrality requires more than that. A fundamental transformation regarding mindset of development, values and behaviour patterns is in need. This transformation is wider and deeper, involving objects from macro (structure) to micro (individual)
and changes from values to behaviour. Individuals are seen as the transformers whose values, way of living, and visions are expected to be greener and more sustainable.

To empirically explore the research question at hand, fieldwork was conducted in China, the birthplace and upbringing of the researcher. Specifically, in one of the leading cities where the researcher received her research training and developed her academic trajectory, Shanghai. Per the seventh national census, Shanghai has an estimated population of over 24.89 million making it one of the most populous cities in the world. Boasting a robust and dynamic economy and acting as a vital economic hub of China, Shanghai has been attracting people domestically and internationally resulting in high diversity of cultures, relatively balanced gender ratio and a slight tendency of older population. Besides economy, the global connectivity is another defining aspect of its position in China. Attributing to its strategic location and world-class infrastructure, Shanghai’s global influence extends beyond economic spheres, with its rising prominence in international diplomacy, urban development, and sustainability initiatives. The following Table 1.1 provides a summary regarding specific field setting of the three cases in this thesis. More details of research design are provided in later sections.

Table 1.1 Summary of basic information of empirical studies

<table>
<thead>
<tr>
<th>Number</th>
<th>Specific sustainability transformation</th>
<th>Field area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>Responsibility-driven collective action</td>
<td>Rural area A village</td>
</tr>
<tr>
<td>Case 2</td>
<td>Climate change adaptation</td>
<td>Urban area Socially-recruited groups</td>
</tr>
<tr>
<td>Case 3</td>
<td>Cross-cultural collaboration in organization</td>
<td>Urban area An international school</td>
</tr>
</tbody>
</table>

This decision of field selection was driven by several factors. Firstly, approaching values-related research from the researcher's natural perspective, rooted in her native language, provides a sensible and informative starting point, as opposed to adopting a Western-centric viewpoint. Secondly, the academic interests of this study, which revolve around the externalization process of shared values, align with China’s broader vision of development that recognizes and encourages the
inclusion of diverse cultures and their unique ways of thinking, doing, and being. By conducting research in this context, the insights gained from this work make a pragmatic contribution to the advancement of the Global Civilization Initiative (GCI), a recent proposal by Chinese President Xi stating that "as the future of all countries are closely connected, tolerance, coexistence, exchanges and mutual learning among different civilizations play an irreplaceable role in advancing humanity’s modernization process and making the garden of world civilizations flourish. We advocate the respect for the diversity of civilizations, the common values of humanity, the importance of inheritance and innovation of civilizations, and robust international people-to-people exchanges and cooperation. We are ready to work together with the international community to open up a new prospect of enhanced exchanges and understanding among different peoples and better interactions and integration of diversified cultures. Together we can make the garden of world civilizations colorful and vibrant" (Xi, 2023).

It is important to clarify that the selection of the field was not a deliberate choice but rather a convenient outcome influenced by various factors and limitations. Consequently, the research findings should be interpreted within the aforementioned context while also considering broader implications. Nonetheless, it is crucial to acknowledge that the selection of this specific field introduces certain limitations to the study. These limitations should be taken into account when analysing the results and formulating conclusions.

1.5 Knowledge gap and research questions

There is a need for a more unified conceptualization and approach of values in sustainability transformation, because they are known to be central to sustainability transformation and aspects can be identified retrospectively. As a knowledge gap is identified concerning useful ways to navigate the complexity in research of values in sustainability transformation, I aim to bridge this gap by proposing and exploring a new perspective, i.e. considering the nature of values being tacit knowledge. This nature is not fully acknowledged in current discourse of making values explicit resulting in potentially limited understanding on how such process (making values explicit) relates to sustainability transformation. Further, I introduce the concept of ‘externalization’ from
Knowledge Creation Theory, i.e., ‘conversion from tacit knowledge to explicit knowledge’, to describe the basic process of making values explicit. Both individual and collective levels of values are included in the discussion.

In this thesis, I explore via several empirical studies to improve understanding and prescription of use of values towards sustainability transformation by asking the primary research question “What is the role of externalizing shared values in getting people onto their pathways towards sustainability transformation”?

Specifically, I ask the following three research questions:

1. What potential does the concept of shared values, when conceptualized using the new perspective, hold for sustainability transformation?
2. What potential does the procedure of externalization of shared values hold for sustainability transformation?
3. How can the identified potentials possibly contribute to sustainability transformation?

The empirical setting is allocated in Shanghai, China. The empirical operationalization of fieldwork is going to be realized through a well-establish method known as ‘WeValue InSitu’. It assists in the crystallization of shared values of naturally occurring groups (experience-based). Using a social constructive approach this work explores how the process of externalizing shared values within three different social group settings contributes to transformation (Chapter 2, Chapter 3, Chapter 4). I then synthesize the empirical learnings to provide my insights on the role of externalizing shared values in sustainability transformation (Chapter 5).

1.6 Research design

In this section, I introduce the research design of this work by first introducing the paradigm guiding the whole design. Then, I introduce the specific method WeValue InSitu process I employee for the operationalization of the concept of externalization and other data collection and analysis methods. Lastly, I provide details on the contexts of which the three empirical studies are carried.
1.6.1. Paradigm – social constructivism and qualitative approach

The nature of the main research question is explorative and requires obtaining insight in how people engage with their values. Ontologically speaking, emphasis is placed on the active construction of individuals’ own notions of reality and the existence of multiple realities (Lincoln & Guba, 1985; Schwandt, 1997). Epistemologically speaking, the subjective nature of knowledge and the active construction of social realities, need to be acknowledged. Hence a social constructivist methodology best suits the research conducted in this dissertation. Social constructivism asserts people construct their knowledge of the world through experiencing and reflecting (Honebein, 1996). More specifically, I take a social constructivist approach to form my initial understanding of the core concept, shared understanding being embedded and constructed by actors actively, and decide my exploratory research strategy to be of a qualitative nature. That is, I investigate shared values and engagement with shared values in social settings and pay attention to the process details of social interaction and communication.

By consciously taking the social constructivist paradigm, I let go of the idea that outcomes from this exploration can be generalized beyond the contexts in which the empirical cases are nested. Rather, “truth ultimately resides in the process, rather than in the outcome” (Slovic, 2020, p. 369). Instead, the outcomes might be utilized to inform future descriptive and explanatory research using quantitative or mixed methods that seek for representative, generalizable and transferrable insights, moreover, to inform the design to tackle wicked sustainable challenges.

There is a need to conduct values related research to be grounded and accurately identify the values of those who use a system, rather than applying ‘westernized’ values to other cultures (Alshehri et al., 2020). Likewise, Le Dantec et al. (2009, p. 1142) stated that “what is needed is more prescription in methods that inform value-centered research, and less prescription in the kinds of values”. Aligning with these advocations that a balance among multiple ways of being and knowing are more in comparing to sets of fixed universal values for everyone everywhere, this work focuses on understanding the role of the process – externalizing shared values – by allowing all types of values to be
included as long as people who hold these values find it is necessary. Therefore, this research chooses a new perspective to conceptualize values and focusses on the process of engaging with values instead of the content of values to explore, without choosing the ‘right’ values to work with. That is, acknowledging the diverse values emerging from the externalization without necessarily judging them.

1.6.2 Operationalization of the concept of externalization – WeValue InSitu process

With a vision of being pragmatic and empirical, this study places great importance on conducting fieldwork to gather insights from real-world data. The operationalization of externalization in SECI involves externalizing tacit knowledge of groups of people. It does not designate the knowledge as coming from individuals or the group, but embraces a continuum where individual and collective knowledge consistently interact. I therefore need a method which can externalize tacit knowledge of groups. In the context of this work, tacit knowledge refers to values. Besides, if I consistently use the same methodology to produce the values in my studies, I will be able to ensure that they are similar in nature and therefore comparable and therefore able to yield patterns and linkages with some underlying theoretical implications for typology of values in sustainability transformation.

One method which is established to do this is called the WeValue InSitu process (Odii et al., 2021). WeValue InSitu process facilitates the externalization of shared values within naturally occurring groups through intersubjective discussions. These groups naturally coalesce through socialization processes and shared experiences, embedding both individual values and shared values within their interactions. It enables me to engage with values in an authentic manner, devoid of pre-defined categories of values (e.g., Schwartz, 1992).

WeValue InSitu process has recently been proved capable of producing reliable intersubjectivity with groups of people (Burford et al., 2016; Burford et al., 2013; Harder et al., 2021). Supported by previous studies, highly interactive space, meaning dialogue and several types of collective learnings are facilitated within the process of WeValue. It is an approach with a well-defined specific practice-based process (Brigstocke et al., 2017; Moreno et al., 2017) including contextualization, photo
elicitation, individual triggering, collective discussion and shared values framework construction, often taking 2-3 hours for a group of 4-6 people. A group of people is facilitated to explore and discuss what is “important” to them in a given context which they all share some experience in WeValue InSitu. Shared new meanings are generated during the process along with individual learnings and transformations (Harder et al., 2021; Sethamo et al., 2019). WeValue was initially developed as a values-based approach to help communities of practice in the domain of Education for Sustainable Development (ESD), to articulate and develop their own values-based indicators for what they deem to be local sustainability (Burford et al., 2013; Podger et al., 2010). WeValue is an approach with a well-defined specific practice-based process (Brigstocke et al., 2017; Moreno et al., 2017).

**Figure 1.5** Schematic illustration of five stages in WeValue InSitu process.

Due to the method selection in satisfying the operationalization of externalization, I particularly work with in situ shared values of natural occurring groups. However, my analysis and discussion of shared values consider both the individual level and the collective level, given the assumption of ontological shift (individual knowledge to collective knowledge) implied by the theory. Meanwhile, I clarify my values embedded in this study as required in sustainability science development. I investigate and deal with existed naturally occurring values, with less intention on creating, nudging or manipulating values (although these may be the outcomes when making the existed shared
values explicit). I do not put critiques to those focusing more on shaping people’s values towards sustainability in emerging fields like inner dimension (e.g., Ayers et al., 2023; Grenni et al., 2020; Ives et al., 2020; Rosenberg, 2022) or pro-environmental behaviour change (e.g., Everard et al., 2016; Ives et al., 2023; Linder et al., 2018). It is just a different focus to explore potential of in situ shared values and the procedure of externalization, given no definite values-related solution for sustainability transformation is in place. Hopefully, the outcome of this thesis can provide useful insight into what kind of balance the research community should strive for when coming into this issue.

1.6.3 Data collection and analysis methods – interpretive case study, coding strategy and synthesis

The methods used to generate data align well with the social constructivist methodology described earlier. I adopted and adapted a case-study approach (Yin, 2011) and utilized interpretative research methods for data analysis in Case 1 and Case 2, while I employed a form of design research in Case 3. In interpretative research, case studies require further articulation as the cases are not clearly delineated in advance, in fact doing so could backfire as it closes potential pathways for their development. Haverland and Yanow (2012) pointed out that in interpretative case studies part of the challenge is to find out what the entity studied is a case of, rather than to speculate or specify that ahead of time. “Case” in interpretive research is often used as a synonym for “site” or “setting”, the (semi) bounded location that is considered to have potential for illustrating the focus of the researcher's interest, in which the research is carried out. This method selection provides for a dynamic dialogic relation between the selected theories and the empirical case studies (Rule & John, 2015) to provide the case studies with theoretical depth and rigor, but also to assure the approach designed is sufficiently rooted in both theory and practice, which fits the design research thinking as well. The three conceptualizations of shared values as a research object, a lens and a lever are a result of this interpretive loop.

Design research is adopted in the last case study. Design research here refers to “systematic inquiry whose goal is knowledge of, or in, the embodiment of configuration, composition, structure, purpose, value, and meaning in man-made things and systems” (Archer, 1981, p. 30).
It provides opportunity to learn uniquely and yields practical lessons for direct application with engagement of researchers (Edelson, 2002). Among several design methods developed in the past few decades, design research methodology (DRM) is adopted in this study to guide me through several stages of design, using the DRM-framework to provide a direction and identify the most likely theoretically and practically useful aspects in design research (Blessing & Chakrabarti, 2009). Iterations between stages often take place to refine the criteria and operationalize them to be measurable.

Due to the exploratory and potentially sensitive nature of the research, high ethical standards were followed throughout the whole research process with adequate information provided from the research before carrying out any research activity and consent forms signed by and collected from the participants. For data collection, audio recordings and photos on site are the main data resource accompanying with researcher’s field notes from informal observation and communications. Before going into analysis, all the audio recorded data was transcribed verbatim to enable the researchers to be acquainted with the data for further analysis (Riessman, 1993). The coding strategy consist of iterative open coding for themes exploration and thematic coding for thematic saturation. The final synthesis of three studies is guided by the selected theory and associated theoretical framework.

### 1.7 Thesis structure

In Chapter 1, I provide a general introduction on how this thesis is developed. I start by introducing the ongoing discourse in sustainability transformation and the current challenge concerning the complexity in working with the concept of values. After reviewing the current status, I propose a new perspective of viewing values as tacit knowledge, for an exploratory study. I then narrow it down to specific research questions and come up with a research design which is consisted by three empirical studies.

Now, I introduce briefly the three empirical case studies presented in Chapter 2, 3 and 4 which I developed and conducted through an interpretive way in collaboration with other researchers. For social science study, especially involving empirical aspect, it often requires a collaborative effort to ensure the data collection to go smoothly and the
data analysis to be valid. Besides researcher’s reflexivity, collective critical reflection can contribute to constructive thinking and may lead to useful insights.

I started with Case 1 being informed by Kenter et al. (2019) and Rawluk et al. (2019). It was implied in the reviews that values are often considered as an object. Combining the learning and evidence from this case, I further designed Case 2 in which values are considered as a lens. Based on positive confirmation from Case 2 of my premises that exploring the new perspective, that values can be seen as a tacit knowledge and engaged through SECI model, may shed some light on study of values for sustainability transformation, I carried out Case 3 and explored another potentially role of values being a lever for sustainability transformation.

In Chapter 2, I present Case 1. We considered a village where sustainability transformation associated with collective action which was based on responsibilities, not benefits. It involved several stakeholder groups in the village working in tandem to eventually develop a novel new way of working together. The inner dimension of sustainability transformation was therefore central to this unusual achievement, and the research question is: Will a consideration of the shared values involved yield a better understanding of how this sustainability transformation occurred? We carried out several WeValue InSitu workshops with the relevant groups (village leadership group, middle level management groups, frontline working groups) to externalize their shared values in this very context of sustainability transformation. Through analysis, we found relevant overlaps and complementarity of the shared values of each pair of groups working with each other, and along the chain linking them to each other. This adds our knowledge to understand the underlying mechanism of responsibility-driven collective action.

Following up, I present Case 2 in Chapter 3, in which I wish to study the climate change perceptions of residents in Shanghai, to better understand their likely sustainability transformation pathways to cope with CC. Since perceptions are based in people’s minds, this is a clearly inner dimension of sustainability transformation. We first externalize the shared values from groups of residents through WeValue InSitu workshops and then engage them in a focus group discussion
concerning the topic of climate change adaptation, which would naturally be considered through the lens of their shared values. A conceptual framework was produced by synthesizing results from the focus group discussions, projecting very relevant perceptions on climate change adaptation, along with their linkages to the underlying shared values (of the sustainability transformation inner dimension).

In Chapter 4, I present Case 3 where we were approached by an international school where the principal wished to trigger a sustainability transformation, i.e. to facilitate collaboration between two non-interacting groups who had distinctly different identities. This clearly centered on the inner dimension of sustainability transformation, and a values-based approach seemed suitable. We decided to build on the previous two cases, and i) externalize shared values of the groups separately; ii) have them use their shared values as a lens to reflect on those of the other group; iii) critically reflect on what this meant potential shared values could be for the new, aggregated, cross-cultural group. This last step would also allow a consideration of the converse-externalization process of the SECI model. The results were indeed that the groups developed a new deep awareness of their own shared values and those of the other groups, and through internalization were able to develop a new set of synthesized shared values which allowed them to collaborate effectively.

In Chapter 5, I provide a synthesis of all the empirical findings to generate insights on the potentials of externalization of shared values in promoting sustainability transformation, in regards to potentials from shared values and from the procedure of making shared values explicit, i.e. externalization. I also critically reflect on research limitations, and propose possible research agenda for future studies.
Understanding successful responsibility-driven collective action through a shared-values lens: role-values alignment and values-complementarities

Huang Yanyan\textsuperscript{a,b*}, Marie K. Harder\textsuperscript{b,c}, Juan M. Moreno\textsuperscript{c}, Liu Pingyang\textsuperscript{b,d}, Xue Yunshu\textsuperscript{b}, Ma Zongliang\textsuperscript{b},

\textsuperscript{a} Education and Learning Science (ELS), Wageningen School of Social Sciences, Wageningen University & Research, Netherlands
\textsuperscript{b} Department of Environmental Science and Engineering, Fudan University, 2005 Songhu Rd., Shanghai 200433 PR China;
\textsuperscript{c} Values and Sustainability Research Group, University of Brighton, Lewes Rd., E. Sussex, UK BN2 4GJ;
\textsuperscript{d} Center for Land and Resource Economics Studies, Fudan University, 2005 Songhu Rd., Shanghai 200433 PR China;

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Abstract

Rural environmental management in China is an increasingly important yet complex challenge due to a combination of socio-cultural and structural issues. In this context, the development of effective collective action has become more important. Collective action is usually associated with the distribution of benefits to the participants, but the more common need involves only responsibilities distribution, without predictable personal benefits. There is very little research on this type, but a recent investigation suggested three broad factors for success: strong leadership; localized strategic organizational approaches; and a core local group with ‘cooperative know-how’ and related expertise.

Here we study a village in China which successfully used collective action to distribute responsibilities for its environmental management. We use a values-based lens to explore underpinning dynamics, using an approach (WeValue InSitu) which allows local groups to crystalize and articulate their own concrete frameworks of shared values. Our findings show that there is considerable alignment between each group’s shared values and those useful to their working roles. There were also relevant overlapping values, (equality, integrity), and some complementary (aspired to by some groups and provided by others, like good communication, respect). These findings enrich research on collective action processes by providing more detail on underpinning drivers from human values. They contribute to community capacity-building studies, by providing rich detail on how ‘cooperative know-how’ and ‘spiral’ capacity-building processes might take place via interactions based on shared values.
2.1 Introduction

Rural village environmental management in China has been an increasingly important and complex challenge for many years due to a combination of socio-cultural, economic, ‘spatio-temporal’ and structural challenges. These include rural-to-urban migration, rural village depopulation due to rapid urbanisation, and ageing populations (Wang et al. 2016); economic stagnation, insufficient infrastructure, and a decrease in collectively-organised public services provision (Carr and Kefalas, 2009; Long et al., 2011; Kan, 2016; Liu and Li, 2017; Liu and Ravenscroft 2016; 2017); and a decline of human capital and local expertise for organisational and practical community development (Feuchtwang 1998; Liu et al. 2016a; 2016b). Such challenges are accentuated because rural environmental management is a type of regional public good (Mccarthy and Kilic, 2015), involving the interaction and distribution of benefits and responsibilities among multiple stakeholders (Liu & Ravenscroft 2019: 48). As such, ordinary strategies via state intervention through national central regulation and local implementation, or via mechanisms for outsourcing (Coase, 1960; Olson, 1965; Hardin,1968), have become too costly and ineffective to monitor and enforce (Du et al. 2019).

Theoretical and empirical research has shown how community-based collective action can act as an alternative and successful approach to tackle some rural environmental management challenges (Ostrom 1990; Agrawal 2001; Saunders 2014). In fact, there are many studies on the transdisciplinary application of collective action theory (Gram et al. 2019), and case studies showing how trust, leadership, cooperation, support, and the common pool of resources among villagers in rural settings have led to the distribution of material and pecuniary individual benefits and gains in the context of, for example, forestry community forests (Liu and Ravenscroft, 2016; Persson and Prowse, 2017), fisheries (Sultana and Abeyasekera, 2008) and irrigation systems (Takayama et al., 2018).

However, those studies have not explored much about why and how collective action takes place, or could be sustained in the long term. An exception is Liu and colleagues’ recent paper on responsibility-driven collective action (RDCA) (Liu et al. 2020). Those authors suggest that, unlike benefit-driven collective action, RDCA is much more difficult since...
pathways to rewards and material gains are usually less clear, prompting less participation. Studying a rural village in China, the authors found that successful RDCA was initiated and maintained with three essential conditions: the presence of strong leadership; the deployment of localised strategic organisational approaches; and the identification of a suitable core group of stakeholders with the required expertise, and know-how and common-interest in the wellbeing of the community (Ibid).

We found striking parallels with very recent studies about community collective action in other environmental fields. In a study across indigenous small-scale-fisheries across in Sri Lanka and the Artic, collective action enhancements included human agency capacity-building, involvement of community-based institutions, and local knowledge co-production (Galappaththi et al 2021). In Kenya, collective action on agri-environmental pollution issues was enhanced with participation influenced by social sanctions and norms of trust (Willy et al., 2021). In France, success with water pollution issues depended on local knowledge, trust and social capital (Amblard and Mann 2021), and other Institutional Design Principles (Ostrom, 1990; Cox et al., 2010). The parallels concern social capital, norms, trust, and community-based institutions. At this level of community, we feel the values of the groups must be playing a strong role (Persson 2015), an idea aligned with the “values-based” approach of O’Brien and Wolf (2010) which infers that variations in shared values provide proper explanation of the human response to environmental risk. This idea of prioritising objectives based on values-based community engagement feedback (UN-Habitat 2014) was reported enshrined in national guidance in a New Zealand study of coastal hazard (Lawrence et al 2018).

In this paper, we adopt a shared-values lens to explore these essential conditions in more depth, to understand what drives them and how they might be sustained in the long term. Following a review of relevant studies, and methodological descriptions, we present findings from using the WeValue InSitu approach, used for crystallization of the local shared values-in-action (Harder & Burford 2019; Harder et al. 2021). We examine the case of Xulian, a rural village awarded ‘Beautiful Village of Shanghai’ recognition from its rural vitalisation initiatives, through two levels of analysis. We discuss how this provides deeper understanding of the successful RDCA, and how these results might be generalised.
2.2 Background Literature

Collective action is the act of providing collective goods or services (Ostrom 2000; 2002). Community capacities for collective action are considered essential factors for successful transformation and sustainable development (Beard and Dasgupta, 2006). Collective action theory (CAT), was originally articulated by Olson in 1965 (1971) to examine why and how individuals mobilized to collaborate and act as part of a group despite often-opposing self-interests (Ostrom 2009). It provides a rich framework for analysing social dilemmas in collective action (Sandler 2015; De Marrais and Earle 2017). Within the context of environmental management, community-based collective action has proven to be successful in dealing with the management of rural public goods and common pool of resources (Ostrom, 1990; 1998; Agrawal, 2001; 2003; Saunders 2014). Examples include the sustainable management of collective forests (Liu and Ravenscroft, 2017; Persson and Prowse 2017), construction and maintenance of irrigation systems (Takayama et al., 2018), participatory planning in community-managed fisheries (Sultana and Abayasekera 2008), and optimization of collective construction land (Liu and Ravenscroft, 2017).

As Ostrom (1990; 1998) and others suggest, for successful collective action to take place and be maintained there needs to be a degree of community stability, effective governance mechanisms, and an abundance of local knowledge and technical know-how (Liu et al. 2020). Additionally, and particularly for the case of public goods such as rural environmental management, there needs to be a certain distribution of responsibilities. However, the latter can be challenging in the context of Chinese rural villages, where the undermining of traditional local governance mechanisms, eroded sense of belonging, and worsening socio-economic conditions, make fostering collective action very problematic (Ibid).

Community-based collective action can be understood as two types: benefit-driven, and responsibility-driven (Liu et al. 2020). While the former is usually motivated by tangible material gains for those involved, the latter involves distribution of responsibilities and obligations, often without immediate gains (Ibid). Several drivers and motivators of benefit-driven collective action have been identified.
beyond the obvious benefits. For example, strong leadership with capacity to organise enforcement mechanisms to ensure long-term collective action (Baldez 2002; Meinzen-Dick et al. 2002; Tooby et al. 2006; Glowacki and von Rueden 2015).

Responsibility-driven collective action (RDCA), however, is much more difficult to achieve and less-researched. Its benefits and costs are non-exclusive, which means that the costs of non-action are shared (i.e. declining public services) while the benefits of action are seldom pecuniary and do not accrue solely to those providing the action. For individuals, therefore, the best rational choice is to not participate.

Recent work by Liu and colleagues (Liu et al. 2020) has sought deeper understanding, by examining the case of Xulian, a rural village located near Shanghai which in 2017 gained the ‘Beautiful Village of Shanghai’ award in recognition of its rural vitalisation initiatives. They found that successful RDCA was initiated and maintained there through the combination of three essential conditions: the presence of strong leadership; the deployment of localised strategic organisational approaches; and the identification of a suitable core group of stakeholders (Ibid). While achieving and maintaining these conditions could be complex and difficult, in Xulian they did eventually lead to material benefits to the villagers. However, unlike benefit-driven collective action, the benefits and rewards which finally materialised were available to all villagers, regardless of their degree of participation. And they only became available after the distribution of responsibilities has been successfully undertaken. To better understand this situation, much more detailed information would be needed to determine the different agenda of the contributing village groups, and to explore how they were each separately and together connected to the processes of their Chinese rural vitalization ‘Beautiful Village Construction’ programme.

In this paper we do just that, using a shared-values lens to examine key stakeholder groups and the links between them. The WeValue InSitu approach is a scaffolding method which assists local groups to crystallize and articulate what they consider to be the most worthwhile, valuable and meaningful aspects of their own practice (Harder & Burford 2019). Participants then link their statements into a framework which typically indicates how they see their overall vision is supported by particular
traits of individuals, and ways of working (Moreno et al. 2020; Sethamo 2019; 2021a; 2021b). The advantage of using a method based on local values-based group perspectives is that it connects important dimensions of local life that would otherwise not be visible. Since these values-in-action systems are rooted in complex situational socio-cultural, economic, political constructs, and environmental realities (Hitlin and Piliavin 2004; Hitlin and Civettini 2017), then examination of local shared values allows us to better identify and make sense of the tangible and less-tangible aspects which dominate a given context (Brigstocke et al. 2017).

2.3 Methodology and Methods

This research explores a successful case of responsibility-driven collective action (RDCA) rural environmental management as identified by Liu and colleagues (Liu et al. 2020) in the Xulian village, to better understand the drivers behind the essential conditions identified. It does this with an in-depth interpretive case study focusing on the shared values of all the groups in the village found to be crucially involved. It does this with an in-depth interpretive case study focusing on the shared values of all the groups in the village found to be crucially involved. These are then considered for each group with respect to their separate group roles, and with respect to how the group values related to each other in the context of the activities needed for the collective action that took place.

2.3.1 Case study description

Xulian village is 60 km southwest of Shanghai. It was formed from the merging of two formerly-independent communities, with 1,602 villagers across 2.02 square kilometres in 631 households. The village has an elected Village Committee of six persons, and a Party Branch involving all Party members in the village led by their elected Party Secretary (who is then appointed by the Township Committee).

Xulian’s younger generation has migrated to cities: only the elderly, mothers, and children remain. This reflects a common in rural China (Du et al., 2019). In the past, Xulian has also faced significant environmental problems such as river encroachment and water pollution, illegal building development spoiling the quality of the landscape, sanitary waste dumping, and unregulated informal poultry farming. While the local government has historically invested
considerable funds on the construction of wastewater facilities, village cleaning, and waste disposal, these initiatives have often failed to remediate the situation due to the top-down decision-making at that time, the lack of villagers’ involvement and interest, and inadequate maintenance and monitoring systems (Liu et al. 2020). In 2014 a new village Secretary was appointed, and the situation began to change. Xulian then qualified to develop a long-term plan under the national Beautiful Village Construction Plan Program. It currently receives support from the local government and that of the villagers who recognize the potential benefits for all from an improved environmental management, with potential for further economic development opportunities such as tourism.

2.3.2 Data collection and analysis

A single-case study approach (Yin 2018) was developed consisting of three stages: 1) preliminary exploration through one-on-one interviews to map the key stakeholder groups; 2) data collection through the WeValue InSitu workshop process to produce crystalized statements of shared values-in-action of each group; and 3) thematic analysis to identify candidate links of the group values to their roles in the successful RDCA (Liu et al. 2020), and to the other stakeholder groups.

2.3.3 Overview of the WeValue InSitu Approach

The values-based elicitation approach used for this research is WeValue InSitu, which is an ethnographic-style approach providing scaffolding processes for participants to develop their own articulations of their tacit, practice-based knowledge into explicit statements. In practice the process appears as three activities resembling a focus group; photo-elicitation; group negotiation and sense-making; and framework building. But it actually is designed with complex orchestrations by the trained facilitator to take the group through micro-processes of Polanyi’s tacit-to-explicit translation (Odii et al. 2021), and to ensure high face validity (Harder et al. 2014).

The approach has been used to make tangible the shared values of local groups for: local indicators (Burford et al., 2013a; Odii et al., 2020; Sethamo et al., 2019), organizational change (Burford et al. 2016), strategic planning (Harder et al. 2014), sustainable development goals
(Burford et al. 2013a, 2013b; Miguel et al. 2016), building evaluation capacity (Burford et al. 2013a, 2013b; Podger et al. 2010; 2013; 2016), and identifying legacies of community projects (Hoover and Harder 2016; Brigstocke et al. 2017).

In all these domains, the WeValue InSitu approach assisted local people to better articulate their perspectives in their own way, but finally producing statements and a framework that can be comprehended by outsiders. The approach thus shows great promise for the research question here: to make tangible locally perceived processes within a development.

2.4 Results
2.4.1 Village Management structure – three layers

The study found that six main groups together formed a comprehensive structure for the village regeneration, and had complementary types of contributions to it (Figure 2.1). They included the formal leading group (the Village Committee (VC)), three long-term functional groups (Waste Sorting (WS), Women Federation (WF), and Elderly Care (EC)), and two voluntary supporting groups (the Old Party member (OP), and Party Volunteer (PV)).

The VC, OP and PV groups generally provide different types of leadership in the village. All three were involved in and actively contributed to most of the various activities for the Beautiful Village project, which caused a strengthening of their collaboration. They jointly mobilized villagers to collectively cooperate on improving the village environment, for example by dismantling illegal housing, controlling informal poultry breeding and remediating the village river. The collaboration between these three groups remained after that project, and became the source of a long-term strategy for ongoing village development. Two of the pre-existing groups, Women Federation (WF) and Elderly Care (EC), were not core agents of change to the Beautiful Village project, but they were found to be essential and necessary agents during its implementation. The Waste Sorting (WS) did not exist previously: it was formed because of the project (and because of another new municipal policy: residential waste sorting). The consistently conscientious work of these three groups was considered responsible for keeping many village operations stable in the long term.
2.4.2 Crystallizing drivers of key RDCA agent groups – Alignment of role and shared-values

Our primary data reveals in-depth contextualised information on each group, which we analysed to understand them better. During the WeValue InSitu workshop process, the shared values considered important to participants are crystallized into statements. One sample is shown in Figure 2.2. The workshop comprises a series of scaffolding processes to facilitate participants to identify and then articulate what is ‘meaningful, worthwhile and valuable’ to their work together. Tacit knowledge is emphasised, by focusing on shared experiences, and then taken through tacit-to explicit translation (Odii et al. 2021).

The participants organise their shared-values statements into shared values frameworks. Historically we have found these are commonly arranged in three broad layers, with ‘strategic vision and goals’ at the top, ‘foundational qualities that individuals bring to the group’ at the
bottom, linked by their ‘ways of working’. When groups do not have enough time, the researchers actively suggest this common structure, and that is the method used in this work, except for the VC group.

**Village Committee Group – VC**

The VC group structured their shared values framework around five main clusters: foundations, working attitudes, methods of working, working atmosphere, and goals. Details are shown in Figure 2.2 – which we encourage readers to inspect to aid their understanding of the rest of the paper.

The official role of a VC is usually left vaguely defined, providing flexibility for higher authority to exercise leadership in a localized way in order to optimise the progress described by central policy documents, which are themselves usually worded broadly. However, their village leadership responsibility requires a VC role to identify relevant pathways for village development by identifying and utilizing all potential resources at their disposal.

Inspecting the shared values frameworks in this context, it shows these leadership roles and style are reflected in their current practices. At the base of their frameworks they indicate their efforts to lead through example themselves, first, such as in the removal of unauthorized parts of housing constructions. Serving people and belief in the power of collective collaboration are at the heart of the foundations for their leadership strategy, in which they try to mobilize all the villagers to participate in and contribute their voices to development processes. Their inclusive attitude and respect for differences is seen in their persistent work on persuading, not forcing, the villagers to participate. Although this method of working can lead to misunderstandings, they choose to be positive and to learn from them. Their hard-working and passionate spirit is useful to overcome the significant effort and time needed in this process. The VC operationalized their inclusive approach by involving the OP group, as that kind of party members able to create a ‘bridge and platform’ between the VC leadership and the remaining villagers, creating a channel for voices from different perspectives to come through, and to keep the conversations honest and transparent. Their acknowledgement of the need to be flexible about the working methods and mistakes of others, along with their shameless asking for
clarification, enable the VC, and also the OP, to grow together and build up trust in each other and in the wider community. Their stated vision of being humble and building up deep friendships at work are in line with the inclusiveness and voluntary participation they try to promote and achieve in the whole village. Eventually, the villagers developed a genuine desire to be competitive with other villages for government titles and awards, and for the village development generally - which is also the role the VC are given. Overall, the VC can be seen to fulfil their role successfully not only to achieve the assigned tasks given to them by higher authorities, but also while satisfying the deeper shared values they have.

Figure 2.2 The shared values framework of Village Committee. Each statement starts with “It is important to us that…”.

The Old Party Member Group – OP

The shared values framework of the OP group shows a structure of two overarching guiding principles and visions, and three interrelated pillars of working practice. Their two main guiding principles, “be the leaders who could truly convince the villagers”, and to, “contribute the residual heat (余热, yúrè) of their life to construct the beautiful village”, speak to the seniority of the group members of this group. All of them are over
80 years old and who wish to contribute the last years of their life and capacity to serving the people of Xulian village.

The OP’s framework provides insights to their motivations and achievements throughout the Beautiful Village programme implementation. The OP plays a vital role in all village matters where active participation from villagers is needed. Their leadership style is not driven by material benefit or desire, but rather by genuine care for their village and a willingness to persuade others to participate. They do this through continuous and persuasive interpersonal communication methods, open and transparent working practices, and leading by example through self-motivation and hard work. In fact, it is their self-motivation to contribute to the village by utilizing their ‘residual heat’ (余热, yúrè) which underpins their role of leading a volunteer group and deeply serving the village. This leadership approach to involve others is authentic, trusted and highly favoured by the VC group who works alongside them to bridge differences and improve communication with other villagers whenever participation is required.

*Party Volunteers Working Group – PV*

In their shared values framework, PV working group’s overall vision emphasized striving for excellence, and viewing their work as service to guide and teach villagers and society as a whole. This was laid on a foundation of shared individual values, such as keeping a humble attitude always.

The PV are led by the older cohort in the OP, and join together as a voluntary service group for villagers, putting in efforts in their spare time. They provided a ‘drop-in service’ by having a manned designated place where villagers could drop-in, which they use as a ‘bridge and platform’ to connect the villagers with the leadership in a bottom-up and top-down exchange. Through this drop-in service, the PV receives and records villagers’ opinions, ideas, complaints, and problems, and seeks to solve issues as much as they can, but referring complex, unsolved ones upwards to the OP and the VC. At the same time, the Party Volunteers receive top-down information and knowledge regarding policy concepts and government policies, communicating them to the villagers whenever appropriate to help them understand, and to identify potential benefits and impacts. This dual bottom-up and top-down
process is complemented by the PV’s ongoing monitoring and daily inspections around the village to ensure effectiveness and compliance to rules in their day-to-day activities, ensuring that nobody becomes a free-rider on the backs of the rest of the community. The PV considers these activities more as an opportunity to serve and help other villagers than one of enforcing rules. Another interesting overlap of the PV’s role and shared values concerns equality and voice: they have regular meetings for them to share and discuss information about village affairs, and they also meet and participate with the village Committee sometimes. This involvement in some decision-making empowers them and they feel their voice is valued by the leadership. The PV’s work thus can directly contribute to the Beautiful Village revitalization programme and also fits the group’s shared-values vision to make their village ‘better and better’.

Waste Sorting Working Group – WS

The shared values framework of the WS group shows prompt problem-solving as a key foundation, and transparency of communication saturating the two pathways leading to leaders living their values.

The WS was newly formed for the Beautiful Village programme and quickly became very effective. It is thus not surprising that their work practices reflect clearly several of the shared values statements in their framework (such as the importance to them of flexible working patterns, and open and transparent decision-making): the same values would have led them to join the group recently. Notably, the WS draw ‘spiritual’ satisfaction and life fulfilment from their role in the village and their specific tasks under the supervision of the VC.

Women’s Federation Working Group – WF

The structure of shared values framework of the WF working group has much emphasis on fairness, diversity, inclusion, and common good. When unfair or unexpected events happen, the WF wants open engagement with leaders, to resolve tensions. Transparency and consistency are valued throughout.

Although the WF does not have a direct formal role in the Beautiful Village revitalisation programme, their role is generally of great
importance to keep the village running and developing sustainably in the long-term. The group is focused on the competitiveness of the villages against others competing for titles such as Beautiful Village, and supported by their long-term mindset and desire for financial transparency, fit very well their role. Their normal work involves broad contact with almost all the families in the village, and sometimes deep interactions with particular villagers via personal conversations and exchanges. Inclusive cooperation and understanding of sacrifice from villagers are thus relevant to their role: many of the villages will feel they lose out by complying with the requirements of the Beautiful Village program such as losing their informal chicken huts, or garden sheds. At the same time, leaders should protect this village atmosphere by creating an atmosphere of fairness and justice, through living up to their principles. Several statements regarding attitude and conduct in daily interactions also indicated the tendency of the WF of operating with long-term frames of mind.

Elderly Care Working Group – EC

The shared values framework of the EC working group (Figure 2.2) emphasises chances for the village to compete for extra funding. They value openness, chances for clarification, and denouncing of injustices: inclusivity and consistency of words and actions throughout. Work-life balance is an ultimate goal.

The EC was originally formed by the VC to hire retired female villagers to work as carers of the elderly. They function as a social benefit service, financially supported by the government. Their role enables them to have income before they officially receive their national pension, providing their top goal of having a long-term work-life balance. Their workload is relatively high, labour-intensive, and frequently involving conflicts. It seems that these challenges of their role are overcome by their shared values of hard work and action against injustice and unfairness.

2.4.3 Considerations of linkages between key stakeholder groups – Complementarities of shared-values

Our thematic open-coding analysis of the shared values frameworks of the six village stakeholder groups revealed several overlaps between
their values-in-action regardless of them operating at leadership level or functional group voluntary level. Although the statements in the frameworks were the subject of the analysis, linked excerpts from the discussions relating to each were referred to, to maintain integrity of the in-situ meaning. In total, our analysis identified 41 grounded themes of which seven were highly common (see Table 2.1). Of these, ‘leadership-driven management’ and ‘village development and progress’ were shared by all six groups, while some overarching goals and working methodologies such as ‘sense of equality’, ‘teamwork’, ‘responsibility and commitment’, ‘mutual respect’ and ‘being humble’ were shared by most groups.

The strong degree of overlap across these themes suggested they might have played a part in helping the groups work together in the responsibility-driven collective action. The associated excerpts from the workshop transcripts for each theme were re-examined, to help understand and actualise their connections. This analysis is given below and Figure 2.3 shows an intricate mapping of the links found.
Table 2.1 Grounded themes from values-in-action from across all 6 stakeholder groups

<table>
<thead>
<tr>
<th>Theme</th>
<th>VC</th>
<th>OP</th>
<th>PV</th>
<th>WF</th>
<th>WS</th>
<th>EC</th>
<th>Groups Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership-driven management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>6</td>
</tr>
<tr>
<td>Development and progress</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>6</td>
</tr>
<tr>
<td>Sense of equality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
<td>5</td>
</tr>
<tr>
<td>Teamwork</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>5</td>
</tr>
<tr>
<td>Responsibility and commitment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>√</td>
<td>5</td>
</tr>
<tr>
<td>Mutual respect</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
<td>5</td>
</tr>
<tr>
<td>Being humble</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
<td>5</td>
</tr>
</tbody>
</table>

Leadership-driven management

The theme most mentioned, and mentioned by all groups, concerns leadership, including ‘leadership takes the lead’ as one aspect and ‘leadership listens to all’ as another.

For the VC and OP groups, statements concerning ‘leaders live their principles’ and ‘leaders take the lead by example’ appeared to be placed in the bottom of their frameworks as a foundation to carry out their work. The OP group also stated ‘to be a convincing leader’ as a vision statement. Noticeably, these self-requirements complement very well the desires from other groups. Conversely, groups that are managed by others (e.g., WF, EC or WS) shared similar statements often found near the top of their values frameworks, which show their desire for a good leadership.

VC-4: We have to do it ourselves first, to establish the example (behaviour). It is for sure that we need to lead: it is impossible to require others to do so if we don’t do first.

VC-6: If there is any illegal building in my house/property, I must remove it myself first, and then tell other villagers to remove theirs.

WF-5: I find leaders must do their best and set a good example, otherwise how could you possibly educate other villagers? For
example, I have planted some cucumbers (which is not permitted) that I have to remove. I feel sad about it but I have to do so because I am doing a liaison job for women-issue related work, thus I have to take the lead and be a good role model.

EC-2: Leaders are supposed to do good things for villagers, to live their principals, to take the lead. ... (if they don’t live their principals) then the whole thing is not fair or equal.

WS-1: For whatever kind of work or requirements, the leaders must go first: only after that we will follow.

When it comes to ‘leaders listen to all’, the placement of the statements changed. The OP group mentioned this as one of their goals, while the EC, PV, WF groups had related statements placed in the upper parts of their frameworks as well. The intentions of hearing and being heard complemented each other in this village, notwithstanding some informal comments that it is not yet well practiced. The ‘lack of recognition’ aspect from the VC is complemented by the role of the OP, who is actually allocated by VC to be the communication channel between the leadership and the villagers.

OP-1: I mean it is all about dialytic, other people may be wrong, but there must be something right in there.

OP-2: We are supposed to do so (to hear from other people), actually our work is also main listening to different voices and ideas.

PV-2: We are led by the leaders for sure, but we are also a team, of which we are all owners. If we are correct, then the leaders need to listen to us, they also make mistakes.

EC-4: People in higher position don’t see (our suggestions). Sometimes, suggestions from the villagers are good and right, thus should be considered and heard.

EC-2: Simply say, our opinions need to be recognized.
Development and progress

‘Development and progress’ was the other theme shared by all 6 groups. Much consensus was reached by all groups that they expect future village development construction to make it ‘better and better’. All welcomed the idea of being a competitive village, competing for more government funds, except the OP.

Statements relating to ‘development and progress’ were mainly allocated as overarching visions in the managerial groups (VC and OP), and groups WF and WS, while EC had it as a foundation and PV has it both as a vision and a foundation. The fact that the managerial groups share this vision and move towards it, can in turn reinforce the expected foundation of the EC, for which is an overarching vision. For the PV group, which acts as bridge, this theme relates to all groups involved, strengthening the whole village structure.

PV-4: Because we have 25 villages in this area, we must get the 1st (award) and this is competition. If we get the first (award), then we get all advantages (for future development).

PV-3: We have to compete (with other villages) and be better than them, so that our villagers can see that we are taking the lead.

EC-2 & EC-3: We work for this village, so we always hope the best for it and we can have our job for a long time.

VC-4: There are pacesetters in front and chasers behind, without such spirit how can we move forward? We must have such mindset.

Sense of equality

Equality is shared by most groups (expect WS): it is mentioned from different angles in terms of social class, stakeholder involvement, voice channel and financial conditions. It was articulated by functional groups (EC, WF, WS) to imply no difference among people and all need to be treated equally. Although there are different responsibilities, roles and divisions of labour in the six groups, they all value that leaders are not
superior to non-leaders as individuals, especially when it comes to expressing opinions. It is important that everyone’s voice has a channel to be spoken, heard, and considered. This theme was also raised in relation to the importance of financial transparency in the EC group. In fact, they mentioned ‘sense of equality’ in 5 different statements and were the only group to place the theme at the bottom of their framework to emphasize the importance of equal position and equal communication – perhaps owed to the status of their work which is commonly regarded low level labour. Noticeably, they interpreted leaders doing the things they talked about, as a true and visible way to show equality in practice.

**EC-4:** As villagers, we are all following the leaders. They need to have high awareness of leadership. ... For example, if he doesn’t remove the illegal buildings in his area, we won’t do it! ... This shows equality and if they don’t make us feel we are equal, then we won’t cooperate either.

**EC-3:** (Equality) means we both need to stand in other’s shoes to think (when communicate).

While the expectations of equality raised by the functional groups are clear, the managerial groups who are generally held accountable for creating that atmosphere of equality state it differently - that it is important that they stay ‘approachable’ to everyone. The VC considers it their responsibility to ensure channels for voice exist, and thus have the initiative of the OP (and even PV) to act as a ‘bridge’ between them and the people, and to enhance this voice channel. This mechanism of communication between the leaders and the villagers has been established mostly to ensure participation and voice, but through the lens of the shared values analysis we can see it is interpreted more as ‘sense of equality’ by other groups. The end result is more complementarity between groups, which in turn supports village collaboration on the responsibilities to be shouldered in the Beautiful Village program.

**VC-8:** Take the instance of our group meeting, everyone expresses his/her opinions. It’s not like we only listen to whoever is on the higher position.
**OP-2:** (Used to be a cadre...) means that you are not superior and on a higher class because of being a leader.

**PV-2:** We can all understand each other through communication and dialogue, we are all equal, even in front of the leaders, leaders are no superior than us.

**Teamwork**

Shared values relating to teamwork were common to all groups except EC. It was expressed more as a belief in collective power versus individual effort, and that without collective action future development would be hard. While the VC, PV and WF considered it foundational, the WS and OP considered it a support element. Interestingly, the OP group has one statement emphasising belief in collective power, and another emphasising its willingness to actively unite and connect with the villagers. The OP not only aligns with the others but also bridges the gap between belief and corresponding action, by valuing the actual behaviour of standing with its own people.

**VC-5:** No one can achieve anyone alone, (we) must have team spirit.

**OP-2:** To be a good leader, (we) need to go into the people and listen to them, cannot break away from them.

**OP-3:** I will give you an example of our VC. Our old VC was split internally into two factions, but it changed now, our new secretary leads us to unite and we are now working together.

**Responsibility and commitment**

The theme of responsibility and commitment was shared by all groups except EC. Most emphasised keeping consistent their words and deeds, as supporting elements in their frameworks. All related statements were placed in the middle part of the frameworks as a supporting element. It is a theme which especially unites the village not only because it is universal, but because the leaders link it to their own ‘actions’, which reinforces equality.
WF-4: Commitment is necessary. People should be honest with integrity when they talk, cannot be without it.

WS-2: Including the leaders, they need to keep the consistency, so do we. ... Like the projects we did for the Beautiful Village construction, the leaders took the lead and we just cannot say we don’t want to follow. This is a standard of life.

Mutual respect

All groups (except WS) mentioned the importance of mutual respect as a supporting element, mainly with respect to when differences exist. The EC framed this theme in terms of recognition and respect from the people whom they serve (the elderly).

PV-2: Because we all have different mindsets, so different ideas should be able to be kept and that is alright.

WF-4: (We should) respect ourselves and others. ... To respect the differences means people are sure different in terms of ideas, vision and what they say, and say nothing negative about them means respect them.

EC-3: My work now actually is in the service industry, to be recognized by my clients surely makes me happy.

EC-2: At the very least, (they) need to respect us.

Being humble

This theme was mentioned by most groups (except WS), in the middle of frameworks, and using very similar phrasing. However, the VC, who are the leaders, put humility as a goal. The workshop discussions showed that having an humble attitude was highly valued for different circumstances.

VC-4: As a leader, my education level is not so high and my knowledge is very limited. Even though I am on this position, I should learn from the young members who graduated from universities. For example, I always ask them to teach me when it comes to type on laptop.
VC-5: Last year I was allocated a new position and was so ignorant about many stuff. So I went to learn from a retired member who has been on that position for over 30 years.

EC-2: I am being very humble I think. I don’t praise myself when I fulfilled something well, it’s what I need to do.

PV-3: As volunteers, we must be humble when interact with the villagers, otherwise people won’t cooperate and give you recognition. ... Also we need to be patient to avoid conflicts. ... We feel aggrieved very often but to get the work done we need to show positive attitude.
**Figure 2.3** Alignment and complementarity of shared values-in-action across the six, key, stakeholder groups. Themes with continuous lined arrows refer to those themes present across all groups, while dotted ones refer to those which were commonly shared by most groups with the exemption of the WS and EC groups.
2.5 Discussion

The analyses of the shared values of the six participant stakeholder groups indicates two overarching points. First, that the shared values of each group are surprisingly aligned with what is needed for their roles. This may sound a truism, but other studies using the WeValue InSitu crystallisation approach do not show such role-values integrity: for example, village councils which do not have leadership qualities as shared values (Odii et al. 2020; Sethamo et al. 2019). Some Xulian data indirectly suggests that some of this alignment might be because of the Beautiful Village project, and thus a desirable aspect of the collective action process: this possibility needs further investigation. The second point indicated by the data is that there are many shared values across the groups, suggesting they have some strong values alignments (humility, teamwork, commitment). And sometimes they have a certain complementarity, in that the values goals of one are the foundations of another: they thus provide some ‘values satisfaction’ to each other in the way they interface.

There have been several studies on benefit-driven collective action but almost none on responsibility-driven collective action, nor on how either are influenced by different underlying drivers other than eventual personal gains. A rare RDCA study by Liu and colleagues (2020) identified three underlying conditions supporting this process, and here we discuss insights offered through our use of shared-values lens.

The first condition identified in Liu et al. (2020) for successful RDCA was the presence of strong leadership. Our shared-values lens analysis expands on this showing that in practice leaders were considered strong because they led by example, demonstrated mutual respect and humility, and because they actively created spaces for meaningful participation where villagers could voice their concerns and ideas.

The second condition was the deployment of localised strategic organisational approaches, and our analysis supports this concept strongly, because we found that each group’s core shared values were very aligned to those needed in their role in the collective action. This alignment might not have been present: the fact that it was noteworthy. For example, most groups highlighted that both in their work and day-to-day activities as villagers it was important to them to have a sense of
equality, responsibility and commitment, mutual respect and humility, and these shared values-in-action were noted in examples shared of motivation and commitment.

The third condition was the identification of a suitable core group of stakeholders with required expertise, know-how and concern for community wellbeing. Our values-based analysis suggests such a core group in the Party Volunteer working group, PV, which acted as a ‘bridge and platform’ between the two managerial-leadership groups (VC, OP), and the more-functional groups (WF, EC, WS). Because its own shared values created strong bridges across these types of groups, the PV group worked as a sort of catalyst for villagers to communicate regulations and monitor compliance for effectiveness in day-to-day activities and working tasks in the Beautiful Village programme. They provided a physical space (drop-in service) for villagers to voice opinions and concerns, and invested time and effort to share their local expertise and interest in the wellbeing of the village with emphasis on mutual respect, humble advice, mediation, and open and honest decision-making processes.

In sum, our findings suggest that the drivers behind the conditions for successful RDCA can be understood more deeply via a lens of shared values-in-action. It provides participants’ perspectives and reflections on how the process of collective action takes place through stakeholders’ shared values-in-action, and may be of relevance to research on collective action theory more generally.

Further, our findings have resonance with research on rural knowledge exchange. Tregear and Cooper (2016) suggest the presence of harmonious relations and deep, frequent interactions where common interests, goals, and objectives are prevalent, do not mean the absence of tensions or differences among the actors involved in processes of rural exchange and collaboration (Ibid). Rather, rural knowledge exchange involves processes of interactions and negotiations whereby social capital – in the form of social interactions, tacit learning, experiential knowledge, and technical expertise – is harmoniously embedded and aligned through the existence of key actors’ social skills and abilities, as well as ‘cooperative know-how’. The concept of ‘cooperative know-how’ is described by Tregear and Cooper as encompassing a values-based mindset and orientation, and representing...
a deep appreciation of what the collaboration does for the stakeholders involved and their commitment. It relates to experiences and shared tacit knowledge, manifesting as “a willingness to see beyond short-term self-interest, and to act for the long term – and collective – good” (Ibid). Liu et al. (2020) highlighted that the existence of harmonious relations and shared common goals are not always pre-requisites for success in rural knowledge exchange and collaborations and processes of successful RDCA. However, the work of Tregear and Cooper (2016) indicates that where those conditions do exist, the presence of a suitable core group (Liu et al. 2020) or key actors’ skilled-based social capital, and cooperative know-how involving ‘collectively-oriented values’ common to group or community, may be important facilitative features.

In our study we show how these ‘facilitative features’ interact, echoing what Moreno and colleagues’ research on the process of community capacity-building term as a ‘spiral process of growth and cross-strengthening’ that takes places at different levels simultaneously through an iterative and non-linear process “whereby individuals, institutions, and the community grow a little in some ways and then further growth at each level continues” (Moreno et al. 2017). While in this paper we do not specifically examine processes of rural knowledge exchange or community capacity-building, our study provides those areas of research by providing rich detail on how such ‘cooperative know-how’ (Tregear & Cooper 2016) and ‘spiral process’ (Moreno et al. 2017) might take place in the context of collective action through the interplay and complementarity of the shared values of each of the stakeholder groups. This was observed, for instance, in the ‘bridge and platform’ role played by the PV group where their commitment and knowledge helped the leadership communicate policy more efficiently, while also monitor compliance and provide space for voice among residents. Symbiotically, the space provided by the VC to the PV to engage actively in some decision-making processes was a source of motivation them, and a chance to feel ‘more equal’.

Future research could involve analysis of what stakeholder learning occurred, and what actual capacities were developed while the collective action grew and blossomed. An interesting question is, could the successful collective action have been predicted (in that context) from the approach of the new Secretary irrespective of shared values, or was
The subtle nurturing of underpinning shared values which set the stage.

2.6 Conclusion

In this study we examined a rarely-reported case of successful responsibility-driven collective action in Xulian village near Shanghai, China. Using a values-based approach known as WeValue in Situ, we made tangible the shared values-in-action of six key stakeholder groups and found that each set had strong overlap with qualities needed for the group roles, which is unusual. It is not clear whether this was the case pre-RDCA, or it evolved during it: those dynamics could be investigated in future studies.

We found several shared values prevalent across the groups, indicating widespread alignment of qualities relevant to the success of RDCA, such as equity of responsibility; consistency of actions and words. There were also values that some groups aspired to which were provided by others, or bridged by others, in ways commiserate with their roles in the RDCA, such as leadership, or good communication. This result suggests that a kind of complementarity of shared values may be a factor consider for successful RDCA, and the way that groups with related shared values interface.

The use of a values-based lens to view the dynamics of those groups provided unexpected insights towards community capacity-building and development studies more generally, as they show rich linkages between the less-tangible drivers from human values, to the capacity-building processes, emotions, and resources driving the success of RDCA.

Lastly, the values-based approach used in this study, WeValue In-Situ has opened a door to viewing development activities in terms of underpinning human shared values, and this has already been shown to be useful for understanding the successful RDCA in this case. Future studies can make more use of this approach to map out, identify, understand and hopefully learn how to prescribe elements of programs which nurture shared values which contribute towards community development.
CHAPTER 3
Perceptions of climate change impacts on city life in Shanghai: through the lens of shared values

Yanyan Huang\textsuperscript{a,b}, Wenhao Wu\textsuperscript{b}, Yunshu Xue\textsuperscript{b}, Marie K. Harder\textsuperscript{b,c}\textsuperscript{*}

\textsuperscript{a} Education and Learning Science (ELS), Wageningen School of Social Sciences, Wageningen University & Research, Netherlands
\textsuperscript{b} Department of Environmental Science and Engineering, Fudan University, 2005 Songhu Rd., Shanghai 200433 PR China;
\textsuperscript{c} Values and Sustainability Research Group, University of Brighton, Lewes Rd., E. Sussex, UK BN2 4GJ;

Abstract

Cities worldwide are putting policies in place to combat impacts of climate change, but it has been established that in order to engender public support, the policies need to resonate with local perceptions and values. However, these are notoriously difficult to obtain in an authentic version: local values require some interpretation by the researchers trying to define them, but this modifies them unacceptably. In this work we use a transdisciplinary perspective, by holding fast to the need for well-defined outcomes of perceptions but by obtaining them via a humanities-based process, named WeValue InSitu, of tacit-to-explicit crystallization of shared values-in-action. Here we innovate and demonstrate the approach of following that crystallization process immediately with a carefully-designed focus group discussion about climate change impacts on their life in the city. The result is a set of clear articulations with respect to life values, such that nuances and linkages between perceptions and values are retained, and across groups is a saturation and consistency that reflects the city (Shanghai) context. We find a conceptual model emerges for the residents: a) they have surprising awareness of climate change but did not think it’s impacts so severe or urgent; b) some impacts concern them but they consider Shanghai to be the best place to live, because of its resources and good governance; c) they consider responsibility to be jointly individual and collective with the government; d) they expect clear and transparent communication from the government for collective action. These research outcomes are significant because there is currently no other efficient method to produce such useful results which are also demonstrably authentic: results which indicate not only future policy pathways but the current situation in detail. As the WeValue InSitu method is already shown to be transferable, this approach should now be systematically applied in comparative studies in different cities to determine its scalability, and to academic fields with similar research gaps such as ecosystem services and urban design.
3.1 Introduction

Cities now contain the majority of the world’s population (United Nations, 2018), and their governments are faced with the pragmatics of increasingly clear challenges from climate change impacts, in terms of heat waves, water system disturbances, flood risks, extreme weather and storm events (Revi et al., 2014), and insecurities in energy, food and water supplies. The decisions made by city governments include tough choices of budget priorities and careful navigation of pathways that may have scientific or policy logic but little public support. The acceptance of climate-related policies hinges on what local people perceive to be important and valuable to their lives; in other words, their values (Corner et al., 2014; O’Brien & Wolf, 2010; Wolf et al., 2013). Values act as a filter through which people interpret information about climate change in various pathways, dynamically interact with their beliefs in climate change, and shape their risk perceptions (Persson et al., 2015). Policy links to local values are thought to be crucial for public engagement in some climate actions (Sethamo et al., 2019). For cities to be considered ‘liveable’ by local inhabitants, policies need to be designed with knowledge of what ‘liveable’ means to them, but methods to obtain authentic articulations of localized values and perceptions are reported lacking. Here a transdisciplinary approach is used to first assist groups to ‘crystallize’ tacit-to-explicit translations of their shared values-in-action, and with that lens respond to questions about climate change perceptions, producing a conceptual model that is useful for policy design.

3.2 Background and theory

Researchers have adopted a variety of value-based approach to explore public perceptions and encourage public engagement on climate change. Several psychology-based values frameworks have been utilized to operationalize and conceptualize the subjective dimension of climate change and how it shapes their climate change perceptions and support for climate change policies. For example, many studies adopt the values framework of Schwartz (1994), which uses two dimensions of self-enhancement and self-transcendence. Fully externally-defined values can be assessed by questionnaires (Minelgaite & Liobikiene, 2021; Poortinga et al., 2011; Punzo et al., 2019; Steynor et al., 2021) which use a Likert-type scale for analysis, and assume the respondents’
interpretation of the words is compatible with the academics. The participants are offered only closed value items to respond to, precluding localized interpretations: the approach may thus lack good face validity.

Other value-based approaches emphasize the subjective and intangible dimensions of climate change that are important to individuals and cultures, acknowledging they are hard to assess or measure by objective assessment tools (O'Brien & Wolf, 2010). Wolf et al., 2013 used an approach that designed open questions about what participants value most about their life and community: instead of defining the values in advance, they chose to assign the values labels retrospectively into their own framework, after data collection. While some of the labels were directly mentioned by participants, some were brought in and imposed from the researchers, which weakens the face validity of the results – i.e., the extent to which the participants would agree with the acceptability of the interpretations assigned. Although expert researcher interpretation of qualitative data has its place, this is an example where the authors wanted authentic perceptions; chose a grounded paradigm for data collection (using open questions); but had to compromise in their analysis (externally imposed interpretations).

It is expected to be difficult for participants to articulate their own inner values through direct interviewing, and the alternative in-depth and long-term approaches in ethnography and anthropology involve great amounts of time and thus cost. In the field of Ecosystem Services some innovations to yield authentic perceptions via deep engagement were reported to instead produce significant bias - actually altering local perspectives while trying to capture them (Allen et al., 2021). Where researchers want a disruptive or deliberative discussion that could be useful, but in those studies, and in this one, the goal is to understand local in-situ perceptions, with minimal modification. There is demand by researchers and policy-makers to obtain valid, comprehensive and authentic statements of values from the public, and their links to climate change perceptions, but a pathway to this has not yet been established.

China is a country containing around 20% of the world’s population, and with human values which are likely to have significant differences in emphasis than other countries. Yet in China, few studies of perceptions of climate change adopt any kind of values-based approach. Current
studies at the macro level are mainly part of the larger cross-national surveys conducted by international organizations in the years before and after 2010, therefore data are quite outdated and typically related to perceptions of international issues (Wang & Zhou, 2020). The China Center for Climate Change (4C) conducted a national survey via telephone, both in 2012 and 2017, investigating public awareness, attitudes of climate change, and intentions to participate in climate policies in both urban and rural areas, which provided a more comprehensive picture (Wang et al., 2017). However, the results from different surveys are significantly different - even contradictory (Yang et al., 2021). At the micro level, there are increasing numbers of small-scale in-depth studies using qualitative methods, but few take “human values” into consideration, and those that do are geographically limited to rural areas that are prone to experience climate change, and to people who are particularly vulnerable. There is a lack of studies in cities, especially mega-cities like Shanghai (Huang et al., 2017; Wang, 2017; Zhou & Yu, 2009). In addition, these previous studies are not rich enough to indicate any mechanisms behind public climate change perception, or policy preferences.

In this paper, the way that people in a Chinese urban area - Shanghai - perceive climate change through the lens of their own local shared values, was explored. This was achieved by taking groups of people with a common background through the WeValue InSitu process, which provided a scaffolding process for them to crystallize or translate their shared tacit, values-in-action, into a concise set of their own explicit statements of what is important to them in their work together. The process also assisted participants to arrange those statements to show the links between them, creating a ‘framework’ of their shared values, and took 2-3 hours for a group of 4-6 people. An illustrative example is shown in Figure 3.1. In some studies, these statements have been shown to be so explicit as to be useful as proto-indicators for direct use in decision-making tools such as sustainability assessments (Odii et al., 2020), or self-assessments (Podger et al., 2016). Using the WeValue InSitu process for crystallizing local shared values has been reported in a range of group contexts including civil society, youth, business, educational, and village committee groups in Europe, South America (Podger et al., 2016), United Kingdom (Moreno et al., 2020), Botswana (Sethamo et al., 2019), Nigeria (Odii et al., 2020) and China.
Figure 3.1 An illustrative example of a Shared Values Framework produced through the WeValue InSitu process of tacit-to-explicit translation of shared values-in-action, for a work-based group. It is accompanied by a Narrative from the group, which explained that the lower tier represented their ‘foundational’ values; the top tier their ‘aspirations, and the middle tier their pathways.
In this work, an innovation was trialed by purposely combining the WeValue InSitu process with a semi-structured focus group of the same participants, focusing on their perceptions of climate change impact, their thoughts on responsive or preventative actions, and on overlaps with their shared values. These were termed, “Perspectives Explorations (PEx)”. Because these discussions take place so soon after deep meaning-making of shared values has taken place, they were expected to be deeply anchored. And because the group members had so recently taken part in challenging and negotiating meaning about their shared values (during the WeValue InSitu process), then they were very efficient to similarly stimulate each other in the focus group discussions about climate change impacts. This effect was found incidentally in an earlier study with village committees in Botswana (Sethamo et al., 2019), where the same groups went on to produce exceptional village plans (for climate change adaptations) which were deeply anchored to their shared values, and very efficiently discussed and organized. Post-event interviews demonstrated that this improvement was due to the clarification of shared values before the work on village plans, and the establishment of clear shared vocabulary to articulate related issues. In this work that finding was built upon, and explored the use of a Perspectives Exploration (PEx) focus group discussion about climate change impact perceptions - directly after a WeValue InSitu session - in the expectation of similarly rich and highly-relevant, deeply anchored information being elicited. By repeating this approach with a range of group types in Shanghai, some saturation of values-based perspective elements was obtained which were of use in designing policy elements which will have a better chance of being followed and supported by the public (Wolf et al., 2013).

3.3 Methodology

Shanghai was chosen as it is known for its progressive and relatively agile municipal policies, and thus it was expected that the residents would more easily engage in expressing opinions about concerns, intentions and perceptions of climate change. It is not a typical Chinese city, but it does usually pilot new initiatives for China as well as having a large population of its own (over 25 million), which suggested that any policy inputs or approach success obtained here would have potential to be scaled up elsewhere. Participant group types were selected so as to seek to obtain a ‘saturation’ of concepts, and thus to cover four aspects
which have potential influence on shaping climate change perception: age, cultural background, and residential property occupancy (Lee et al., 2015; Poortinga et al., 2019; Wu et al., 2018; Yang et al., 2014). In addition, a consideration of international exposure was added, as residents who have more experience overseas or with regular conversations with people overseas may have a shifted perspective relative to more insular residents. Recruitment was successful for most of the commonly-found group types possessing clear variations of these aspects (see Table 3.1), but even though the field work was undertaken during a period of only low COVID-2019 exposure conditions in Shanghai during 2020 and 2021, it was not appropriate to gather large numbers of groups for this type of non-essential life activity. There were two further group types that ideally would have been covered, namely the elderly, and the foreigners (although the latter is less than 2% of the city). This research was exploratory in nature, pursuing not representativeness but theoretical saturation. In some cases, a second group of the same context was recruited to allow exploration of variation.

**Table 3.1** Key characteristics of the participating groups

<table>
<thead>
<tr>
<th>Group # &amp; context type</th>
<th>No. of groups</th>
<th>No. Ptpts with home ownership (yes / * / no)</th>
<th>Approximate age range (y)</th>
<th>Cultural background</th>
<th>International exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Work-based group (multi-national)</td>
<td>2</td>
<td>6/0/0</td>
<td>30-50</td>
<td>Chinese</td>
<td>✓</td>
</tr>
<tr>
<td>2 Work-based group (enterprise)</td>
<td>1</td>
<td>2/0/1</td>
<td>20-40</td>
<td>Chinese</td>
<td>x</td>
</tr>
<tr>
<td>3 Student group (University: Masters)</td>
<td>2</td>
<td>0/6/0</td>
<td>20-30</td>
<td>Chinese</td>
<td>x</td>
</tr>
<tr>
<td>4 Researchers group (university)</td>
<td>1</td>
<td>1/4/0</td>
<td>20-35</td>
<td>Chinese</td>
<td>✓</td>
</tr>
<tr>
<td>Group # &amp; context type</td>
<td>No. of groups</td>
<td>No. Ptpts with home ownership (yes / * / no)</td>
<td>Approximate age range (y)</td>
<td>Cultural background</td>
<td>International exposure</td>
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<td>-----------------------</td>
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<td>--------------------------------------------</td>
<td>--------------------------</td>
<td>--------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>5 Informal social interest group (sharing/reading)</td>
<td>2</td>
<td>4/0/2</td>
<td>30-50</td>
<td>Chinese</td>
<td>x</td>
</tr>
</tbody>
</table>

* This type of occupation refers to homes with heavily subsidized rents, provided by companies for their employees

Each group was introduced to the purpose of the research and asked for voluntary informed consent for the session which had approval from the Ethics Committee at University of Brighton. They were then taken through the WeValue InSitu approach (Moreno et al., 2020; Sethamo et al., 2019) which contains first a group contextualization exercise, then photo-elicitation of ‘what is important’ to individuals in their work of the group; then deeper elicitation with a Trigger List of sentences; then facilitated meaning-making discussions and articulation of new statements of locally shared values-in-action. Finally, participants moved their statements around on a table until they were satisfied with the linkages shown: a framework of their own shared values statements (see example in Figure 3.1). This process took 1.5-2.5 hours.

It is important to make clear the methodological pathway and purpose of using the WeValue InSitu approach as a precursor to the focus group: it provides a scaffolding mechanism (versus an intervening mechanism) to help groups explore, pinpoint, and articulate their own shared values, which raises self-awareness, and consolidates the group viewpoint (Sethamo et al. 2019). The focus group responses are then well-grounded, articulated, and embedded.

The focus group discussions were designed to explore participant’s basic perceptions of climate change, its impact on the important aspects of their lives, and their basic responses. The first questions were open questions for warming up the topic (“As a citizen living in Shanghai, as well as a member of this group, please tell us your first impression when you hear the phrase ‘climate change’”). Then questions for initiating follow-up discussions for free sharing of the topics already brought up:
("How would/do you respond to climate change impacts you mentioned?"). If not already mentioned, the facilitator then provided 3-4 examples of potential local scenarios of more severe climate change impacts, asking participants, "If these kinds of scenarios happen in Shanghai, how would you respond?" [no clean tap water for drinking (use bottled water instead) and daily use (laundry); power cuts or electricity for air conditioning; extreme humidity with risk of death for those remaining outside)].

Participants were then redirected back to their shared-values frameworks, and asked, "... how might climate change affect it and to what extent are you concerned with the influences? Under which circumstances would you consider leaving Shanghai?"

Finally, facilitators asked more deeply about any specific issues participants had already mentioned: "How would your family be affected by climate change? How would you prioritize the basic supply elements in Shanghai, e.g., food/water/energy/job? What is your attitude of the municipal government and governance of climate change? Are any particular aspects of information disclosure important?"

The focus group discussions were recorded in audio and transcribed for classical data analysis described below.

**3.4 Results**

**3.4.1 Pre-PEX results**

The WeValue InSitu process produced shared-values Statements in Frameworks like Figure 3.1 for each group. They represent the culmination of the first process for each individual group, leaving them grounded in articulations of their own previously more-tacit, shared, values-in-action – and thus in a very suitable frame of mind to access deep responses to a topic raised by the researcher during the PEX: climate change. (For consistency of reporting, we mention that in other studies these can be synthesized across groups to identify major site-specific cultural themes pertinent to those groups. This was not the purpose here, but for completion we can mention the major themes found to be of importance in different parts of society: making contributions to society; having long-term and shared visions; being recognized for one’s achievements; solving roots, not symptoms, of
problems; people taking responsibility; strength in union and thus
tolerance and respect for others; work with sufficient pay and flexibility;
trust and open communication.)

3.4.2 PEX results

All focus group discussion audio recordings were transcribed verbatim,
and iteratively open-coded in classical style (Creswell, 2009) by two
independent coders, who agreed key themes (Glaser & Strauss, 1967).
As the discussions centered on the topic of climate change, the themes
elicited from them were specifically on this topic (as opposed to the
cultural themes from the Frameworks). As the number of new themes
saturated after eight groups, no more were recruited. The emergent
themes were aggregated into higher orders, with iteratively-refined
boundaries. Sample data for each are given (Table 3.2).

3.4.3 The Conceptual Model

Lastly, a conceptual model was created of residents’ perceptions of
climate change in Shanghai (Figure 3.2). At the base are indicated
foundational components of Awareness of CC which were mentioned:
specific issues such as extreme weather, and heat islands, alongside
levels of Urgency and Relevance.

The participants mentioned some factors that had the potential to affect
them so negatively that they might leave Shanghai. These were denoted
‘Red Lines’ – in the sense that they would cause a serious consequence.
These included too much infringement of their food, water or power
supplies and significant changes to levels of comfort or convenience in
their daily lives. Interestingly, alongside these were threats to the
health or education provisions of their children: these were considered
serious.
Figure 3.2 A conceptual model of residents’ perceptions of climate change in Shanghai, comprising themes related to their Awareness, ‘Red Lines’ and Attractions for living in Shanghai, and related Actions.
Above this is shown what Attracts residents to stay in Shanghai, and it is noteworthy that this line is well above the ‘Red Lines’. In other words, it was rarely mentioned that any CC impacts - even at ‘Red Line’ level - might drive residents to leave. First, the special status of Shanghai as a ‘jewel’ of China: obligated to lead nationally in modernization, finance and high-tech growth, but in exchange receiving priority resources compared to other cities. Secondly, the high level of perceived competence of City Leadership and Administration. These jointly signified that Shanghai would always be better than other places to live. And third, the quality of social networks and people-connections was considered very special in Shanghai because the city recruited such forward-thinking people.

Lastly, in the context of their Awareness, ‘Red Lines’ and Attractions, residents mentioned diverse mitigation and adaptation alternatives - both individual and collective (see Figure 3.2). Participants were satisfied with mitigation policies of their companies, and supportive of them taking on more social responsibilities and ‘green future’ developments - but not at the cost of their own personal long-term careers or development. This is consistent with studies showing that people rely on their company to realize climate responsibility but are not willing to sacrifice their own economic interests (Ruiz et al., 2020). The participants here were firmly unwilling to take pay-cuts, but recommended certain employee benefits like company-organized activities could be cut.

At the individual level, participants expressed intentions to learn and investigate more about climate change impacts. For future adaptation, they were comfortable with having to shift attitudes, and even to sacrifice some living standards, based on their beliefs in the serious consequences of climate change. They even mentioned trying new behaviours, like vegan diets, after watching documentaries. These support that knowledge provision of climate change impacts could promote mitigation and adaptation (Evans et al., 2014).

The participants here expressed interesting attitudes towards government climate policies: not simply to support or oppose, but expecting flexible cooperation. They believed individuals could make a difference, and showed not only a sense of ownership for their own responsibilities but also to sometimes influence others, with specific
examples (Table 3.2). They did not depend solely on government, but did think that CC action benefitted from central and scaled-up government policies, and they had clear expectations of government-organized technology and policy-making, and information that was trustworthy, valid, transparent and sufficient.

Table 3.2 Themes, sub-themes and sample data (quotes) from the focus group discussions about perspectives of climate change and impacts on participants’ life in Shanghai.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub- Themes</th>
<th>Initial Codes (In Vivo)</th>
<th>Sample quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change awareness</td>
<td>CC Urgency</td>
<td>(Talking about rising temperatures and sea levels)</td>
<td>&quot;This is a question that seems urgent.&quot;</td>
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<tr>
<td></td>
<td>urgent</td>
<td>&quot;The warming phenomenon is quite obvious, and there is less and less snow&quot;</td>
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<td></td>
<td>obvious</td>
<td>&quot;... there have been some changes in recent years;...certainly not particularly obvious&quot;</td>
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<td></td>
<td>aware but not obvious</td>
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<td></td>
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<tr>
<td>Relevance</td>
<td>perceived relevance to work</td>
<td>&quot;We have a lot of export trade in our business, so there will definitely be some impact&quot;</td>
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<tr>
<td></td>
<td>perceived relevance to life</td>
<td>&quot;The most direct example is the daily trip (to work), which (CC will) really directly affect&quot;</td>
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<td></td>
<td>perceived but uncertain about the relevance</td>
<td>&quot;I have some concerns about (climate change), but it does not affect our actual lives&quot;</td>
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<tr>
<td></td>
<td>belief of consequence but no relevance perceived</td>
<td>&quot;Although I know that sea levels will rise... I still can't feel it&quot;</td>
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<tr>
<td></td>
<td></td>
<td>&quot;I believe in [climate change], but I think (extreme situation) is gonna happen in the distant future.&quot;</td>
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<td></td>
<td></td>
<td>&quot;I think climate change is an inevitable thing, just a matter of time&quot;</td>
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<tr>
<td>Themes</td>
<td>Sub- Themes</td>
<td>Initial Codes (In Vivo)</td>
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<tr>
<td>carbon</td>
<td>emissions from</td>
<td>&quot;I've seen some documentaries...that tell us cow farts emit more carbon dioxide emissions than cars.&quot;</td>
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<td></td>
<td>meat production</td>
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<tr>
<td>carbon</td>
<td>neutrality</td>
<td>&quot;I usually buy stocks, and everyone is talking about carbon neutrality...I searched for some information and knew what it means and how it is related to climate change&quot;</td>
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</tr>
</tbody>
</table>
| Seasons        |                     | "... global warming, it has impacts on every season, like winter is not so cold now, but it comes later than before" "It seems that the seasons are out of order"
| extreme        | weather             | "Some natural disasters may not happen at the expected time...‘extreme weather’" |
| glaciers       | melting             | "The icebergs, the glaciers, are melting..." |
| sea level      | rising              | "The global average temperature will rise by two; the sea level of Shanghai by about 7 meters, and one-third will be submerged." |
| heat island    | effect              | "The heat island effect... When you leave Shanghai, you can feel the temperature drop..." |
| Red Lines      | Basic Supplies      |                                                                                       |                                                                              |
| water supply   |                     | "At least the water problem must be solved; other difficulties can actually be overcome" |
| power supply   |                     | "If our basic needs of electricity and water are not met, then everything else is (meaningless)" |
| food supply    |                     | "(If I have to stay in Shanghai, at the least I must be offered) healthy food, water resources: water is the most critical need" |
### Themes

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-Themes</th>
<th>Initial Codes (In Vivo)</th>
<th>Sample quotes</th>
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</thead>
<tbody>
<tr>
<td><strong>Next Generation</strong></td>
<td></td>
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<tr>
<td>health</td>
<td></td>
<td>&quot;If the climate situation has become extremely bad and it affects the physical health of my child, I suppose it would worry me very much, but I'm completely ok with the other impacts&quot;</td>
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<tr>
<td>education</td>
<td></td>
<td>&quot;When considering the education of their kids, some people may insist on staying in Shanghai, because the impacts on life are less important than children's education.&quot;</td>
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<td><strong>Daily life requirements</strong></td>
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<td>comfort</td>
<td></td>
<td>&quot;(If) the temperature is over 40 degrees, then I have to leave Shanghai.&quot;</td>
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<tr>
<td>convenience</td>
<td></td>
<td>&quot;First of all, we must ensure the quality of life&quot;</td>
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<tr>
<td><strong>Attractions (to stay in Shanghai)</strong></td>
<td>Infrastructure</td>
<td></td>
<td>&quot;Shanghai definitely has good medical resources&quot; &quot;Some public resources in Shanghai, such as shopping malls and places to have fun, are very attractive to the young&quot;</td>
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<tr>
<td></td>
<td>transportation</td>
<td>&quot;It's easy to take public transport in Shanghai&quot;</td>
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<td></td>
<td>supply (water, food and power)</td>
<td></td>
<td>&quot;Some large power projects already benefit Shanghai&quot; &quot;The whole Yangtze River Delta is protecting Shanghai&quot;</td>
</tr>
<tr>
<td></td>
<td>Opportunities for personal development</td>
<td></td>
<td>&quot;There are more opportunities for personal development here&quot; &quot;There are more opportunities to realize personal value&quot;</td>
</tr>
<tr>
<td><strong>Competent City Leadership &amp; Administration</strong></td>
<td>emergency management capability</td>
<td></td>
<td>&quot;Shanghai (government) has done a great job every time it faced big crises&quot; &quot;During COVID (2019), I think performance of Shanghai&quot;</td>
</tr>
<tr>
<td>Themes</td>
<td>Sub-Themes</td>
<td>Initial Codes (In Vivo)</td>
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<td>government was very good, and makes people feel they can rely&quot;</td>
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<tr>
<td></td>
<td>public administration</td>
<td>&quot;I think the urban management system is very professional&quot;</td>
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<td></td>
<td>professionality</td>
<td>&quot;... very appropriate, neither excessive nor inactive: this is the underlying logic of the city&quot;</td>
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<td></td>
<td>citizen before business</td>
<td>&quot;Shanghai gives people a sense of safety/security&quot;</td>
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<td></td>
<td>Social network</td>
<td>&quot;The more important thing is that I have my whole social network here&quot;</td>
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<td></td>
<td>Emotional connection</td>
<td>&quot;I still won't leave here, because I have personal emotional connections here&quot;</td>
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<td></td>
<td>supplier supervision</td>
<td>&quot;We have certain requirements of suppliers, including which raw materials they use.&quot;</td>
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<td></td>
<td>procurement plan adjustment</td>
<td>&quot;In fact, in terms of our own procurement, ... when we go to purchase some types of items, we tend to choose more electrified. For example, forklifts used to be all fuel-powered: we now change to electric forklifts. Yes, of course, the cost will be relatively much higher.&quot;</td>
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<td></td>
<td>environmental-friendly work condition</td>
<td>&quot;We also have floor heating and air conditioners for our employees.&quot; &quot;In the process of creating the office environment, we also set up a lot of green walls&quot;</td>
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<td>Themes</td>
<td>Sub- Themes</td>
<td>Initial Codes (In Vivo)</td>
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<tr>
<td></td>
<td>sustainable supply chain</td>
<td>&quot;The company has really paid great attention to environmental protection....We also actively eliminate the discharge of these chemicals, so our company has really moved in the direction of green future.&quot;</td>
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<td></td>
<td>Green transport</td>
<td>&quot;Drive less and take the subway more often&quot;</td>
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<td></td>
<td>knowledge</td>
<td>&quot;I'm going to learn about (climate change) first, because it's so close to me.&quot;</td>
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<td></td>
<td>tree planting</td>
<td>&quot;We can plant trees, flowers and grasses...&quot;</td>
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<td></td>
<td>waste reduction</td>
<td>&quot;Try to order takeaways as little as possible&quot; &quot;I'm trying to use less plastic bags...&quot;</td>
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<td></td>
<td>sustainable consumption</td>
<td>&quot;Use eco-friendly products, more sustainable, reusable and renewable&quot;</td>
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<td>vegetarian diet</td>
<td>&quot;I tried vegetarian diet for a while&quot;</td>
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<td></td>
<td>waste sorting</td>
<td>&quot;It has been my habit to do waste sorting&quot;</td>
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<tr>
<td></td>
<td>water cons’n</td>
<td>&quot;Save water&quot;</td>
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<tr>
<td></td>
<td>industry evolution</td>
<td>&quot;The window period of industry evolution is actually very short; it depends on whether you have the opportunity to seize it&quot;</td>
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<td></td>
<td>window seizing</td>
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<td></td>
<td>root-based problem-solving</td>
<td>&quot;We also want to solve the problem at the root&quot;</td>
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<td></td>
<td>organizational strategy</td>
<td>&quot;From the perspective of enterprises, they must combine (align/interface) with the policy&quot;</td>
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<td></td>
<td>corporate social</td>
<td>&quot;At the company level, the company must take on more social responsibility&quot;</td>
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<td></td>
<td>responsibility</td>
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<td>Themes</td>
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<tr>
<td>Individually</td>
<td>Modifying living standards</td>
<td>&quot;I can overcome some of my requirements for comfort, to meet changes in the environment&quot;</td>
<td></td>
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<tr>
<td>Expectations of Governance</td>
<td>Information disclosure</td>
<td>&quot;(Information) has to draw my attention, show me more conclusive evidence, and promote extensive discussion&quot;</td>
<td></td>
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<tr>
<td></td>
<td>Technical developments</td>
<td>&quot;Improve the physical structure of the entire grid through technical means to alleviate the problems of power supply difficulties and the unreliable electricity (supply) caused by climate change&quot;</td>
<td></td>
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<tr>
<td></td>
<td>Policy making and implementation</td>
<td>&quot;I'm very supportive of the government to push or gradually push certain decisions.&quot;</td>
<td></td>
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<tr>
<td>Belief in individual initiatives</td>
<td>Environmental-friendly practice</td>
<td>&quot;I have continued to practice environment-friendly lifestyle in my life&quot;</td>
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<td></td>
<td>Collective individual commitment</td>
<td>&quot;Individual strength is limited, but what if everyone takes action?&quot;</td>
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<td></td>
<td>Publicity and education</td>
<td>&quot;After searching for information, if I can confirm the climate change related scientific problems, I will tell them and convince them that climate change is a real problem&quot;</td>
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<tr>
<td></td>
<td>Ownership</td>
<td>&quot;I love this city: I will face climate change and find my own solution&quot;</td>
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<tr>
<td></td>
<td>Flexible cooperation with government</td>
<td>&quot;Now that the government has initiated (policies), I will definitely cooperate, but I'm not completely dependent on them&quot;</td>
<td></td>
</tr>
</tbody>
</table>
3.4.4 Inputs into Urban Policy

From the PEX findings, and the Conceptual Model constructed, the following two specific policy elements appear to be considered useful for Shanghai for climate change. They relate to several aspects of perceptions, but contain linking threads are about clarity of information, roles and opportunities to contribute, in a context of ongoing trust, collaboration, and communication between agents:

A. Clear informational content given out by government, on

a) the facts of climate change and

b) it’s relevance to Shanghai. Including links to a variety of sources for those that wish to look further.

B. Clear communication of the variegated role of different societal members, with examples:

*Government*: strategy; keeping abreast of helpful technology; investment in necessary infrastructures; facilitation of businesses scaling up on green technologies; preparatory plans outlined for districts, wards and community-level action principles; reassurance of its coordinating capability; reassurance of it’s awareness of the Red Lines that residents have (and thus expectations of residents).

*Businesses*: to identify and document their own impacts and contributions on climate change mitigation and adaptation; to identify pertinent emerging technologies in their domains that they could expand into; to consider their own social responsibilities related to climate change impacts; to welcome and to credit staff who make significant contributions to this issue.

*Residents*: which individual actions by which types of people would help i) moderately ii) significantly; how they would be expected to respond under different pre-prepared scenario plans by the government.

3.5 Discussion

This research addressed an emerging topic in sustainability: the importance of localized understanding of values-based perceptions of climate change impacts. Localization is considered necessary: climate
change policies must bridge to local shared values before they will be acceptable (e.g., Wolf et al. 2013). Some new approaches have emphasized the subjective and intangible dimensions of climate change that are important to individuals and cultures (O'Brien & Wolf, 2010), but they came up against the challenges known well in other environmental fields: that in trying to document the ‘intangible’ world of values and perceptions of local people, researchers can significantly influence or distort the social constructs they are trying to capture (Kenter et al. 2011; Allen et al. 2021) or impose external categorization which has low face validity (Harder et al., 2014).

The research approach presented here integrated a transdisciplinary perspective, by holding fast to the need for explicit and well-defined perceptions, but obtaining them via humanities-based processes of tacit-to-explicit translation of shared values-in-action (Odii et al., 2021). Once a local group had crystallized, through the WeValue InSitu process, authentic frameworks of what ‘is most important to them’, they could more easily articulate views on a range of otherwise more-tacit topics such as climate change, and the links of those views to their shared values are traceable in the discussions.

This is very different to current research on public responses to mitigation and adaptation use mainly closed questions about how much they support or oppose related behaviours and policies, for example, using ‘willingness to pay’ to reduce carbon emissions (Steynor et al., 2021; Wang, 2017; Yang et al., 2014): an approach known to have issues of face validity of results (where participants do not agree with the interpretations of the researchers). The WVIS ‘tacit-to-explicit’ process produces not simply isolated statements for external classification by keen researchers, but interlinked concepts carrying nuances which make their self-categorization clear. The conceptual model built from those is unique for each place: in Shanghai the participating groups each delivered a bespoke framework of shared values, and discussions of intertwined climate change perspectives, which showed across them a saturation and consistency that reflects the Shanghai context: a) they had surprising awareness but did not think climate change impacts could be so severe or urgent; b) some impacts concerned them but they considered Shanghai to be the best place to live regardless of future challenges, because of its resources and good governance; c) they considered responsibility to be jointly individual and
collective with the government; d) they expected clear and transparent communication from the government for collective action.

These research outcomes can enable positive high societal impact and great significance, because there is currently no other efficient method to produce such rich and authentic results with high accountability and face-validity. And the perspectives obtained reveal not only future policy pathways, but the context of the current situation. The method can in principle be reproduced in other places, since the core approach of WeValue InSitu is already established as being transferable (Harder & Burford, 2018). The work reported here involves only one city, thus not providing room for comparisons. The work reported here involves only one city, thus not providing room for comparisons. But an ongoing study in Vienna by the authors shows that the approach can reveal local uniqueness. For example, in 4.4 above it can be identified that the role of central planning in China is firmly embedded in the way that the residents think, both about urban planning and climate change adaptation. Interestingly, they do not see their role to blindly follow central plans, but to also show initiatives at the individual level. On the one hand they expect central administration to lead on infrastructure-based planning, and on the other they expect to have contextual information to guide their actions and decision-making as individuals. In Vienna, however, it is being found the emphasis comes from the residents feeling they must monitor government actions in managing climate change mitigations and adaptations to ensure that they take into account their most deeply held values - especially of social justice. They viewed much of their life through this lens, concerned about balance of provision and equity, to the point of sometimes framing the administration in an ‘us and them’ manner.

This research article extends in particular the work of Corner et al. (2014); O'Brien and Wolf (2010); Wolf et al. (2013), which have established through several works the need for climate change policies to bridge to local shared values before they will be acceptable to them. Although that need is established, concrete and practical approaches to elicit local shared values have not yet been reported. This aligns with parallel work in Ecosystem Services literature, where a range of participatory and deliberative approaches have been trialed to elicit locally held values of ecosystem services, situated within wider shared
values – so far without clear success (Allen et al., 2021): the approach reported here can be applied there.

### 3.6 Conclusions

It has previously been established that climate change policies for urban dwellers need to bridge to their local shared values before they will gain support, yet several approaches attempting to elicit authentic and localized values, and associated perceptions, have not yet yielded useful results. In this work the use of the WeValue InSitu method is innovated and demonstrated in combination with a carefully designed focus group discussion about climate change impacts on life in the city. The former is known to provide a scaffolding process which allows groups to crystallize their tacit shared values, and it is found that the subsequent focus groups elicit clear articulations with respect to life values, such that nuances and linkages between perceptions and values are retained, and across groups is a saturation and consistency that reflects the Shanghai context. It is also found a conceptual model emerges for the residents: a) they have surprising awareness but did not think climate change impacts could be so severe or urgent; b) some impacts concern them but they consider Shanghai to be the best place to live regardless of future challenges, because of its resources and good governance; c) they consider responsibility to be jointly individual and collective with the government; d) they expect clear and transparent communication from the government for collective action. These research outcomes are significant because there is currently no other efficient method to produce authentic and useful results with high accountability and face-validity: results which indicate not only future policy pathways but the current situation in detail. Parallel pragmatic needs exist in ecosystem services and urban design. As the WeValue InSitu method is already known to be transferable, this approach can now be systematically applied in comparative studies in different cities to determine its scalability.
Enabling shared values for sustainability transformation: empirical lessons from a case of bringing cross-cultural groups together in China

Yanyan Huang\textsuperscript{a,b}, Renate Wesselink\textsuperscript{a}, Benita O. Odii\textsuperscript{b}, Arjen E. J. Wals\textsuperscript{a}, Marie K. Harder\textsuperscript{b,c*}

\textsuperscript{a} Education and Learning Science (ELS), Wageningen School of Social Sciences, Wageningen University & Research, Hollandseweg 1, 6707 KN, Wageningen, The Netherlands;
\textsuperscript{b} Department of Environmental Science and Engineering, Fudan University, 2005 Songhu Rd., Shanghai 200433 PR China;
\textsuperscript{c} Values and Sustainability Research Group, University of Brighton, Lewes Rd., E. Sussex, UK BN2 4GJ;

Resubmitted after first round of revision to \textit{Sustainability Science}. 

\textsuperscript{c*} Corresponding author.
Abstract

Finding pathways to enable values-for-sustainability-transformations has been recognized to be critically important in today’s world. While general strategic insights and generative theoretical concepts have emerged recently and been elaborated upon, there has been limited empirical work to directly engage with values in practice, for pragmatic learning. Inspired by the recently-proposed Four Perspectives for navigating values for sustainability transformations, we carried out an empirical case study of an intervention we designed to develop shared values for cross-cultural collaboration within an institutional context. The intervention design was informed by the Knowledge Creation Theory, which conceptualizes values as tacit knowledge. Our case results show empirical evidence for both the development of shared values and sustainability transformations, with links to the intervention design. The intervention and its underlying design principles are demonstrated to be useful in promoting sustainability transformations. Combining the empirical results theoretical knowledge, we discuss how the development of shared values contributes to sustainability transformations and related concepts. Emerging topics worth noting include values surfacing, shared experience, researchers' role, being explicit, and meaning-making. We point to the more general potential of using the SECI model in informing navigation of development of shared values.
4.1 Introduction

Sustainability is a normative concept that suffers from lack of agreement regarding what is worthwhile and meaningful (Horcea-Milcu et al., 2019), yet it is a term that continues to have enormous traction in science, society, governance and business and industry. Given the state of our planet, a transformation towards a more sustainable world appears to be urgently needed even though what sustainable exactly means is still a work in progress (Díaz et al., 2019; WMO, 2018).

In investigating and seeking such a transformation, which is inherently values-laden, it is increasingly recognized that engagement with values-related issues is unavoidable (Funtowicz & Ravetz, 2001), requiring the explicit addressing of values in transformation science (Tschakert et al., 2016), and the important role of values for transformations related to sustainability science (Abson et al., 2017; Fischer et al., 2012; Ives & Kendal, 2014). For this, it is advocated that values should be considered as a research object both empirically and theoretically for sustainability research (Schneider et al., 2019).

While values are generally discussed, and occupy a diverse range of theoretical conceptualizations (see a review in Rawluk et al. (2019)), values are less discussed or studied with respect to their operationalization in relation to transformation-oriented sustainability science (Horcea-Milcu et al., 2019). Four Perspectives on how and where values can contribute to transformational sustainability science were proposed to assist the navigation of values in sustainability transformation studies, by distilling and embracing the complexity of values arising from their ontological and epistemological richness. These Four Perspectives include surfacing implicit values (Perspective 1), negotiating values (Perspective 2), eliciting values (Perspective 3), and transforming through values (Perspective 4). There has been an explicit call for "...documenting how the four perspectives shape, constrain and interact with each other, and proposing strategic ways to combine their different aspects according to the sustainability problem at hand, support mainstreaming value enquiries into transformational sustainability science" (Horcea-Milcu et al., 2019).
Although progress has been made towards more systematic theoretical elaborations, limited empirical research has been conducted on organizations which purposefully engage with values directly. While there have been some empirical studies, they mostly collect and analyze data to demonstrate frameworks (e.g., Berghöfer et al., 2022; Gray & Manuel-Navarrete, 2021; Priebe et al., 2022) or to elaborate specific concepts such as social capital and leverage points (e.g., Partelow, 2021; Priebe et al., 2022).

In particular, current studies actively involve specific sustainability contexts when engaging with values, and neglect a direct focus on the transcendental values that shape an individual’s original position (Horcea-Milcu et al., 2019). That is, values are usually discussed with respect to a specific problem context, without addressing the initially-held transcendental values first (Kenter, Bryce, et al., 2016). Some researchers have emphasized the transcendental aspect, e.g., suggesting that "tools for surfacing transcendental values in the incipient phases of participatory processes" should be developed (Horcea-Milcu et al., 2019). Better understanding of the role of transcendental values with respect to contextual values in deliberation processes is also needed (Kenter, Reed, et al., 2016).
Therefore, we present here an exploration that directly engages transcendental values - transcendental in the sense of being cross-situational/ cross-problem-context but remaining cultural-context dependent. We treat transcendental values as an independent research object which may shed some light on the inquiries above. Our approach was developed by conceptualizing values as a type of knowledge – tacit knowledge – and developing an intervention design which is concerned with the transpositions of tacit knowledge to/from explicit knowledge.

In response to the wider calls for transformations to sustainability, we explore in an empirical organizational setting, a) the possibility of operationalizing the surfacing and negotiation of transcendental values to contribute to transformation towards sustainability, and b) relevant insights on the theoretical and practical implications for ways to bring values into transformational sustainability activities more generally.

We do this by carrying out a case study where we designed and implemented an intervention for developing shared values between two groups of teachers with different cultural backgrounds and language use, in an international school in China. This setting represents, we believe to some extent, a microcosm for the wider interfaces that this study targets. The intervention design included several steps informed by the Knowledge Creation Theory (Nonaka, 1994), and the investigation was informed by the Four Perspective heuristic framework (Horcea-Milcu et al., 2019), as depicted schematically in Figure 4.2.

Specifically we aim to answer the following research questions:
1. Can, and how do, the values of teachers from different cultural backgrounds become surfaced and negotiated so that they can become shared?
2. What theoretical and practical insights can be gained from the empirical data for future sustainability transformation?
Figure 4.2 Schematic illustration of how Perspective 1, Perspective 2 and Perspective 4 are realized through our intervention design based on the SECI model. Two types of language-groups first articulate their shared values, then exchange articulated versions of them, with illustrative examples, then meet in mixed groups to negotiate their cross-shared values, enabling subsequent transformations to occur.

4.2 Theoretical foundation

Below, we first present our conceptualization of values which informs the investigation in this study, particularly emphasizing their nature of being transcendental and being shared, which follows (Horcea-Milcu et al., 2019) to a large extent. We then briefly introduce our conceptualization of transcendental values as a type of knowledge (tacit knowledge), and the adaptation of the knowledge conversion model from Knowledge Creation Theory which enabled the intervention to draw individual values up to a collective level, and then become shared.

4.2.1 Transcendental values within an individual boundary

The particular lens employed in Horcea-Milcu et al. (2019) views values as transcendental contextual values (Kenter et al., 2015; Raymond & Kenter, 2016). Transcendental values are seen as ‘held’ values: first-order preferences that transcend specific situations, and guide selection
or evaluation of behaviour and events. Since there are diverse conceptualizations and typologies of values, we declare that we broadly follow Rawluk et al. (2019) in that we understand transcendental values as cross-situational and action-based.

Analytically, we approach the development of shared transcendental values by several people in this study as an act of meaning-making, following other authors in transformation studies (Hochachka, 2022; Priebe et al., 2022). As we describe in the next section, we do this by employing the WeValue InSitu process of shared-values crystallization as a method (Odii et al., 2021). Despite the relatively stability of transcendental values (e.g., according to Schwartz (1992) and Schwartz et al. (2012)), the accessibility of a person’s values is known to vary in different cultural situations (Stolte & Fender, 2007). This means people may access and apply particular values depending on the situation they are in. Therefore, we assume in our work that a boundary is needed to create a situation for people to make meaning within, such as, ‘English-speaking teachers in this school’. Consequently, the values considered in this study may be closer to cultural values (Stephenson, 2008), or lived values (Graham et al., 2013), that or possibly as contextual in the work of Rawluk et al. (2019).

In the sustainability science field currently, ‘contexts’ are commonly described with respect to specific sustainability problems (Schneider et al., 2022). But for ‘cultural contexts’, terms such as ‘border’, or ‘boundary’ are used (Norton et al., 2022). Hence, we define and set up the ‘boundary’ to be the shared experience of those involved. That is, values engaged in this study are within an established meaning-making boundary (e.g., ‘English-speaking teachers in this school’) but transcendental with respect to problems within that cultural context, in that they are expressed and reflected in the historical experiences that guide evaluations, behaviours and events (Schwartz, 1992).

This choice implies that we do not focus on contextual values or assigned values which represents “beliefs about the importance or worth of people, places or objects” (Kenter, Reed, et al., 2016) which are the focus of Perspective 3. Our interests are related to surfacing implicit values (Perspective 1) and negotiating values (Perspective 2) within a given boundary, but not eliciting values (Perspective 3) which focuses on “explicit articulation of transcendental values revealed in contextual
value judgments such as ascribing values to particular choices, objects, or actions related to specific sustainability challenges and potential changes in the state of the world” (Horcea-Milcu et al., 2019). However, throughout all our investigations, we retain our interests on transforming through values (Perspective 4).

### 4.2.2 Shared values with a normative intention

Underlying our adoption and emphasis on shared values in this paper is the idea of commonality and togetherness (Horcea-Milcu et al., 2022). Our definition of ‘shared values’ aligns partly with the conceptualization that “shared values may refer to values held in common by groups in particular contexts” (Kenter et al., 2015), while delimiting the ‘contexts’ to be ‘boundaries’ marked by shared experience, in which shared transcendental values are manifested. With the normative intention, one that also underpins notions of sustainability, we define, in this study, the shared values to be those values within shared boundaries that different stakeholders can hold together before coming to a specific context for a joint solution. This is different from deliberation, which is related more closely to values elicitation (Perspective 3) in participatory processes, which doesn’t necessarily need “unanimous consensus, but rather plastic ways to deal with value conflicts while maintaining the naturally occurring plurality of expressed differences.”

While a distinction can be made between individual and shared values we do consider them as inevitably related as (a) the negotiation of values is a social process in which diverse individual values are involved and shared values are generated and promote transformation through different mechanisms (e.g., Horcea-Milcu et al., 2018); (b) global transformation also requires individual transformation (O’Brien, 2018) which can be achieved through focusing on value shifts in the deep inner dimension (Fazey, Moug, et al., 2018) such as a change of self-awareness of values embedded within (Parodi & Tamm, 2018). We here use the term ‘boundary’ to indicate this distinction, that is, individual values are held within individual boundaries whereas shared values are held within a shared boundary. Moreover, we align with the ideal of Phase 0 (Horcea-Milcu et al., 2022) in which togetherness with shared values is seen as useful in nurturing transdisciplinarity.
In sum, it is our intention to bring together stakeholders with different values and facilitate them to establish shared transcendental values (through Perspective 1 and Perspective 2), before going into a decision-making process concerning a specific sustainability context. We view these shared values as transcendental values shared by members of a group which are manifested in their common actions, and we provide a boundary allowing them to be surfaced and identified. For the rest of this paper, we use ‘shared values’ to refer shared transcendental values in order to make the discussion more concise.

4.2.3 Transcendental values as tacit knowledge and the SECI model

To inform our intervention design to be capable to realize the shift of ontological entity that holds the values, we draw on the organizational Knowledge Creation Theory which provides a pathway to carry knowledge from the individual level to the collective level (group or organizational). In this study, we conceptualize transcendental values as tacit knowledge and project the process of shared values development as a knowledge creation process.

Tacit knowledge usually refers to knowledge that is difficult to be articulated and thus hard to be communicated and transferred among individuals, thus usually gained through living experience (Polanyi, 1958). Values are “central in understanding human behaviour” regarding the “importance placed on principles, priorities and possible processes of sense-making and value systems” (Horlings, 2015). Values inform what we do and are “inherent in objects, as present within man, and as identical with his behavior” (Adler, 1956). That is to say, values inform experiences and are embedded in personal experiences which are tacit. As such, values can be regarded as tacit.

The essence of organizational Knowledge Creation Theory developed by (Nonaka, 1994) is the dynamic and continuous interaction between tacit and explicit knowledge in a form of an expansive spiral through which new knowledge could continuously be created, diffused and embedded. This process is illustrated in a model consisting of four key modes, Socialization, Externalization, Combination, Internalization. It is also known as SECI model. Socialization is the process through which individuals transfer, obtain and convert tacit knowledge from each other
by sharing experiences via observation and imitation (Nonaka et al., 2000). **Externalization** is the process of translation from tacit knowledge to explicit knowledge on the individual level, through which tacit knowledge is articulated into codified form to allow people to share more easily. It usually happens on a group level, either a formally formed or self-organizing team. **Combination** is the process in which articulated explicit knowledge from different resources is brought together into one context and synthesized on the organizational level systemically through meetings or computerized conversations. **Internalization** is the process in which systemic explicit knowledge is embodied by the individual into their own tacit knowledge through ‘learning by doing’. Individual tacit knowledge is accumulated through **Internalization** and becomes a routine knowledge asset.

### 4.3 Methods

#### 4.3.1 Case description: Bringing cross-cultural groups together through shared values development in an international school

We carried out a single case study in an international school, but we consider the insights gained from it to be potentially valuable because similar problematic patterns can be identified in many other situations or contexts of sustainability challenges, e.g., of interaction among stakeholders from different cultural, institutional, disciplinary backgrounds which hinder sufficient collaboration towards the organization’s transformations (Burritt et al., 2020; Catarci, 2021; Garrido et al., 2020). This commonality implies potential generalizability for the in-depth insights obtained.

The school comprised domestic and international teachers in China, namely native Chinese bilingual speakers and foreign English-only speakers. The school size is rather small (27 teachers and around 240 students), with a simple and very flat management structure, involving few complications of power dynamics. Only four teachers (two each from two language-speaking group types) held management roles for administrative reporting while also taking on normal educational roles.

We first conducted one-on-one, face-to-face interviews with the four management teachers to gain a preliminary understanding of issues they encountered when moving towards more cohesion and collaboration among teachers in an attempt to create a more
sustainable school. Their insights showed some consensus on the barriers. It was first acknowledged that the general atmosphere in the school was good and that a reasonable degree of mutual trust existed. But despite sufficient intention and willingness to learn from each other, there had been limited progress in collaborations between Chinese and English teachers such as in curriculum design, event implementation, and setting of daily routines. This was perceived as due to a lack of consensus on the meanings of specific topics or concepts, which then hindered communication processes. People didn’t clarify or were not able to understand each other’s intentions, and different emphases on what mattered within a given context. Consequently, even if a goal was shared and good intentions were in place, misunderstandings or diverse prioritizations could lead to a drop-off in collaboration. The underlying issue was seen to be the limited shared values on which to build collaboration. And there was little consensus on why, what, and how to self-drive collaboration between the two divisions.

4.3.2 The case: Values as tacit knowledge and an intervention design informed by SECI model

By conceptualizing values as a type of tacit knowledge, we adopted the SECI model to inform our intervention design of shared values development as a process of knowledge creation from the individual level to the collective level (as shown in Figure 4.2). Below, we introduce our intervention design and the implementation steps (summarized in Table 4.1), following the order of SECI model.
Table 4.1 Details of the intervention design and implementation.

<table>
<thead>
<tr>
<th>Mode involved</th>
<th>Research implementation steps</th>
<th>Number of units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Externalization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC.1</td>
<td>Pre-one-on-one interview</td>
<td>4</td>
</tr>
<tr>
<td>EI.1</td>
<td>WeValue InSitu Workshop: Shared values intersubjective articulation within same-language groups</td>
<td>5</td>
</tr>
<tr>
<td>EC.2</td>
<td>Post one-on-one interview 1</td>
<td>17</td>
</tr>
<tr>
<td>EC.3</td>
<td>Post one-on-one interview 2</td>
<td>14</td>
</tr>
<tr>
<td><strong>Combination</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI.1.1</td>
<td>Focus group discussions on frameworks: Articulated information sharing within same-language groups</td>
<td>2</td>
</tr>
<tr>
<td>CI.1.2</td>
<td>Framework Information Diffusion and Reading</td>
<td>N/A</td>
</tr>
<tr>
<td>CI.2.1</td>
<td>Focus group discussion on frameworks: Articulated information elaboration within selected mixed groups</td>
<td>2</td>
</tr>
<tr>
<td>CI.2.2</td>
<td>Insight Booklet Diffusion and Reading</td>
<td>N/A</td>
</tr>
<tr>
<td>CI.3</td>
<td>WeValue InSitu Workshop: Shared values intersubjective negotiation within merged mixed language groups</td>
<td>2</td>
</tr>
<tr>
<td>CC3.1</td>
<td>Post one-on-one interview 3</td>
<td>24</td>
</tr>
<tr>
<td>CC3.2</td>
<td>Post one-on-one interview 4</td>
<td>12</td>
</tr>
</tbody>
</table>

C: Data collection  
I: Research intervention

Socialization was implicitly but not explicitly involved in this study, in that our intervention started with the next mode (Externalization) which could only take place built upon the results of prior Socialization. Significant Socialization had already occurred within the school working context over several years, and it would be inappropriate to try to introduce an intervention to produce it, since the research aim is to move onwards from the current situation. However, the stark separations between each group type indicated a fragmented Socialization in that they did not share working space and there was currently limited intention to transcend individual subjectivities. Rather than try to change this initial starting point, we embraced it and set up
a baseline understanding of the *Socialization* status of the school for future reference: key informant interviews were conducted with four key management teachers of the school (EC.1). We do note that SECI studies might chose to start in a different mode, but this is our justification for starting with *Socialization*.

For the *Externalization* mode, we employed the WeValue InSitu process to fulfil the intervention design by assisting articulation of group-level shared values into an explicit form through intersubjective processes. The WeValue InSitu process has been proved capable of producing intersubjectivity with groups of people (Burford et al., 2016; Burford et al., 2013; Harder et al., 2021). Previous studies show that it facilitates highly interactive space, meaning dialogue and several types of collective learning. The process is conducted in a workshop form, with well-defined practice-based stages (Brigstocke et al., 2017; Moreno et al., 2017) including contextualization, photo elicitation, individual triggering, collective negotiating discussions, and shared values framework construction. Each workshop typically takes 2-3 hours for a group of 5-10 people. The participants share a boundary for discussion defined by their shared experience (such as, “*We are all teachers in this school, coming from Western countries*”), and are facilitated to explore, discuss and negotiate (e.g., “*What is important to us, within this boundary*”). A list of values-based trigger statements is used to loosely prompt the discussion in which participants share and discuss examples of their values illustrated by their experiences. In this way they negotiate which aspects are ‘most important’ to them, and iteratively develop articulate statements of their priority shared values. During this process shared meanings are generated, but also individual learning and meaning-making due to the intersubjective challenges and negotiations. Transformations have been routinely documented (Harder et al., 2020; Sethamo et al., 2019), probably linked to the deepened self-awareness.

We conducted the first round of workshops (EI.1) with two groups of English-speaking participants and three groups of Chinese-speaking participants. A total of five WeValue InSitu workshops, each lasting 3-4 hours, were facilitated face-to-face in the natural language of the participants to ensure the quality of communication and minimize the differences caused by external factors. However, they used the same written materials in English, since all were very fluent in written English and this was the language used in the school. The participants stated
that they had no problem reading and understanding the materials, and that they expressed themselves sufficiently in their own languages verbally. The boundary in this mode was set to be "what is important to us as a teacher in this school" with the emphasis on pre-existing reality. After the first round of workshops, five shared values-based frameworks (see a sample in Figure 4.3) had been produced, one by each group separately.

Figure 4.3 A shared values framework constructed by one of the WVIS workshop groups from EI.1. All shared values statements shown in grey boxes begin with “it is important to us that...”. Photos were chosen by participants in the Photo Elicitation stage, removed from sight, and then allocated a position in the final after it was constructed, as a test to see if the concepts had been included.
With the tacit knowledge of the shared values of Chinese-speaking teachers and English-speaking teachers externalized, we then moved to the *Combination* mode consisting of three stages.

Firstly, two focus group discussions (CI1.1) were conducted to allow participants from the same language groups to share and communicate all five frameworks which were made available in both languages. That is to say, all participants were exposed to the explicit knowledge articulated in the *(above)* *Externalization* mode by all the other groups. Similarities and differences at the group level started to be identified, and became more obvious when participants were asked to share their understanding and raise questions to each other, about both the framework structures and contents. The facilitators continually encouraged participants to refer to experience-based examples during explanations. By the end of this session, participants gained a comprehensive understanding of their own language groups, and a moderate understanding of the other language group – which they found much more difficult to comprehend. We put all frameworks into a document and disseminated it to all participants to read in more detail at their leisure (CI.1.1).

Secondly, two new focus groups were conducted (CI.2.1), where a mix of 2 Chinese-speaking and 2 English-speaking staff were asked to give each other more explicit and detailed illustrations of the meanings contained in the frameworks of their language groups, and to answer questions and bridge gaps in understanding through examples. Experience-based illustrations were encouraged, often requiring extension into 1-2 related concepts needing further illustrations, before the ‘other’ language group could understand. For example, the Chinese teachers could not understand the foreigner teachers’ emphasis on creativity, which they associated with unnecessary risk, only appropriate when a deliverable was already secured. Whereas the foreign teachers felt room for creativity in processes – along with associated risks – was a prerequisite for high quality deliverables. Transcripts of these two sessions were used to develop a Booklet of Insights, with seven concepts that both groups signified as valuable but involved values-based misunderstandings. This Booklet was later disseminated to all school staff for reading and discussion (CI.2.2).
Thirdly, a new round of WeValue InSitu workshops was carried out, this time mixing teachers from different language groups to share, discuss and negotiate their ‘shared values’. The boundary in this mode was set to be “What will be important to ‘the new us’ as a learning community” with the emphasis on envisioning reality and our intention to have them configure cross-group articulated shared values into organizationally shared values. This process was carried out in two separate mixed groups (to keep the numbers manageable). Twenty-two of the 27 teachers participated. The main language used was English to accommodate all participants, but to mitigate the difficulty for second-language participants, and potential power inequality caused by the level of language use, we had facilitators from both languages present. They slowed down the entire process and regularly intervened to give translations in both directions whenever the slighted sign of difficulty was noted. By doing so, we guarded the voice balance and avoided misunderstanding caused by the language barrier. The shared values developed in this way were transcendental in terms of their new boundary as one entity, and were being used to guide considerations of cross-contextual strategic decisions of the school regarding specific issues in the future.

The Internalization mode in SECI model usually involves experimentation and stimulation of new practices which can take a long time, both to result in changes, and to become tangible enough to be captured. We therefore decided not to probe the organization during this mode and thus disturb it, but instead to elicit information retrospectively via reflections given in post-interviews.

We would like to make a passing note that, aligning with Nahapiet and Ghoshal (1998) and following on Polanyi (1968), we stand for the notion that there is always a tacit dimension involved in all forms of knowledge conversion. That is to say, even though Nonaka et al. (1995) defined the Combination mode as the aggregation of explicit knowledge in a wide sense, our adaptation of this term has an extension to its origins. Moreover, as discussed above, the SECI spiral happens at multi levels as a dynamic conversion between tacit and explicit knowledge. Therefore, the use of second round WeValue InSitu workshops in the Combination mode is essentially a form of organizational knowledge creation involving the Combination of explicit knowledge with individual
and collective tacit knowledge at both the individual and the group level.

4.3.3 Data collection and analysis

The research design was carried out between October 2020 and November 2021, with post-interviews continuing until January 2022. Multiple qualitative data collection methods were employed to potentially capture details of how and why what happened, including WeValue InSitu workshop outputs, one-on-one semi-structured interviews, focus groups discussion and informal observations/conversations. Since the workshop and focus groups were part of the design, their process details and discussion outputs were potentially valuable data resources to evidence the development of shared values, and to support process analysis. Post-interviews focused on gathering teachers’ subjective feedback and interpretations regarding the processes they had gone through (Figure 4.2), to enable retrospective examination for evidence for the development of shared understanding and related learning. Before carrying out analysis of an event, the researchers carefully read through the verbatim transcriptions, to be acquainted with it (Riessman, 1993). Content analysis and iterative thematic analysis were conducted to confirm the development of shared values; to identify key emerging themes characterizing the processes involved in the development of the shared values; and to assist about the transformation gained with the use of this intervention.

4.4 Results
4.4.1 Development of shared values

Using the SECI model as reference, the final outcomes from the Combination mode can be regarded as the ‘shared values intended’. That is, the final shared values statements constructed by teachers when they finally came together in mixed language groups and set out their newly-negotiated shared values in the boundary of, ‘the new us’ as a learning community. This took place with two separate final ‘mixed’ groups (to keep the numbers low): results are shown in Table 4.2.
Table 4.2 Shared values statements constructed by teachers from the school when envisioning a common future from CI.3.

<table>
<thead>
<tr>
<th>Mixed group information</th>
<th>Shared values statements beginning with “It’s important to us that…”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td>People appreciate the differences in each other.</td>
</tr>
<tr>
<td></td>
<td>Our time and effort are used purposefully in a goal-oriented manner.</td>
</tr>
<tr>
<td></td>
<td>To clarify our common organizational goals.</td>
</tr>
<tr>
<td></td>
<td>We clarify our expectations.</td>
</tr>
<tr>
<td></td>
<td>We maintain an open mind and communicate respectfully.</td>
</tr>
<tr>
<td></td>
<td>The limitations within which we are working are acknowledged.</td>
</tr>
<tr>
<td></td>
<td>Expectations are reasonable.</td>
</tr>
<tr>
<td></td>
<td>We have common spaces for teachers to work, collaborate and socialize with one another.</td>
</tr>
<tr>
<td></td>
<td>Creativity is a part of our improvement cycle.</td>
</tr>
<tr>
<td></td>
<td>We are giving + receiving feedback on our work.</td>
</tr>
<tr>
<td></td>
<td>We have a sense of community and a sharing culture.</td>
</tr>
<tr>
<td></td>
<td>We know that broader goals of the organization/team.</td>
</tr>
<tr>
<td></td>
<td>We know how we can do our part to in achieving our broader goals.</td>
</tr>
<tr>
<td></td>
<td>To have a common informal space to share, talk, collaborate, plus work.</td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>We have fun.</td>
</tr>
<tr>
<td></td>
<td>People aren’t afraid to make mistakes because they are opportunities to learn and improve.</td>
</tr>
<tr>
<td></td>
<td>All opinions are represented.</td>
</tr>
<tr>
<td></td>
<td>We are a community.</td>
</tr>
<tr>
<td></td>
<td>To strive for excellence!</td>
</tr>
</tbody>
</table>

In the transcript data of post-interviews (CC3.1) after the Combination mode workshop process, participants confirmed that they considered
the shared values statements which they had produced, to be authentic to themselves. In addition, they stated that they now understand better what other teachers want (i.e. ‘think is important’), and how they can respond in more appropriate ways: this indicated acceptance and ownership of those shared values. For example, one stated,

"I was able to see their perspective on things. ... to understand my Chinese coworkers a little better because I didn’t understand why things were happening the way they were. ... now I have a good overview”. #BENP3

"I realized we were so different in mindset...and I think of the advantages of thinking in that way...I used to find questions they asked unnecessary, but now I start to understand why they asked.” #24CNP4

Surprisingly, some participants reported actions taken afterwards, which can be seen as outcomes of Internalization. Two participants from the same function but different language groups reported they developed an intention which then led to an actual behaviour change, to collaborate to develop a particular new product. As one stated:

"Through the workshop, I realized how important it is to my colleague that I give my feedback to them immediately. So we had another 30 mins talk afterwards to give each other feedbacks on our previous work. We then decided to immediately try out the new ideas.” #27CNP3

Another stated:

"So your workshop actually made me act. It is not after the workshop, it is during the workshop.” #6ENP3

Moreover, there were two reports on initiations of inviting teachers from another language group for personal gatherings, indicating nurturing of closer personal relationships and more open attitudes for interpersonal interaction.

Given the limited time and research opportunities due to COVID influence, the final outcomes are only in the form of share values statements, lacking any framework structure as seen in those from EI.1,
which incorporates priorities and linkages of the shared values. We acknowledge these limitations.

### 4.4.2 Perceived transformation

A summary of perceived transformations synthesized from all the data is presented in Table 4.3. Both individual and collective level transformations were reported, and showed potential for further sustainability transformations, with respect to cross-cultural collaboration in particular.

**Table 4.3** Synthesized perceived transformations through the process of shared values development.

<table>
<thead>
<tr>
<th>Externalization</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual level</strong></td>
<td></td>
</tr>
<tr>
<td>Reflection on self-values with more articulated understanding</td>
<td>Reflection on how to get out from existing routine</td>
</tr>
<tr>
<td>Self-realization of individual values and priorities</td>
<td>Reflection of desired position within organization</td>
</tr>
<tr>
<td>Perspective change on certain value topics</td>
<td>Intention to communicate and negotiate with teachers.</td>
</tr>
<tr>
<td>Reflection of desired position within organization (new work-life balance)</td>
<td>Intention of active self-articulation in communication</td>
</tr>
<tr>
<td></td>
<td>Intention to experiment new ideas</td>
</tr>
<tr>
<td></td>
<td>Intention to build collaboration for problem solving</td>
</tr>
<tr>
<td></td>
<td>Intention to come up with best interaction strategy with people by accommodating what they value</td>
</tr>
</tbody>
</table>

| Collective level | | |
| Recognition of how other people arrange their values | Recognition of how other people arrange their values |
| Understanding of other individuals and their previous decisions and actions | Recognition of other people’s boundaries in terms of value |
| Identification of value similarity and difference among teachers within the same group | Identification of common goals concerning organizational development |
Externalization | Combination
--- | ---
Accommodation to other teachers’ way of talking and responding | Accommodation to other teachers’ way of talking and responding
Action towards achieving a specific value | Experimentation to collaborate on new ideas on working tasks
Increasing communication quality
Recognition of importance of discussing values-oriented knowledge comparing to task-oriented knowledge | Advocation of need of combining values-oriented knowledge and task-oriented knowledge
Advocation of need of long-term development of shared understanding
Relational connection and affection | Relational connection and affection
Sense of equality

There is a shift from those of Externalization to those of Combination with respect to becoming more interaction-orientated, action-orientated, work-orientated, and ethical. We thus argue that the Internalization mode as envisaged in the SECI model did happen without deliberate researcher intervention, as a natural consequence of Externalization and Combination modes. Mentioned by several participants in the post-interviews after the 2nd round of workshops, a Combination of values-based knowledge and specific work-content-oriented knowledge would be preferred in real work applications to develop collaboration. As one stated:

“...I think it will be more (like) problem solving...trying to figure out where the problems were made...I think we understand the values and perspectives of different types of staff here (now), it should be more applying the information in (our work).” #3ENP4

This shows recognition of the usefulness of combining values-oriented knowledge and task-oriented knowledge, and the implication of strong intentions to practice the shared values which were created, suggesting that the Internalization mode occurred without any deliberate or external push or assistance.
It is noteworthy that intersubjective characteristics can be identified in the perceived transformations, e.g., mutual trust, reciprocity concerning the practice and communities (Wenger, 1998). Intersubjectivity arises from active empathizing with others by transposing themselves into others’ position, i.e., putting themselves in someone else’s shoes (Husserl, 1970). It was nurtured in this study when participants were able and willing to recognize and understand others’ values that was to actively empathize with others to try to understand others’ interests (Von Krogh, 1998). They developed affective and emotional reflection on understanding relationships with others to sense and understand others not just on a shallow intellectual level but on a deep and emotional level (Nonaka & Takeuchi, 2021). Furthermore, they developed the intention to shift from a more cognitive and abstract stance towards a more activity-oriented more empathic socio-emotional stance that accommodates others’ values which implies a sense of responsibility and concern for others (Plaskoff, 2012).

4.5 Discussion

We introduced this paper by stating our aim to support the mainstreaming of value-based inquiries into transformational sustainability science inspired by the Four Perspectives proposed by Horcea-Milcu et al. (2019). We explained how our empirical study in an international school in China could potentially support and inform the realization of, and interactions between, the Four Perspectives. We emphasized the need to better understand transcendental values (as opposed to contextual values), and cultivate togetherness through the creation of shared values. We then presented an intervention design informed by the SECI model and reported results and findings from its implementation. By allowing cross-fertilization between concepts from sustainability transformation, theoretical bases of the intervention design, and the practice-based lessons from the field, we generated empirical lessons and insights of implications as brought together in Figure 4.4 and discussed below.
4.5.1 Empirical realization of Perspective 1 and 2: the role of shared experience

This study allows us to illustrate and elaborate on the roles of Externalization and Combination in achieving the surfacing of values (Perspective 1), and negotiation of values (Perspective 2), as shown in Figure 4.4. In the Externalization stage, we facilitated the articulation of shared values of different groups. As the experience-based, tacit knowledge was converted into explicit knowledge in a specific boundary and context, the groups' shared values surfaced. In Combination, we facilitated the negotiation of shared values across different groups, on a more explicit basis which was developed in Externalization. With participants once again applying both their tacit and explicit knowledge, they developed a new, shared set of values within the new, wider boundary marked by their shared experience. The boundaries of both groups were partly merged and reformed into one new boundary that is now shared by all the teachers in this international school to take onwards to guide their framing of problems and justification of solutions in specific problem contexts.
Although the Four Perspectives can be seen to be interrelated, they do not have a linear progression, nor is a hierarchy of elements of process implied (Horcea-Milcu et al., 2019). However, insights from this case imply a preferred sequence of Perspective 1 occurring first, followed by Perspective 2, due to the tacit nature of transcendental values requiring surfacing before communicating in the negotiations. It is worth noting that values were constantly being considered and reconsidered between the individual level and collective group level (which also consist of multiple levels such as groups, divisions and organizations), with accompanying constant negotiations and comparisons occurring on multiple levels. We simplify our discussion here by not dwelling on the micro level, i.e., personal learning occurring within an individual, but acknowledge the necessity to further explore that level, especially with respect to enquiries about inner sustainability (O’Brien, 2018).

The role of experience, especially shared experience, stands out as it seems to be the main resource of the surfacing values (Perspective 1), and also lies at the core of SECI model for continued knowledge creation. People can only surface what already exists and is in place, i.e. the transcendental values held for longer times. Those values we wish to elicit and make more explicit are embedded in experiences, as we assume they are manifested in daily actions by guiding the decision (Stern et al., 1999). Meanings of transformation are acquired from experience of transformation (Duncan et al., 2018) and engagement in meaning-making (Linnér & Wibeck, 2021), hence, values as a component of individual meaning making (O’Brien, 2021) acquire the meanings from experience. In the SECI model, the spiral starts with Socialization in which new tacit knowledge is shared among individuals through shared experiences (Nonaka et al., 2000). That is, both Externalization and Combination require a resource foundation that comes from Socialization to feed the continuum of knowledge creation. Experience, among all things, is the basis of Socialization, starting with individual experience which becomes shared experience. Only through shared experience in which interaction, observation and imitation happen, can tacit knowledge be acquired (Nonaka, 1994). Our intervention design builds on shared experience as the basis for the shared tacit knowledge through which transcendental values are manifested and become meaningful. In this case, the teachers have been working together for a long time and thus acquired shared experience from Socialization already. This occurs even when there is
limited collaboration between the teachers, because they experiencing much of the same context while at the same small school.

A lesson to take forward to other studies and practices is thus to obtain values surfacing (Perspective 1) through *Externalization*, and values negotiating (Perspective 2) through *Combination*, but since both rely on a good foundation from shared experience through *Socialization* it follows that it is better to start with people who have some kind of boundary of shared experience. They can then surface the related shared values and go on to negotiate the explicit representation of them.

This finding also adds to recent efforts to focus on ‘inner worlds’ (Ives et al., 2020) by echoing the importance of Phronesis, because experience is considered the source of practical wisdom (Polanyi, 1968) and is recognized as essential for sustainability transformation (Caniglia et al., 2023; Fazey, Schäpke, et al., 2018; Peters & Wals, 2013). It is also considered the key resource for business leaders to draw on for strategy to become more future-oriented, society-focused, dynamic and human-centric (Nonaka & Takeuchi, 2021).

Noting that Perspective 1, was discussed mostly with respect to emerging scientists’ transcendental values for transdisciplinary collaboration, we claim that although our case didn’t address the scientific community, the international school teacher community also suits that research purpose, in that they are groups from different cultural backgrounds with different first-languages, implying differences in transcendental values underpinning their perceptions, decisions and actions. We wish to provide insights that go beyond just emerging the scientists’ transcendental values to also acknowledge and include other stakeholder groups that are critical in realizing transdisciplinary collaboration.

### 4.5.2 Interaction of the Four Perspectives: Surfacing values as the starting point for individual transformation

Our results of the perceived transformations in Table 4.3, showed individuals conduct behaviour change (e.g., spontaneous cooperation) and developed intention to incorporate values into real action. We view these intersubjective transformations as a foundation for future
transformations regarding specific collaborations in the school. These results imply that the transcendental values surfacing (Perspective 1) and negotiating (Perspective 2) is inherently related to, and have impacts on, the transformation through values (Perspective 4), in that they both can trigger development in the inner dimension of sustainability of individuals, which is increasingly acknowledged to be important for transformation in sustainability science (O’Brien, 2018).

Drawing on the organizational Knowledge Creation Theory, the SECI model starts from inner realm of individual where tacit knowledge is embedded and can be viewed as a social process of validating truth (Nonaka, 1994). Individual subjective knowledge created out of experience is shared and justified by others, i.e. validated socially and synthesized (Nonaka, 1991), then becomes shared collective knowledge. More specifically we argue, surfacing values is an** Externalization** process which involves constant individual reflection on their subjectivity as their tacit knowledge being converted into explicit knowledge (Nonaka & Toyama, 2005) and may trigger double-loop learning where fundamental beliefs, values and assumptions are critically challenged and reflected (Argyris, 1977). Despite being framed as the **Combination** process in this study as happened on the group level, negotiating values is eventually a process nested on individual level values surfacing process as well. This can also be linked to the notion of social learning process which is defined as “a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks” (Reed et al., 2010). This again reinforces the significant role of values and inner dimension as the leverage points for transformation (Abson et al., 2017; Fischer & Riechers, 2019; Horcea-Milcu, 2022; Woiwode et al., 2021).

This brings us to further consider the connection between transcendental values and contextual values. The former informs decision-making and behaviours conduct fundamentally, and the latter incorporates pragmatic aspects in to develop more actionable solutions. Both are important for transformation towards sustainability. Our findings show that surfacing and negotiating transcendental values within a social boundary based on shared experience can lead to an intention to more values-based thinking, and to connect values to specific problem-solving (see Table 4.3). Therefore, we argue a balance
between engaging transcendental values and contextual values should be pre-considered in transformation projects. If there is firstly an appropriate degree of meaning-making of existing, held, transcendental values within a relevant boundary, then this might allow generation of a comprehensive understandings of one’s own life at the individual level. This can then form a good basis for developing shared contextual values, in a shared frame of reference where sustainability problem contexts are introduced (Perspective 3). This understanding is in line with the conceptualization of the social process of deliberation in the deliberative value formation model, i.e., feeding into a translation of transcendental values to a specific context (Kenter, et al., 2016).

4.5.3 The intervention design for sustainability transformation: researcher’s role and transdisciplinary collaboration

Following the need for balanced power dynamics which mediate social learning (Kenter et al., 2016), we discuss the contribution of this work to the idea of utilizing a ‘values broker’ which is seen to be helpful in mediating expressed competing values to prevent conflict (Horca-Milcu et al. (2019) citing e.g., Ingold & Varone, 2012). We argue that the facilitator of the WeValue InSitu process is a promising role for researchers to take which grants them to be the one authorized to balance the dynamic in discussions, and enables them to foster social learning intensively. There is another facet whereby researchers can also engage in the process, intentionally avoiding participating in negotiations of decisions, but simply to raise awareness of and reflect on how their own set of values aligns or conflicts with the group under study. The session can then provide time and space for a researcher’s personal reflection (Raymond et al., 2010) and promotes their inner-oriented understanding of reality, consequently helping them sort out their intended and possible role(s) as researchers (Wittmayer & Schäpke, 2014), or even to become campaigners of impactful research to policy, in turn promoting “explicit recognition and communication of personal values underpinning research and impact” (Reed & Rudman, 2022). The above also responds to the current ongoing discussion in sustainability science regarding the importance of subjectivity and the personal sphere (O’Brien, 2018).

One more seemingly-far but naturally-closer area which this work could speak to is transdisciplinary collaboration research, where researchers
with different knowledge systems and underpinning values systems are striving to be brought together. Our intervention design presented in this work, including the WeValue InSitu method, can clearly contribute to promoting Phase 0 (Horcea-Milcu et al., 2022) in transdisciplinary collaboration by providing a well-designed facilitation tool. Togetherness with shared values - “Creating coherence at the level of intent is a powerful way to support co-creation across all of Phase 0” – is recognized to be impactful throughout the whole transdisciplinary process in that, a) it leads to trust-building on the science-policy interface, and b) engagement with individual and collective values are considered to generate high leverage for sustainability transformation (Abson et al., 2017). This is precisely what we did in the study utilizing WeValue InSitu process and the intervention design. We would argue that developing shared values of the group based on pre-existing individual transcendental values through an intensive reflexive process provides a platform for dialogues and collaboration to be cultivated concerning diverse contents, e.g., goals, time and trade-off management. Moreover, the WeValue InSitu process is highly reflexive, and this helps reveal the potential of value to cultivate change internally (Davelaar, 2021).

4.6 Conclusion

Through empirical evidence we demonstrate the possibility and process of surfacing and negotiating transcendental values to co-generate shared values through our particular intervention design based on the SECI model. Our results show self-reported perceived outcomes of transformative and intersubjective attributes, and this suggests the transformative potential in engaging with transcendental values in this specific way, which foster Perspective 4, i.e. transformation through values. We highlight the crucial role of experience - especially shared experience - and point to the more general potential of using the SECI model to plan processes of engaging values for sustainability transformation.

It may be noteworthy that the work we report here is based in China, and involving Chinese and non-Chinese cross-cultural bridging towards sustainability transformations, which may provide region-based insights which seem to be lacking in the literature, which usually reports on work carried out in Europe and Australia. We suggest that our approach may
provide possibilities for future cross-cultural comparison studies in sustainability science to be carried out in other regions worldwide. For future studies we also suggest the values-based design we provide in this work, which allows surfacing and negotiating values and developing shared values from individual to collective level, could be incorporated as a mode-2 pathway to engage with values relationally as leverage points for transformation study (Horcea-Milcu et al., 2022).
General Discussion and Conclusion
Abstract

In this Chapter, I answer the three research questions by providing a synthesis of all the empirical findings to generate insights on the potentials of externalization of shared values in promoting sustainability transformation. With respect to the potentials from shared values (findings as summarized in Table 5.1), three roles were identified. Namely, a research object, a perception lens, and transformation lever. With respect to the potentials from the procedure of making shared values explicit, i.e. externalization, I proposed the ‘values literacy’ on individual level and ‘values-based foundation’ on collective level as effects gained from the procedure. I then discuss the potential underlying mechanism from the SECI model lens for the above identified potentials to contribute to sustainability transformation and point out different but critical roles of socialization, combination and internalization modes in supporting, accelerating and realizing the potentials. Separately, I reflect on implication from this work for researchers in how researchers can leverage the findings from this work to guide themselves to introduce or engage their values in sustainability science research. Going beyond, I further discuss how the findings can pragmatically help shape the expected goals to involve shared values and point out how to achieve them for a particular sustainability transformation project, as a response to the overarching gap in coping with the complexity of conceptualization and operationalization of values in sustainability transformation. I critically reflect on research limitations with respect to its generalizability, methodological implementation, behavioural conduct of researchers and influence of COVID19, propose possible research agenda for future studies and conclude the chapter.
5.1 Aims and approach of this chapter

This chapter aims to address the overarching research question regarding the role of externalizing shared values in sustainability transformation, by synthesizing findings and learnings from the three empirical cases. I address it via its three specific research questions:

1. What potential does the concept of shared values, when conceptualized using the new perspective, hold for sustainability transformation?
2. What potential does the procedure of externalization of shared values hold for sustainability transformation?
3. How can the identified potentials possibly contribute to sustainability transformation?

To answer the first research question regarding potential of shared values for sustainability transformation, I reflect on results of the grounded investigations of the three cases and identify three different but interconnected pathways through which shared values were found to contribute to sustainability transformation. To answer the second and third research question, I adopted the SECI model to guide my synthesis. For the second research question, focusing on the potential of externalization of shared values for sustainability transformation, the SECI model leads me to two categories: individual level and collective level. For the third research question focusing on underlying mechanisms, I make use of concepts of the SECI model to elaborate on how to ensure and utilize externalization of shared values to contribute to sustainability transformation. Additionally, I reflect on the role of the researcher in these cases and provide insights for how to ensure the normative conduct of research in sustainability science from the perspective of this work.

I also critically examine the research limitations from both theoretical and practical perspectives. By acknowledging these limitations, I aim to bolster my academic credibility and to ensure transparency in my research process. By reflecting on the constraints and challenges encountered during my research, I endeavour to demonstrate my commitment to rigorous scholarly inquiry.
Lastly, based on the insights and reflections accumulated throughout this chapter, I present a research agenda to support future advancements in sustainability transformation and provide practical guidance for stakeholders involved in promoting sustainable practices in Shanghai and beyond. This research agenda is intended to serve as a provisional roadmap, shedding light on areas that necessitate further exploration and offering potential avenues for future research.

While there may be some redundancies in content with respect to the preceding chapters, I believe that some repetition is necessary to ensure a coherent connection between the higher-level discussions and the empirical evidence coming from the empirical chapters. By incorporating the findings from the previous chapters in this way, I aim to enhance the readers' comprehension and facilitate a deeper understanding of the pragmatic role of externalizing shared values in sustainability transformation.

5.2 A short summary of the empirical chapters

In Chapter 2, I present the first case study (Case 1) conducted in a village located in the rural surroundings of Shanghai city. Our preliminary aim was to understand the responsibility-driven collective action happening in this village from a shared values perspective. I identified this rare type of collective action (Liu et al., 2020) as a promising transformation which is based on responsibility which is associated with people’s inner dimension as opposed to mainly economic driven benefits. Through several WeValue InSitu workshops, we externalized the shared values of those relevant groups (village leadership group, middle level management groups, frontline working groups) in the village working in tandem. By analysing the externalized shared values, our findings revealed relevant overlaps and complementarity of the shared values of each pair of groups working with each other, and along the chain linking them to each other. This study adds our knowledge to understand the underlying mechanism of responsibility-driven collective action.

In Chapter 3, I present the second case study (Case 2) in which we aimed to better understand Shanghai city residents’ potential sustainability transformation pathways to cope with climate change through their perceptions of climate change. As perception is clearly
associated to people’s inner dimension, we decided to try to approach people’s perception using a shared values lens. We first externalized the shared values from groups of residents through WeValue InSitu workshops and then engaged them in a focus group discussion concerning the topic of climate change adaptation, which would naturally be considered through the lens of their shared values. A conceptual framework was produced by synthesizing results from the focus group discussions, projecting very relevant perceptions on climate change adaptation, along with their linkages to the underlying shared values (of the sustainability transformation inner dimension). This study indicates the usefulness of the shared values lens to inform a more comprehensive understanding of people’s climate change adaptation pathways, which in turn provides policymakers insights to make more socially robust policy designs.

In Chapter 4, I present the third case study (Case 3) in an international school in Shanghai. We were approached by its principal who wished to trigger a particular sustainability transformation, i.e. to facilitate collaboration between two non-interacting groups who had distinctly different identities. We regarded this ‘expected change’ as a type of sustainability transformation, because we identified mismatches concerning the values/perceptions of these two groups from our preliminary investigation, and filling these gaps required transformative changes. A values-based approach seemed suitable. Built on the previous two cases, we first externalized the shared values of the groups separately through WeValue InSitu workshops and had them use their shared values as a lens to reflect on those of the other group. A booklet, as a joint effort of the research and selective participants from both groups containing insights into values/perceptions mismatches, was produced and distributed. Later, we conducted WeValue InSitu workshops with the two groups mixed and had participants critically reflect on what potential shared values could be for the new, aggregated, cross-cultural group. The results from different stages of the implementation of this case, support that the groups developed a new deep awareness of their own shared values and those of the other groups, and through internalization were able to develop and practice a new set of synthesized shared values which allowed them to collaborate effectively.
5.3 Synthesis of the research from the theoretical perspective of Knowledge Creation Theory

In this section, I synthesise and elaborate the findings from the empirical cases following the order of the three research questions. The purpose is to draw out the more theoretical and conceptual insights that might be transferable to inform practices elsewhere. In addition, I provide a fourth section to discuss separately about the role of researcher in sustainability science.

5.3.1 The roles of shared values for sustainability transformation

The three cases separately demonstrated different roles of shared values in different sustainability transformation scenarios, namely as a research object, as a perception lens, and as a transformation lever. Kenter et al. (2019)’s review demonstrates how shared values are shown in several studies to be useful for contributions to sustainability transformation indirectly as objects or lenses. And shared values (being specifically engaged in the way present in Case 3) have been shown to be able to contribute to sustainability transformation directly as a lever in line with the general idea of values being a leverage point for sustainability transformation (Abson et al., 2017; Chan et al., 2020; Leventon et al., 2021).

I summarize in Table 5.1 the type of values engagements as being: to work with, work through and work on values. Regarding the pathways to approach transformation via shared values (which refers to different intentions to contribute to sustainability transformation in the three empirical cases), I describe them as: information to understand transformation, information for decision making support to inform transformation, and as factors of change for cognition and action to produce transformation.
Table 5.1 The roles of shared values for sustainability transformation

<table>
<thead>
<tr>
<th>Case purpose description</th>
<th>Understand collective action based on shared values</th>
<th>Obtain climate change perceptions through a shared values lens</th>
<th>Promote cross-cultural collaboration by engaging with shared values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of values engagement</td>
<td>Work with shared values</td>
<td>Work through shared values</td>
<td>Work on shared values</td>
</tr>
<tr>
<td>Pathway to approach transformation via shared values</td>
<td>As information to understand transformation</td>
<td>As information for decision making support to inform transformation</td>
<td>As factor of change for cognition and action to produce transformation</td>
</tr>
<tr>
<td>Role of shared values</td>
<td>A research object</td>
<td>A perception lens</td>
<td>A transformation lever</td>
</tr>
</tbody>
</table>

Case 1: Shared values as a research object to understand responsibility-driven collective action

In Case 1, shared values can be seen as a research object and provide information for us to understand the transformation, i.e., the underlying mechanism of responsibility-driven collective action in a rural area in Shanghai. We worked with the shared values and engaged with values indirectly. The term, ‘Information to understand transformation’, refers to the situation where we tried to understand the formation of successful transformation from data derived from a new perspective (i.e., shared values), and this in turn contributes to the discourse regarding transformation by adding new knowledge. To put it into context, the already present responsibility-driven collective action in the village can be regarded as an ideal transformation, and our new understanding regarding this transformation from the shared values perspective sheds light to future practice in nurturing this type of transformation.
By working with shared values as objects, the findings as shown in Chapter 2 revealed unexpected insights in community capacity-building, through the identification of rich linkages between the less-tangible drivers coming from the shared values; the capacity-building processes; and the emotions and resources driving the success of the responsibility-driven collective action. The detailed alignments between role and shared values within groups, and complementarities of shared values across different roles, deepened our understanding of the three underlying conditions which supported responsibility-driven collective action in that case. For instance, our data analysis identified key transformation factors like: presence of strong leadership, leading by example, showing humility, and actively creating spaces for meaningful participation where villagers have their voice of concerns and initiatives heard. See an illustration in Figure 5.1a.
Externalized shared values

Work with shared values
Shared values as information to understand transformation

New understanding regarding an exist sustainability transformation

**Figure 5.1a** Illustrations of roles of shared values as ‘a research object’ in Case 1, leading into identification of informative linkages between them.
Case 2: Shared values as a lens to elicit citizens’ perceptions on climate change

In Case 2, the concept of shared values provides a lens to elicit and explore citizens’ perceptions regarding climate change in an urban area of Shanghai. We worked through the shared values and engaged with values indirectly. The term, ‘information for decision making support to inform transformation’, refers to the situation where people consciously involve and reflect on their values to guide their decision making to cope with a given challenge. In Case 2, people first externalized the shared values of their own interests groups, and then engaged in focus group discussions to share their perceptions and preferences in coping with several climate change scenarios. In this way, the perceptions would naturally be considered through the lens of their shared values.

By working through the shared values lens, our results showed that if the perceptions in our data were explored on the basis of the externalization of shared values, the results could be integrated to form a comprehensive conceptual framework of how the shared values underpinned citizens’ perceptions of climate change. This can be used to inform our understanding of how people perceive themselves to be able to transform, and to inform future policy formulation and project design in response to climate change. Specifically, it provides a bridge from shared values into local policy, which is a commonly mentioned research gap (Corner et al., 2014; O'Brien & Wolf, 2010; Wolf et al., 2013).

The conceptual framework produced in Case 2 consists of four levels and shows how a particular transformation may occur. Starting from various types and levels of “Awareness” regarding climate change, moving to “Redlines” that trigger residents’ leaving of Shanghai, moving onwards to higher threshold conditions named “Attractions” that help maintain residents’ satisfactions and prompt them to stay in Shanghai, and eventually reaching the “Actions” level of active transformation behaviours. This level includes potential mitigation and adaptation behaviours, and creating the necessary supporting conditions, including government support, to promote the above-mentioned behaviours. The structure of this framework conforms to the more conventional theoretical values tradition that claim that values serve as the underlying logic to guide the attitude, willingness and behaviour of
individuals and groups (e.g., Stern et al., 1999). For future study, researchers can investigate the underlying cultural-related values-based factors which shape or influence the perception of climate change by utilizing the kind of data obtained from the process of externalization of shared values. It provides two types of data: not only the shared values themselves, but also the connections between those and perceptions of climate change. See an illustrated in Figure 5.1b.
Figure 5.1b Illustrations of roles of shared values as ‘a perception lens’ in Case 2 through them a conceptual framework about climate change could be constructed.
Case 3: Shared values as a transformation lever to facilitate cross-cultural groups collaboration

In Case 3, (the externalized) shared values serve as a transformation lever to bridge cross-cultural working groups and promote collaboration, in this case, in an international school of Shanghai. Built on the previous two cases, we directly worked on values to encourage changes in cognition and action. We externalized shared values of different language groups separately, then had them use their shared values as a lens to reflect on those of the other group. In the last step we facilitated critical reflection on what potential shared values could be for the new, aggregated, cross-cultural group.

Shared values are treated as the fundamental factor of change, both in cognition and action. This case demonstrates the possibility of enabling shared values to bridge cross-cultural groups for collaborations, as a desired transformation for collectives searching a sustainable future. The results showed how the shared values of participants from different cultural groups were externalized and revealed, alongside, transformations at individual and collective levels. Participants reported a number of key intersubjective characteristics, including mutual trust, reciprocity concerning the practice and communities (Wenger, 1998).

Changes in cognition such as recognition of how other people arrange their values, understanding of others and their previous decisions and actions, new reflection on self-values with more articulated understanding, self-realization of individual values and priorities, perspective change on certain value topics (e.g., work-life balance becomes important to me now), identification of values similarity and difference with others and relational connection and affection are reported on individual and collective levels. Further, behaviour changes like new collaboration and new joining informal private gatherings initiated by participants, are also reported.

In research concerning transformation towards sustainability, there is often is a core notion that being actionable and promoting actual action are necessary and should be pursued by academics, and move beyond theoretical and conceptual work (Peters & Wals, 2013; Wals & Peters, 2017). The empirical evidence from Case 3 is thus fruitful in this sense and indicates the necessity of looking into the potential mechanisms
towards transformation triggered by externalization of shared values. An illustration is provided in Figure 5.1c.
Figure 5.1c Illustrations of roles of shared values as a ‘transformation lever’ in Case 3, working on which can lead to an improvement of cross-cultural groups collaboration.
In summary, these three identified roles together indicate the necessity and usefulness of considering (externalized) shared values in sustainability transformation. Moreover, the three roles can be seen as sequential with one supporting the next. The externalization of shared values initiates the first role, and functions as a basic step for the following two roles. When shared values are externalized, they are in explicit and written form and become available for analysis and communication, i.e. to work with shared values. However, this is more for the researcher’s benefit. For people whose shared values are externalized, they can then explicitly refer to their shared values to inform their decisions concerning a specific topic, i.e. to work through shared values. When shared values are available in a more explicit form so that they can be analyzed, communicated and referred to, people can critically consider the content of shared values and consequently decide what steps to take further.

All in all, shared values need to be made explicit first, and I argue in the next section that to achieve this step particularly through the process of externalization is crucial. Based on the preceding discussion, I move to the subsequent section to expand my comprehension of externalization of shared values’ role in sustainability transformation by shifting my discussion focus to the potential of externalization (of shared values) for sustainability transformation.

5.3.2 The roles of the procedure of externalization of shared values for sustainability transformation

In this section, I shift to and identify the roles of the procedure (of externalization of shared values) for sustainability transformation by synthesizing reported effects concerning the externalization of shared values from the three empirical cases, and discuss how these effects were potentially formed from the theoretical perspective of the SECI model. By the end of this section, I hope to provide a more comprehensive picture of the roles of externalization of shared values by addressing both the object and the procedure.

As explained in the first chapter (see section 1.3.1), I adopt the term ‘externalization’ to represent the basic process of making values explicit in this work with the emphasis on the tacit-explicit knowledge conversion. Consequently, I extend my understanding of effects
Concerning the procedure, (i.e. the externalization) using the theoretical framework (i.e. SECI model) from which this term was proposed. In this way, I can leverage existing theoretical learnings, including the four modes of knowledge conversion and concepts like self-transcendent and personal commitment, to inform and add depth to my exploration.

To answer the second research question concerning the role of the procedure of externalization of shared values, I first identified two levels of effects of externalization of shared values for sustainability transformation in this work, individual and collective, and then categorized the effects with respect to knowledge asset (KA) and capacity building (CB). As shown in Table 5.2 below, I propose the term “values literacy” to represent the effects of externalization of shared values on the individual level (KA1, KA2, CB) and the term “values-based foundation” to represent the effects of externalization of shared values on the collective level (KA3, KA4). In this work, the collective level in Case 1 and Case 2 refers to the workshop group level, in Case 3 refers to workshop group level, language-speaking group level, and the organizational level.

I propose the effects of externalization of shared values on the individual level can be called “values literacy”, to present the explicit (KA1) and tacit (KA2) knowledge assets, and the two associated capacities (CB1 and CB2) gained through externalization of shared values. I adopt the concept of ‘literacy’ to underscore that these effects on individual level are of usefulness in the long-term for various sustainability transformation.

This idea of values literacy can be closely related to the discourse of the inner dimension of sustainability. With the increasing call for promoting inner sustainability (Woiwode et al., 2021), and that more research is needed on how to achieve it. Based on my synthesis, I argue that externalization of shared values and the specific method (WeValue InSitu process) may have the potential to do so. By producing both explicit and tacit values-related knowledge assets and building capacity to utilize individual values to make informed and conscious decisions, externalization of shared values contributes to inner sustainability in an empowerment way. The two abilities to engage with values are of particular relevance to the inner dimension of sustainability. I argue that the externalization of shared values contributes to sustainability
transformation in an empowering way. The better one can externalize one’s values and reflect against the externalized values, the better one is able to reflect on one’s inner sustainability. Individuals exploring their tacit spaces through externalization of shared values open the door for sustainability-related reflection.

Regarding the collective level, I propose the term “values-based foundation” to represent the effects of externalization of shared values, including the explicit (KA3) knowledge asset of a shared vocabulary among the group when communicating values and values-informed decisions and the tacit (KA4) knowledge asset of the actual understanding of both shared and non-shared values and the building of mutual trust.

Here, I emphasize the asset development aspect of the externalization of shared values. By externalizing people’s shared values in their original positions, i.e. in situ shared values, the existing and already-practiced values become explicit and obvious to people while overlapping tacit spaces are identified. Doing so, lays the foundation for cross-boundary interaction by increasing mutual understanding, mutual trust, and efficiency of exchange and transfer of values as being externalized in a documented form. In particular, this foundation can be useful for transdisciplinary collaboration in sustainability science by forming the Phase 0 (Horcea-Milcu et al., 2022) and for deliberative ecosystem service evaluation by filling the representation gap (Orchard-Webb et al., 2016).
**Table 5.2** Effects of externalization of shared values on individual level, collective level

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Collective level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge Asset (KA)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>KA1</strong>: Explicit knowledge asset of shared and non-shared values of oneself and the group, to raise awareness and to inform conscious decision-makings in a given problem context (e.g., climate change, natural resource conservation, biodiversity protection, food consumption etc.)</td>
<td><strong>KA3</strong>: Explicit knowledge asset of shared vocabulary among the group used in communicating values and values-informed decisions.</td>
</tr>
<tr>
<td><strong>KA2</strong>: Tacit knowledge asset of understanding of shared and non-shared values of others (understanding as an ability as defined by Wittgenstein (1967))</td>
<td><strong>KA4</strong>: Mutual trust</td>
</tr>
<tr>
<td><strong>Capacity Building (CB)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CB</strong>: Ability to reflect against explicit values</td>
<td>N/A</td>
</tr>
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| Values literacy | Values-based foundation |

**Case 1: Values literacy mainly for researchers**

The data collected solely from the Case 1 supports that the gain of the researcher as an individual, to obtain an explicit knowledge asset (KA1) concerning the shared and non-shared values of the village groups and to utilize this explicit knowledge asset to generate insights from a shared values perspective.

Not being directly reported in the publication of Chapter 2 due to the narrow research aim and word limitation, we actually explored through post-interviews with participants the potential effects of the externalization of the shared values process. Due to the limited availability of post-interview data, it remains inadequate to fully ascertain but to a certain extent they reveal the effects of externalization of shared values on the individual level and the collective level. Some participants from the leadership group reported a clearer understanding of what he/she values (KA2) and what they as a group...
value (KA3), which aligned with what they used to intuitively realize to be their values.

No long-term following-up investigation of externalization of shared values effect was conducted in Case 1 given there were other research aims and questions. Besides, I acknowledge the limited extent to which qualitative data collected through these interviews is sufficient in breadth and depth. It is due to limited access to and corporation from participants in the local village given their busy daily routines. We only covered around half of the participants. Still, we can learn from their feedbacks of the workshops with respect to individual feelings and suggestions to the researchers, which revealed their observations and perceptions on how externalization of shared values may or may not make a difference.
Figure 5.2a Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 1.
Case 2: Values literacy for participants and values-based foundation for researchers in supporting the elicitation of citizen’s perceptions

With the preliminary findings from the Case 1, I consider data from the Case 2 to broaden my understanding of effects of externalization of shared values on both individual and collective levels. The majority of answers from post-interviews focused on feedback on the individual level, and none was reported regarding the collective level effects among participants, possibly due to weak effects. Participants commonly report satisfaction with the outputs of externalization of shared values, in that they acknowledged they were their own answers and were authentic. The perspective that they explicitly see and know their values both shared and not shared with their groups is commonly mentioned among most interviewees (KA1 and KA2). Process data of externalization of shared values reveals the situation where participants were triggered by their shared values statement (CB). For instance, a statement regarding the purpose of work as supporting the family, triggered several participants to come up with a new perception regarding climate change in that they would choose to leave the current job if climate change influences profoundly the business performance of the company and wider industry and vice versa.

Similar limitation to Case 1, post-interview data was not available from all participants due to convenience reasons, including lack of time availability and low willingness of participants to invest more time in the research. We did not carry out long-term following up as the effect of externalization of shared values was not the main research question in this independent case. Hence, I acknowledge this limitation and the according diminishment of argument validity as a consequence.

Noticeably, as researchers, we benefit from externalization of shared values profoundly in this case. Noted the nuanced relational change in Case 1, we particularly pay attention to this aspect during the data collection phase. According to the fieldnotes of self-reflection by the researchers and the post-interview data of self-reported feedback by the participants, we confirmed the improvements of relationship between researchers and participants with respect to trust (KA4) and shared vocabulary (KA3) on the collective level. From the participants’ point of view, they acknowledged the positive atmosphere change during the workshop, in that that they were more reserved and careful in the
beginning but became more willing to share their ideas after they obtained the feeling that the researcher was here to listen and learn. From my point of view, besides the similar feeling regarding the workshop atmosphere, we also notice easier interactions and knowledge exchange afterwards by using the shared vocabulary developed during the workshops with higher trust. For example, there were participants, who doubted whether externalization of shared values had anything to do with their perception of climate change in the beginning, at the end provided compliments with regards to the process, saying that they liked the way the question about climate change was approached.

Moreover, we should state that the recruited participants were not provided with any kind of incentive to finish questionnaires or lab experiments which often in the case in social science research. I would argue that the trustworthiness and validity of data collected in this way is higher, because they participants were not paid or compensated to provide data. I regard this more intrinsic motivation to participate as potentially beneficial to the effect of externalization of shared values and the fostering of transdisciplinary collaboration.
Figure 5.2b Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 2.
Case 3: Values literacy and values-based foundation for both participants and researchers in facilitating collaboration

Case 3, is the major case where we learn the effect of externalization of shared values on the collective level, which also added evidence to the effect of externalization of shared values on the individual level, as already identified in the previous two cases with similar evidence.

The fact that participants were able to collectively reflect on their externalized shared values of their own groups, in the last phase of this case, indicated a form of capacity building (CB). Regarding the explicit knowledge asset of the shared vocabulary among the group (KA3) used in the communication of values and the making of values-informed decisions, this mainly was reflected in participants’ vocabulary use of other groups’ shared values statements. In the final phase of Case 3, there were two mixed workshops in which participants referred to words or expressions from the statements produced in the previous phases, and adopted some words to make up their shared statements as the mixed bigger group. Regarding the tacit knowledge asset of the understanding of shared and non-shared values of others and mutual trust (KA4), evidence from post-interviews like “recognition of how other people arrange their values”, “understanding of other individuals and their previous decisions and actions”, “accommodation to other’s ways of taking and responding”, support the development of shared understanding. Besides, behavioural changes like “relational connection and affection” and “action towards a common goal” are significant and sufficient to support this claim. These are reported in detail in Chapter 4.

As for the gain of the researcher, this case provides convincing evidence by showing how cooperative and enthusiastic the participants were during the one-year investigation. A special challenge we encountered during the last phase of data collection was an unexpected COVID19 lock-down which hindered us to deliver the planned workshops in person and made is resort to an online form. Efforts were done to minimize the influences, however, it is certain that a level of difference regarding intersubjectivity was caused by the delivery methods, so brought limitations as well. We utilized the web camera and microphone and ensured the setting of the participant’s room to maximally stimuli an atmosphere for interpersonal interaction. We set up ground rules for the
online communication to ensure intersubjectivity level through slower but deeper engagement. For instance, constant eye contacts among all participants were recommended, besides, everyone was encouraged to be brave to contribute as everyone’s voice was needed, and to give and be given enough time to respond and share with each other to cope with possible network latency. We carried out several post-workshop activities including immediate afterwards feedback session and post-interviews to check the validity and authenticity regarding workshop deliveries and outcomes. The majority of feedbacks support the success and positive deliveries of workshops, however, there were indeed few participants’ recommendations suggesting that the latter two virtual workshops could be better delivered in a face-to-face manner, to increase interaction efficient and sense of reality. Nevertheless, participants actively respond to our post-interview requests and particularly asked for more workshops in the future that they believe the face-to-face workshops would be more useful, indicating the building of trust (KA4).
Figure 5.2c Illustration of where the effects of the procedure of externalization of shared values appear and influence the final outcomes in Case 3.
In summary, the effects of the externalization of shared values were identified on the individual level and collective level with respect to the knowledge asset and the capacity. Interestingly, the researchers themselves as a special and inevitable type of individual involved in the sustainability transformation process, also gained from externalization of shared values (See more in section 5.3.4). Now, I further discuss how these effects were potentially formed from the theoretical perspective provided by the SECI model.

A SECI perspective on the formation of values literacy and values-based foundation

According to the Knowledge Creation Theory, each mode involves knowledge asset formation (Nonaka et al., 2000). The knowledge assets generated in the externalization mode are called conceptual knowledge assets, that is, explicit knowledge articulated and obtained through images, symbols and languages on the base of socialization (Nonaka, 1994). In this mode, an ontological shift is involved as tacit knowledge from individual level is converted in a collective situation and shared in the explicit form. More detailed in externalization, self-transcendent and personal commitment arise (Nonaka et al., 2000). As the core of this mode, these two concepts represent the individual's transcendence of the internal and external boundaries of the self in this mode. “In externalization, an individual transcends the inner- and outer-boundaries of the self by committing to the group and becoming one with the group. Here, the sum of the individuals’ intentions and ideas fuse and become integrated with the group’s mental world” (Nonaka et al., 2000, p. 13).

Here, the two explicit knowledge assets are generated through the WeValue InSitu process, by externalizing the tacit shared values (insitu shared values embedded in shared experience) to become explicit information. People convert their individual-held tacit knowledge into explicit from and share in the workshop group setting. Individually, this asset makes one’s values obvious and visible, therefore holds the potential to raise awareness and inform conscious decision-making in other given application contexts. On the collective level, another explicit asset is formed through the intersubjective dialogue and become the shared vocabulary people can use to communicate their values and values-informed decisions.
As for the tacit knowledge assets on both levels, I argue that the mutual understanding and trust can possibly be gained through the shared experiences of externalization, i.e. participating in WeValue InSitu process (the intersubjective dialogue), and encompassed in the overlap of tacit knowledge asset among individuals (Nonaka et al., 2000) as called experiential knowledge assets. The more overlapping tacit knowledge, the higher mutual understanding and trust maintain. By far, my findings on both tacit knowledge assets imply that some form of socialization is nurtured within externalization and a new SECI spiral may be triggered within the externalization. It is possible that individuals’ embodied experiences of self-transcendent and personal commitment (through externalizing shared values) become the tacit knowledge asset of understanding each other and mutual trust. Therefore, whether and how to achieve self-transcendent and personal commitment become critical for these effects.

That being said, this work only focus on one ‘kind’ of tacit knowledge, i.e. shared values, and discuss the effects of externalization under the premise that values being the fundamental factor for change. This leads to a potential bias of overlooking the importance of externalization. Future research can explore the effects of externalization of other ‘kind’ of tacit knowledge for more rigorous comparisons. For instance, indigenous knowledge which attracts increasingly attention in sustainability science is often regarded by scholars as tacit knowledge without necessarily being clarified what ‘kind’ of tacit knowledge is included (Raymond et al., 2010). The indigenous knowledge of taking care of natural resource in a locality can be the know-how tacit knowledge, whereas the indigenous knowledge of valuing the spirituality of the natural resource can be the values-related tacit knowledge. While the need of including indigenous knowledge for sustainability transformation is established, the integration of it is still in exploration (Lam et al., 2020). Thus, answering the question of effects of externalization of different ‘kind’ of tacit knowledge can also shed light on what and how to integrate indigenous knowledge for sustainability transformation.

Furthermore, on the basis of this work, theoretical hypotheses integrating factors from sociology, and psychology can be further developed for quantitative testing with regard to how externalization of
shared values promotes inner sustainability. For instance, arguing from a social cognitive coherency theory perspective, I can interpret the externalization of shared values to be able to increasingly raise people’s awareness of the reasons of their behaviour from a values point of view and consequently reveal the alignment or lack thereof, between their values and action to trigger more authentic and long-term actions based on intrinsic motivations. Arguing from the theoretical foundation of the values clarification field (e.g., Vaske and Donnelly (1999)’s value-attitude-behaviour model, Stern et al. (1999)’s value-belief-norm theory), I understand externalization of shared values to be able to increase people's awareness of their own values and develop their capacity to externalize values which are tacit to infer and make sense of their own realities and produce values-based solutions and actions.

5.3.3 Potential underlying mechanism to promote sustainability transformation from the SECI model lens

In this section, I reflect based on the SECI model to elaborate on how to utilize externalization of shared values to contribute to sustainability transformation. By mapping out activities and effects from the empirical cases to the knowledge creation spiral and viewing externalization as one mode of the model from the holistic perspective, I discuss how to ensure and utilize the effects of externalization of shared values for sustainability transformations.

As I map out the actives and effects, I notice it is necessary to first clarify my adaptation of the concept ‘ontological shift’ from the theory. When the knowledge creation theory was proposed, I pointed out that the four modes represent four different ontological shifts (see in Figure 5.3), that is, socialization from individual to individual; externalization from individual to group; combination from group to organization, and internalization from organization to individual. Such an ontological assumption served the specific scenario proposed by the theory at the time, that is, the continuous innovation and long-term competitiveness of commercial organizations.
However, when understanding this theory from a more general perspective without limiting its application to organizational study, I can re-interpret the ontological shifts involved to be from the individual to the individual in socialization, as tacit knowledge is personally held; from the individual to the collective in externalization, as more than one individual is engaged; from the collective to the collective in combination, as smaller groups moved towards a bigger and unified larger group, and, finally, from the collective to the individual in internalization as individuals are learning from doing to amplify their individually held tacit knowledge.

Additionally, I regard one group as one unit on the collective level, i.e. a group of people who naturally gather together. For instance, the teachers who speak the same language in the international school from Case 3. The interactions among these groups to build shared experience can be seen as socialization whereas their learning by doing can also be seen as internalization. I argue in this broad sense that this
interpretation does not conflict with Polanyi’s assertion of tacit knowledge being only individually held. By definition, externalization and combination involves tacit knowledge conversion and synthesis from individual to a different collective level. One take-away from this is that the utilization of the SECI model in guiding my future navigation of externalization of shared values depends on how I define the interrelated and interdependent ‘individual’ and ‘collective’.

Based on the SECI model, the knowledge creation spiral at the individual and collective levels is drawn in blue and red respectively in Figure 5.4. For Case 1 and Case 2 the collective level refers to the group level during the workshop, while for Case 3 the collective level refers to both the group level during the workshop and the organizational level during the whole project. Externalization of shared values, as one mode out of four, can be better understood from a holistic point of view which can possibly provide systemic insights regarding antecedences, conditions or consequences related. Accordingly, I discuss the implications for ensuring and utilizing the effects of externalization of shared values for sustainability transformation.
**Figure 5.4** The knowledge creation spirals on individual level (in blue) and collective level (in red).
Looking at externalization from the full knowledge creation spiral, the first learning I gain is the essential role of socialization. As the foundation of knowledge creation, Socialization theoretically provides the tacit knowledge as input for externalization (Nonaka et al., 2000). Individuals share experiences to acquire tacit knowledge regarding other individuals’ values through daily interaction (including observation and imitation) as in socialization mode. According to the theory, mutual trust, care and love can be nurtured through socialization, which are essential for the following knowledge creation modes as a foundation for the whole spiral. Because I do not obtain data for this mode, I use a dotted line in the figure to present its formation.

However, the findings at the same time imply that some form of socialization may be nurtured during the externalization and produce outcomes like trust and shared understanding. Therefore, I argue that, a balance of effort is put into these two modes is needed when utilizing externalization for sustainability transformation. On the one hand, there should always be a consideration of the level of socialization to initiate externalization to produce KA1 and KA3. On the other hand, there should not be an over-consideration of the level of socialization in terms of levels of trust and understanding as KA2 and KA4 are able to be nurtured through externalization. That being said, this balance should be contextual and depend on the specific sustainability transformation pursued. For instance, there can be a case of a development project (e.g. climate change adaptation planning on a community level) where researchers need to enter a locality to work with local people and decide to approach from a shared values perspective. It is reasonable, per my argument, for the researchers to directly enter the field without spending extra time nurturing relationships with local people. They can try to facilitate the externalization of shared values with local people who have shared values, even though the researchers are external actors and have no relationship with local people. The relationships can be developed through the process to an extent that is sufficient to assist researchers in interacting and working with local people.

Secondly, I noticed that different levels of combination can contribute to sustainability transformation depending on the specific role shared values play. Combination can happen in the workshops when individuals negotiate towards shared meanings of shared values on an explicit basis of their explicit knowledge as an individual or as a member
of a group to produce information to understand transformation (case 1). Combination can also happen in a group setting (e.g., focus group discussion) when individuals combine other types of explicit knowledge with externalized shared values to inform decisions concerning a particular transformation context (case 2). Further, Combination can happen in the wider group setting (e.g., multi-sector organization) when individuals as one group discuss towards a comprehensive and systematic explicit knowledge of shared values to produce transformation (case 3). Therefore, the inclusion of combination should be informed by specific sustainability transformation people target and the role of shard values plays accordingly.

Lastly, to achieve sustainability transformation, people should strive for real action. For this purpose, the full knowledge spiral should be completed until internalization. Internalization is where people convert the explicit knowledge into real behaviour, and obtain new experience as new tacit knowledge through doing. Theoretically speaking, internalization can happen without combination. Externalization and internalization are the key modes within the continuum of knowledge conversion (Nonaka, 1994). That is, whenever externalization happens, internalization can follow. Individuals, who externalize their values from tacit into explicit form, become possible to internalize what is externalized back into tacit form through experimenting.

In Case 3, when shared explicit knowledge regarding shared values is in place, individuals take in the explicit knowledge by reading, and further explicit knowledge by converting it into action, i.e. learning by doing, to amplify their tacit knowledge as in the combination mode. I see individual behavioural changes as the evidence of Internalization happening which indicate the completion of the spiral. This implies not only the specific intervention design in that case being useful, but also that the opportunity for internalization should be provided intentionally to allow the effects of externalization and combination to go through.

While I look at externalization from a holistic perspective, the micro processes within externalization (e.g., the discursive process of how to realize self-transcendent and personal commitment) are not considered and brought into discussion here in this work. However, it should be considered a promising future research direction if the major argument of this work is solid, i.e., externalization of shared values is able to play
a critical role in promoting sustainability transformation. To reveal the micro processes can deepen my understanding of how to achieve externalization in operationalization, and also optimize the WeValue InSitu process for sustainability transformation.

5.3.4 Implication for researcher’s role in sustainability science

In the discussion above, I do not distinguish the potential ‘beneficiary’ of my work between researcher and participant when referring to individuals. However, this is of particular interest to the discourses of research normativity and transdisciplinary collaboration in sustainability science field where researchers are urged to critically reflect on the nature of actionable research and their role in play (Peters & Wals, 2013; Wals & Peters, 2017). Schneider et al. (2019) explicitly call for involving values as an empirical and theoretical object of sustainability research, suggesting the necessity for researchers to reflect on and spell out values which guide their investigations and define their accountability and to learn collectively and deliberatively with societal actors. Horcea-Milcu et al. (2019) suggested that researchers’ values (which they take into research conduct) should be surfaced first before going into any negotiation. These ensure the credibility and relevance of scientific contribution by engaging the norms and values analytically in knowledge production relevant to sustainable development. As the focus of this work being values-related, I therefore discuss the implication of this work for researcher’s role in sustainability science.

I reflect on the critical role of researcher in sustainability science by considering researcher as a type of individual apart from other individuals involved in all three cases. The relationship among these levels is as illustrated in Figure 5.5 that individuals when as participants belong to their group which is defined by shared experience, whereas individual when as researcher overlaps with the group being facilitated as researcher involves in the discussion all the way through.
Figure 5.5 The relationship among individual as participant, individual as researcher and group.

From the perspective of the roles of shared values, in all three cases, the researcher gains by obtaining explicit knowledge asset of shared and non-shared values of diverse groups, to inform various researcher questions. In particular, when shared values play the role of a research object, it is only the researchers who benefit and violate the principle of reciprocity. Therefore, researchers need to be aware of this risk and improve the research design accordingly to ensure the gain of participants in this circumstance.

With regards to the effects of externalization of shared values for researcher, the “values literacy” developed on the individual level and the “values-based foundation” established on the collective level both fit the expectations for researchers to be able to societally engage with different stakeholders for better sustainability transformation (Rozance et al., 2020) from sustainability science field and wider fields of participatory study, action research and sustainability science. Researchers are required to go beyond a mere information producer but become a knowledge broker to tailor their interaction strategies to match preferences of target groups (Phillipson et al., 2012; Reed et al., 2014; Young et al., 2016), through meaningful interactions to minimize the knowledge gap between researchers and stakeholders (Clark et al., 2016). Researchers are recommended to align their communication with the need of users in the behavioural and intellectual sense, e.g., using narratives and a story-telling approach (Young et al., 2016). Increasing awareness of the fact that researchers’ perceptions on interaction with
stakeholders vary both epistemologically and methodologically requires researchers to be clear about their purpose in conducting stakeholder interaction (Knaggård et al., 2019). Therefore, I argue it is worth considering for researchers to build their sustainability-science-related capacity by learning and conducting the professional facilitation of the process of externalization of shared values. Specifically in this work, researchers practice as the professionally trained facilitator of the WeValue InSitu process.

From the perspective of the underlying mechanism, sharing exactly the same knowledge creation spiral as participants in the research is a double-edged sword. For researchers who aim to achieve deep investigation through trustworthy relationships and meaningful engagement this implies while maintaining a certain level of objectivity without generating a covert bias. A delicate balance is required. However, there is a risk of being integrated as part of the research field by developing relationships through long-term socialization. As discussed above, one effect of externalization of shared values is to build mutual trust and relationship in the externalization mode which requires less time and in-depth interpersonal interaction. This can be considered a way to mitigate the risk from socialization but also develop the necessary bridge between researchers and their research objects. This insight is of particular relevance for action research which is increasing advocated in sustainability science (de Bremond et al., 2019; Grove & Pickett, 2019).

Besides, interaction with the key gatekeepers who hold the most common experience with people in the research fields, opens the door for most tacit spaces of the research fields, and this allows a quick sink-in for researchers to situate themselves. For instance, when a research investigation requires engagement with people from different functions and levels of an organization, a top manager who is in charge of all the key decision-making, is no better or worse than a middle manager, as the middle manager regularly interacts with people from both the top-up position and the frontline position across diverse functional departments.
5.3.5 How the new perspective contributes to research of values in sustainability transformation

Beyond the above identified roles of externalization of shared values for sustainability transformation, I now discuss how this new perspective of viewing values as tacit knowledge navigates the barrier caused by the messy conceptualization and operationalization of values for sustainability transformation. Compared to the approach from the two recent reviews focusing more on ontological and epistemological elaboration (Kenter et al., 2019; Rawluk et al., 2019), my approach majorly contributes to sustainability transformation research and practice from a pragmatic perspective. Aligning with the development trend of sustainability science as being solution-oriented (Miller et al., 2014), the roles of externalization of shared values I identified in this work provide pragmatic implications to future research and practice aiming for sustainability transformation.

To put simply, my findings help shape the expected goals to involve shared values and point out how to achieve them for a particular sustainability transformation project. Aiming for a solution, researchers and practitioners can first reflect on what they want from involving shared values in their sustainability transformation project. Here there are at least two options. The focus might be on a generating information to understand transformation and using a perception lens to provide information for decision-making support to inform transformation, or on the creation of a transformation lever to be a factor of change for cognition and action to produce transformation (See Table 5.1). Based on this clarification, they can then identify on both individual and collective levels what kind of effects may come along if externalization is involved (See Table 5.2). Finally, they can decide which modes (from the knowledge creation theory) should be included and operationalized in the projects (See Figure 5.4). The sequence of implementing different modes should follow what is suggested by my findings and the theory, however, the specific way of doing so should be sensitive to the contextual situation of the project.

5.4 Research limitation, reflections and future study

The acknowledgement of certain limitations encompassed in this work and critical reflections upon those limitations enhance the quality of this
work by setting up boundaries for more accurate inference and judgement of those who read and providing potential directions for improvement of those who follow. In this section, besides the case-wise limitation reported in the previous chapters respectively, I critically reflect on my conducting of this work with respect to its generalizability, methodological implementation, my behavioural conduct as the researcher and influence of COVID19. Besides several future research directions mentioned above, I provide few more suggestions in response to the identified limitations.

I first acknowledge the generalizability limitation of this work, due to the selections of the qualitative approach and the field of Shanghai. As being exploratory, this work was not aiming at generalizability, at all. The preliminary purpose is to discover the role of externalization of shared values through a ‘sandbox’ setting, i.e. the WeValue InSitu Process. Therefore, rather than being a generalizability limitation, to call it a saturation limitation is more sensible.

Due to the field resource limitation, all the empirical data in this work was collected in Shanghai where I am based in. Shanghai, as the leading city of China, represents the most rapid development level with respect to economic, social and environment. The inclusion of both relatively rural area and urban area of Shanghai as fields adds slightly to the saturation, however, there is still enormous amount of cultural and application contexts remaining open for exploration. Besides, sustainability transformation is an umbrella concept under which multiple levels and application scenarios are included. This work only chooses rural development, climate change and organizational change as application contexts. Both the cultural diversity and the application wideness reinforce the need for future study to contribute to the knowledge base of research on externalization of shared values. Empirical data from case studies in different cultural and application contexts should be collected and analyzed under the guidance of a unified methodology and synthesized under the guidance of unified typology and conceptualization. If not taking a qualitative approach, mix methods can be adopted to assist realization of generalizability within a certain geographical boundary, e.g., a city-wide claim of role of externalization of shared values. Based on the qualitative exploration findings, future studies can consider developing quantitative hypotheses
and designing statistically rigorous testing by utilizing representative sampling.

Regarding the methodological implementation, I critically reflected on my experience in the fields interacting with different stakeholders for preparations and data collections. This reflection also supports my finetuning of the practical design of WeValue InSitu process. Being heavily relied on reading and writing literacy, the implementation of WeValue InSitu process encountered barriers in rural areas where participants’ education level being moderately low, age group being relatively old and daily routine being less related to reading and writing skills. That is, the participants are able to read and write, but not necessarily familiar or used to do so. The intensive reading and writing requirements then put extra pressures on participants who have not anticipated this ‘task’ coming. Adding to this energy-consuming requirement, another challenge I often made for participants is the relatively long-time duration of the process, being minimum 2 hours and up to 4 hours or more. To ensure the intersubjective dialogue level and fulfil the workshop design, this amount of time is often needed by experience. Being asked to highly and actively concentrate on listening and externalization, the majority of participants complained about the exhaustion. With ways to navigate the tiredness (e.g., adding energizer session or tea breaks) being available, however, it cannot be accommodated easily considering there are other factors that need consideration. For instance, in many cases of arranging a workshop, participants expect a session of around 1 hour as a comfortable duration they usually experience in daily routine, specifically in the case where participants and the wider environment are neither familiar with the concept of ‘workshop’ nor used to have dialogue in this form. When the priority is to arrange the workshop, my negotiation tends to sacrifice the time duration participants promise to save. Then I am hindered by the limited time, in which I need to finish the workshop with qualified discussion facilitated by me and qualified output generated by participants. Luckily, I notice that the WeValue InSitu process moves faster in Chinese than in English. A typical workshop with 4-5 participants in Chinese can be controlled by an experienced facilitator to be finished within 90-120 minutes, whereas it requires no less than 120 minutes in English. I also consider the reduction of the number of pictures provided in photo elicitation or the number of trigger statements provided in the local trigger list. By doing so, the
participants read less. Meanwhile, I modify the facilitation pace by choosing different expressions in prompting discussions to ensure the realization of externalization of tacit knowledge to explicit knowledge. The delicate balance is difficult to keep. Surprisingly, I also experienced cases where participants were happy and self-motivated to continue the process as they were feeling the process and ask for longer or another session to externalize more shared values. This inspires me to improve my preparation communication strategy by presenting the workshop method using show-case to buy me more time for implementation.

That being said, the researchers have to keep their ethics in conducting fieldwork as being value neutral and being transparent. In this work, I fulfilled strictly my research ethics and conducts as required by the academic community. Participant Information Sheet and Consent Form are rigorously designed and collected. However, under the condition that increasingly raised advocation for producing more actionable knowledge and research to make sustainability science pragmatic and substantially contribute to transformation, I ask myself this question: to what extent being value neutral is ‘appropriate’? I argue previously the usefulness of relationship building between researchers and participants through externalization of shared values for sustainability transformation as researchers are able to produce more actionable knowledge and engage more meaningful with participants. However, this relationship building consequently brings in researchers’ perspectives which may or may not have influence on the participants. Nevertheless, this question cannot be answered, from my perspective, until the role of researcher is justified well. This justification requires more than general guidance from the literature or expert-lead opinions it has to be situated in every specific transdisciplinary collaboration. As Horcea-Mulcu (2022) proposed, a phase 0 is needed to bring all stakeholders ‘together’ in each project to clarify common ground, shared values and roles. The role of researcher should be seen as in dynamic in this sense, to accommodate, to fit in and to be realistic.

This inevitably leads to a reflection on the influence of COVID19 against this work. Due to the unexpected hit of the pandemic from the beginning of 2020, our mobility was dramatically decreased and we were facing the challenge to shift our working and living styles to online environment. The progress of research conceptualization and design were delayed largely by this sudden shift. A new way of conducting
research was needed. During the major data collection period in Shanghai from late 2020 to late 2022, a relatively stable and open environment was secured, except the last period of data collection in Chapter 4 was hindered by a sudden lock-down on university campus. We managed to overcome this challenge as we have developed an emergency protocol to shift everything online, after sharpening our expertise to communicate, interact and collaborate online through the past 3 years already. Further, the city-wide lockdown in Shanghai in the early 2023 affected the following-up investigation of the work in Chapter 4 and slowed down the writing progress of academic publications. Nevertheless, going through the PhD trajectory all the way during COVID19 brings an opportunity to trigger transformative learning for the author. As brand-new challenges emerged and were tackled, higher resilience and self-reflexivity were nurtured.

5.5 Conclusion
To conclude, in this thesis, I aimed to contribute to the ongoing discourse in sustainability transformation by focusing on the role of externalization of shared values. I introduced and investigated the new perspective the of considering values as tacit knowledge and, in line with Knowledge Creation Theory, the making of values explicit as a process of externalization. With the findings and learnings from three empirical cases from Shanghai, China, and by leveraging on the SECI model, I reveal and discuss the underlying mechanism of how these potentials can possibly contribute to sustainability transformation. The new perspective is demonstrated to be useful in providing insights to help navigate the complexity of conceptualization and operationalization of values for sustainability transformation.
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English Summary

Considering the increasing challenges concerning the depletion of natural resources, environmental degradation, climate change and social inequity, it is urgent for human beings to adapt the current sustainability challenges in a fundamental way. That is, to pursue sustainability transformation. Increasingly, more attention has been attracted to the inner dimension of sustainability transformation which is closed related to people’s values, i.e. what is important. While engaging with values is identified to be promising in promoting sustainability transformation and increasing research efforts are reported, the complexity of conceptualization and operationalization of the concept of values is up until now hindering the progress in this regard. By proposing a new perspective, i.e. considering the nature of values being tacit knowledge and conceptualizing the common practice of making values explicit as externalization (as defined in Knowledge Creation Theory), I explored in empirical settings to improve understanding and prescription of use of values towards sustainability transformation by asking the primary research question “What is the role/potential of externalizing shared values in getting people onto their pathways towards sustainability transformation”? Specifically, I asked the following three research questions:

1. What potential does the concept of shared values, when conceptualized using the new perspective, hold for sustainability transformation?
2. What potential does the procedure of externalization of shared values hold for sustainability transformation?
3. How can the identified potentials possibly contribute to sustainability transformation?

The empirical setting is allocated in Shanghai, China. The empirical operationalization of fieldwork is going to be realized through a well-establish method known as ‘WeValue InSitu’. It assists in the crystallization of shared values of naturally occurring groups (experience-based). Using a social constructive approach this work explores how the process of externalizing shared values within three different social group settings contributes to transformation.
I developed the three empirical case studies presented in Chapter 2, 3 and 4 through an interpretive way in collaboration with other researchers as empirical social science studies often appear to be a collective effort in fulfilling data collection and validating data analysis. I started with Case 1 being informed by Kenter et al. (2019) and Rawluk et al. (2019). It was implied in the reviews that values are often considered as an object. Combining the learning and evidence from this case, I further designed Case 2 in which values are considered as a lens. Based on positive confirmation from Case 2 of my premises that exploring the new perspective, that values can be seen as a tacit knowledge and engaged through SECI model, may shed some light on study of values for sustainability transformation, I carried out Case 3 and explored another potentially role of values being a lever for sustainability transformation.

In Chapter 2, I present the first case study (Case 1) conducted in a village located in the rural surroundings of Shanghai city. Our preliminary aim was to understand the responsibility-driven collective action happening in this villages from a shared values perspective. We identified this rare type of collective action (Liu et al., 2020) as a promising transformation which is based on responsibility which is associated with people’s inner dimension as opposed to mainly economic driven benefits. Through several WeValue InSitu workshops, we externalized the shared values of those relevant groups (village leadership group, middle level management groups, frontline working groups) in the village working in tandem. By analysing the externalized shared values, our findings revealed relevant overlaps and complementarity of the shared values of each pair of groups working with each other, and along the chain linking them to each other. This study adds our knowledge to understand the underlying mechanism of responsibility-driven collective action.

In Chapter 3, I present the second case study (Case 2) in which we aimed to better understand Shanghai city residents’ potential sustainability transformation pathways to cope with climate change through their perceptions of climate change. As perception is clearly associated to people’s inner dimension, we decided to try to approach people’s perception using a shared values lens. We first externalized the shared values from groups of residents through WeValue InSitu workshops and then engaged them in a focus group discussion
concerning the topic of climate change adaptation, which would naturally be considered through the lens of their shared values. A conceptual framework was produced by synthesizing results from the focus group discussions, projecting very relevant perceptions on climate change adaptation, along with their linkages to the underlying shared values (of the sustainability transformation inner dimension). This study indicates the usefulness of the shared values lens to inform a more comprehensive understanding of people's climate change adaptation pathways, which in turn provides policymakers insights to make more socially robust policy designs.

In Chapter 4, I present the third case study (Case 3) in an international school in Shanghai. We were approached by its principal who wished to trigger a particular sustainability transformation, i.e. to facilitate collaboration between two non-interacting groups who had distinctly different identities. We regarded this ‘expected change’ as a type of sustainability transformation, because we identified mismatches concerning the values/perceptions of these two groups from our preliminary investigation, and filling these gaps required transformative changes. A values-based approach seemed suitable. Built on the previous two cases, we first externalized the shared values of the groups separately through WeValue InSitu workshops and had them use their shared values as a lens to reflect on those of the other group. A booklet, as a joint effort of the research and selective participants from both groups containing insights into values/perceptions mismatches, was produced and distributed. Later, we conducted WeValue InSitu workshops with the two groups mixed and had participants critically reflect on what potential shared values could be for the new, aggregated, cross-cultural group. The results from different stages of the implementation of this case, support that the groups developed a new deep awareness of their own shared values and those of the other groups, and through internalization were able to develop and practice a new set of synthesized shared values which allowed them to collaborate effectively.

A schematic illustration of implementation of all three empirical cases is provided below.
A schematic illustration of implementaion of all three empirical cases

Sustainability Transformation

Insitu, existing, already-practiced (experiential knowledge) (shared) values, in tacit form

* Before Externalization, values are tacit and therefore held by individuals (tacitly and explicitly) not the collective (explicitly), though already being shared through shared experience.

externatizing shared values through WeValue InSitu process

This icon is used to refer to the 'Researcher'.

This icon is used to refer to the 'Workshop group'. Different colours are assigned to distinguish the two groups of participants holding different identities. The number of icon shown in the figure represent the exact number of workshops conducted in each empirical case.

This icon is used to refer to the 'Participants'. The number of icon shown in the figure does not represent the exact number of participants in the workshops.

Explore an existed ST Responsibility-driven Collective Action

Explore how to promote an expected ST Coping with Climate Change

Promote an expected ST Cross-cultural Collaboration
Externalized shared values
By the end of a WeValue InSitu workshop, a shared values framework is collectively constructed by the participants.

Additional research processes
Specific research questions asked in each empirical case differ and lead to diverse research design.

Research Outcomes
By externalizing shared values and working with the externalized shared values, different research outcomes are produced to satisfy the original research questions asked.

Contribution to Sustainability Transformation
A new understanding regarding an existing sustainability transformation
A new understanding regarding how to promote an expected sustainability transformation
A new expected sustainability transformation
In Chapter 5, I answer the three research questions by providing a synthesis of all the empirical findings to generate insights on the potentials of externalization of shared values in promoting sustainability transformation, in regards to potentials from shared values (findings as summarized in Table 5.1) and from the procedure of making shared values explicit, i.e. externalization (findings as summarized in Table 5.2).

**Table 5.1** The roles of shared values for sustainability transformation

<table>
<thead>
<tr>
<th>Case purpose description</th>
<th>Understand collective action based on shared values</th>
<th>Obtain climate change perceptions through a shared values lens</th>
<th>Promote cross-cultural collaboration by engaging with shared values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work with shared values</td>
<td>Work through shared values</td>
<td>Work on shared values</td>
</tr>
<tr>
<td>Characteristics of the Cases</td>
<td>Pathway to approach transformation via shared values</td>
<td>As information to understand transformation</td>
<td>As factor of change for cognition and action to produce transformation</td>
</tr>
<tr>
<td></td>
<td>Role of shared values</td>
<td>A perception lens</td>
<td>A transformation lever</td>
</tr>
<tr>
<td></td>
<td>A research object</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5.2 Effects of externalization of shared values on individual level, collective level

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Collective level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Asset (KA)</td>
<td></td>
</tr>
<tr>
<td><strong>KA1</strong>: Explicit knowledge asset of shared and non-shared values of oneself and the group, to raise awareness and to inform conscious decision-makings in a given problem context (e.g., climate change, natural resource conservation, biodiversity protection, food consumption etc.)</td>
<td><strong>KA3</strong>: Explicit knowledge asset of shared vocabulary among the group used in communicating values and values-informed decisions.</td>
</tr>
<tr>
<td><strong>KA2</strong>: Tacit knowledge asset of understanding of shared and non-shared values of others (understanding as an ability as defined by Wittgenstein (1967))</td>
<td><strong>KA4</strong>: Mutual trust</td>
</tr>
<tr>
<td>Capacity Building (CB)</td>
<td></td>
</tr>
<tr>
<td><strong>CB</strong>: Ability to reflect against explicit values</td>
<td>N/A</td>
</tr>
</tbody>
</table>

I then discuss the potential underlying mechanism from the SECI model lens for the above identified potentials to contribute to sustainability transformation (see Figure 5.4) and point out different but critical roles of socialization, combination and internalization modes in supporting, accelerating and realizing the potentials. Separately, I reflect on implication from this work for researchers in how researchers can leverage the findings from this work to guide themselves to introduce or engage their values in sustainability science research. Going beyond, I further discuss how my findings can pragmatically help shape the expected goals to involve shared values and point out how to achieve them for a particular sustainability transformation project, as a response to the overarching gap in coping with the complexity of conceptualization and operationalization of values in sustainability transformation. I critically reflect on research limitations with respect to its generalizability, methodological implementation, behavioural conduct of researchers and influence of COVID19, and propose possible research agenda for future studies.
To conclude, in this thesis, I aimed to contribute to the ongoing discourse in sustainability transformation by focusing on the role of externalization of shared values. I introduced and investigated the new perspective the of considering values as tacit knowledge and, in line with Knowledge Creation Theory, the making of values explicit as a process of externalization. With the findings and learnings from three empirical cases from Shanghai, China, and by leveraging on the SECI model, I reveal and discuss the underlying mechanism of how these potentials can possibly contribute to sustainability transformation. The new perspective is demonstrated to be useful in providing insights to help navigate the complexity of conceptualization and operationalization of values for sustainability transformation.

**Figure 5.4** The knowledge creation spirals on individual level (in blue) and collective level (in red).
中文简介

鉴于自然资源的枯竭、环境恶化、气候变化和社会不公等不断加剧的挑战，人类亟需以根本性的方式应对当前的可持续性挑战，即追求可持续性转型（sustainability transformation）。越来越多的关注集中在可持续性转型内在维度上，这与人们的价值观密切相关，即“什么是重要的”。尽管与价值观互动被认为在促进可持续性转型方面具有潜力，并且有越来越多的研究努力，但迄今为止，对于“价值观”这一概念的概念化和操作化的复杂性一直阻碍了在方面的进展。

在本文中，我提出一个新的视角，即将价值观的本质视为隐性知识，并将使价值观概念化这一普行动概念化为外显化（如知识创造理论中定义的）。基于这一视角，我提出以下的主要研究问题并在实际环境和探讨了“在推动们走向可持续性转型的过程中，外显化共享价值观的角色或潜在是什么？”通过回答这一研究问题，我试图提升当前研究中对使用价值观促进可持续性转型的理解和描述。具体而言，我提出了以下三个研究问题：

1. 基于新视角的概念化，共享价值观这一概念，对可持续性转型有何潜力？
2. 基于新视角的概念化，共享价值观外显化这一过程，对可持续性转型有何潜力？
3. 基于上述问题所识别出的潜力，如何可能对可持续性转型产生贡献？

本研究的实证环境设定在中国上海，共享价值观外显化的过程通过一个被称为“WeValue InSitu”的成熟方法实现，该方法有助于清晰阐述或“结晶”来自自然形成群体的共享价值观（基于共同经验）。本研究采用社会建构方法，探讨了在三个不同社会群体设置中外显化共享价值观的内容和过程对转型的贡献。

我以解释性的方式开发了第 2、3 和 4 章中提出的三个实证案例研究。这个过程中我与其他研究人员合作开展了工作，因为实证学科学研究通常是一个集体努力的结果，共同完成数据的收集、分析和验证。我以案例 1 为起点，该案例受到 Kenter 等人 (2019) 和 Rawluk 等人 (2019) 的文献综述研究的启发。这些综述中暗示了价值观通常可以被视为一个“对象”。在案例 1 的学习和证据的基础上，我进一步设计了案例 2，其中将价值观视为一种“视角。基于案例 2 对我的假设的积极确认，即探索新视角（即将价值观视为隐性知识并通过 SECI 模型进行知识转换互动）可能为研究可持续性转型的价值观提供一些启示我开展了案例 3，并探讨了价值观作为促进可持续性转型的“杠杆”这一潜在角色。
在第2章中，我呈现了第一个案例研究（案例1），该案例研究在上海的一个村庄进行。我们的初步目标是从共享价值观的角度理解这个村庄中发生的以责任为驱动的集体行动。我们将这种罕见类型的集体行动（Liu等人，2020）视为一种有前途的转型，该转型基于与人们内在维度相关的责任，而不仅仅是经济驱动的好处。通过多次WeValue InSitu研讨会，我们外显化了该村庄中协同工作的相关群体（村庄领导团队、中层管理团队、一线工作团队）的共享价值观。通过分析外显化后的共享价值观，我们的发现揭示了每一对相互合作的群体的共享价值观之间的相关重叠和互补性，以及将它们联系在一起的联结，这项研究为我们理解责任驱动的集体行动的潜在机制增添了知识。

在第3章中，我呈现了第二个案例研究（案例2），我们的目标是通过居民对气候变化的感知来更好地理解上海市居民应对气候变化的潜在可持续性转型途径。由于感知明显与人们的内在维度相关，我们决定尝试使用共享价值观的视角来了解和理解人们对气候变化的感知。我们首先通过WeValue InSitu研讨会从居民群体中外显化了共享价值观，然后通过焦点小组讨论让他们讨论气候变化适应性这一主题。如此一来，参与者会自然的通过他们共享的价值观的视角来考虑这一问题。通过综合分析来自焦点小组讨论的结果，将与气候变化适应性相关的感知与其基础共享价值观的关联投射出来，形成了一个基于可持续性转型内在维度共享价值观的概念框架。这项研究表明，共享价值观这一视角对于更全面地理解人们的气候变化适应性途径是有用的，为进一步为决策者提供洞见，以制定更具社会韧性的政策设计。

在第4章中，我呈现了第三个案例研究（案例3），这是在上海的一所国际学校进行的。该组织的领导希望在组织中推动一种特定的可持续性转型，即促进两个相互不交往的群体之间的合作。我们将这种“预期变化”视为一种可持续性转型，因为从我们的初步调查中发现，这两个群体的价值观感知存在差异，而填补这些差异所形成的空档需要变革性的改变。一种基于价值观的方法在这个背景下似乎是合适的。在前两个案例的基础上，我们首先通过WeValue InSitu研讨会分别外显化了两个群体的共享价值观，然后让他们使用他们的共享价值观作为一种视角来反思另一群体的价值观。在此基础上，研究者和两个群体中部分参与者共同讨论形成了一本手册，并在组织内部传播和阅读。这本手册中记录了当前组织内部价值观感知不匹配的地方和具体的事例。此后，我们与两个混合群体进行了WeValue InSitu研讨会，并让参与者对新的、聚合的、跨文化群体的潜在共享价值观进行批判性反思。这个案例实施的不同阶段所得到的结果表明，群体对自己的共享价值观以及其他群体的共享价值观产生了新的深层次认知，并通过内在化能够发展和实践一组新的综合共享价值观，从而能够更加有效合作。
在第 5 章中，我通过综合分析所有实证研究的发现，来回答论文开篇提出的三个研究问题，形成关于外显化共享价值观在促进可持续性转型方面的潜力的洞见，包括共享价值观这一概念的潜力（如表 5.1 中总结的发现）和使共享价值观外显化这一过程，即外显化的潜力（如表 5.2 中总结的发现）。

表 5.1 共享价值观在可持续性转型中的作用

<table>
<thead>
<tr>
<th>案例目的描述</th>
<th>基于共享价值观理解集体行动</th>
<th>透过共享价值观获取气候变化感知</th>
<th>利用共享价值观促进跨文化合作</th>
</tr>
</thead>
<tbody>
<tr>
<td>价值观互动类型</td>
<td>运用共享价值观</td>
<td>透过共享价值观</td>
<td>利用共享价值观</td>
</tr>
<tr>
<td>通过共享价值观实现转型的途径</td>
<td>作为理解转型的信息</td>
<td>作为支持转型决策制定的信息</td>
<td>作为推动认知和行动转型的变化要素</td>
</tr>
<tr>
<td>共享价值观的角色</td>
<td>一个研究对象</td>
<td>一个感知视角</td>
<td>一个变革杠杆</td>
</tr>
</tbody>
</table>

表 5.2 外显共享价值观过程在个体层面和集体层面的作用

<table>
<thead>
<tr>
<th>个体层面</th>
<th>集体层面</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>知识资产 (KA)</strong></td>
<td><strong>知识资产 (KA)</strong></td>
</tr>
<tr>
<td>KA1：个人和群体的共享或非共享的有关价值观的显性知识资产，用以提高认识并为特定问题背景下的有意识决策提供信息（例如气候变化、自然资源保护、生物多样性保护、食品消费等）</td>
<td>KA3：群体之间共享词汇的显性知识资产，用于传达价值观和基于价值观的决策。</td>
</tr>
<tr>
<td>KA2：理解他人共享和非共享价值观的隐性知识资产（“理解”是维特根斯坦 (Wittgenstein, 1967) 定义的一种能力）</td>
<td>KA4：相互信任</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>能力建设 (CB)</th>
<th>能力建设 (CB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB：反思明确显性价值观的能力</td>
<td>N/A</td>
</tr>
<tr>
<td>价值观素养</td>
<td>价值观基础</td>
</tr>
</tbody>
</table>
然后，我通过 SECI 模型的视角讨论上述潜力可能对可持续性转型产生贡献的潜在机制（见图 5.4），并指出社会化、组合化和内在化模式的支持、加速和实现这些潜力方面具有不同但关键的角色。同时，我反思了这项工作对研究人员的影响，以及研究人员如何利用这项工作的发现指导自己在可持续性科学研究中引入或实践其价值观。进一步，我讨论了本研究如何在实现共享价值观的期望目标方面如何实用地帮助塑造目标，并指出如何为特定可持续性转型项目实现这些目标，以回应在处理可持续性转型中价值观概念化和运作的复杂性方面的全面差距。我对研究局限性也进行了批判性反思，包括其普适性、方法论实施、研究人员的行为规范以及新冠疫情所带来的影响，并提出了可能的未来研究议程。

图 5.4 个人层面（蓝色）和集体层面（红色）的知识创造螺旋。

总的来说，在这篇论文中，我旨在通过关注外显化共享价值观的角色，来为现有的可持续性转型的研究讨论做出贡献。我介绍并调查了将价值观视为隐性知识的新视角，并根据知识创造理论将价值观明确化定义为外显化的过程。通过来自上海的三个实证案例的发现和经验教训，并借助 SECI 模型，我揭示并讨论了这些潜力如何可能对可持续性转型产生贡献的潜在机制。另外，这一新视角也被论证在应对可持续性转型中价值观概念化和操作化的复杂性是有用的。
About the Author

Yanyan Huang (黄妍妍) was born on January 12th 1992 in Chengdu, Sichuan, People’s Republic of China.

She obtained her Bachelor of Environmental Engineering at Fudan University (2010-2014). She then transferred to learn more about pro-environmental behaviour change in Environmental Management at Fudan University (2014-2017). Her Master thesis investigated the effect of interpersonal interaction in sustainable behaviour change in the context of food waste sorting in urban residential community in Shanghai, China. Her interests in intersubjectivity and empirical learning through engaging with real and ordinary people were preliminarily nurtured during this period of research.

In March 2020, she started her PhD study at the Education and Learning Science group, Wageningen University & Research. Her belief in human agency is further confirmed and practiced during her PhD work in applying and utilizing the novel values-based intersubjective engagement method WeValue InSitu process in various sustainability transformation challenge contexts. By understanding the theoretical mechanism of how externalization of shared values of natural occurring group facilitates sustainability transformation on the meso-level (group to organization) in the form of collaboration in various sustainability challenge contexts, she wishes to continue her research in two aspects: a more comprehensive theoretical elaboration and a more pragmatic impact.
Yanyan Huang

Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan

<table>
<thead>
<tr>
<th>Name of the learning activity</th>
<th>Department/Institute</th>
<th>Year</th>
<th>ECTS</th>
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<tbody>
<tr>
<td>A) Project related competences</td>
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<tr>
<td>A1 Managing a research project</td>
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<td>22nd International Conference on Knowledge, Culture, and Change in Organizations, Online, Auckland, New Zealand</td>
<td>2022</td>
<td>1</td>
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<tr>
<td>‘How shared values of groups participating in collective action for village environmental management responsibilities in a Chinese village relate to each other’</td>
<td>The Sustainability and Development Conference, Online</td>
<td>2022</td>
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<tr>
<td>A2 Integrating research in the corresponding discipline</td>
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<tr>
<td>Prior learning - experience with research projects</td>
<td>FDU</td>
<td>2016-2019</td>
<td>12</td>
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<tr>
<td>1. Research Design: constructing appropriate approaches, data collection methods, analysis methods and interpretations in more than one affiliated paradigm</td>
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<tr>
<td>2. Qualitative Research Analysis: Grounded and thematic analysis through regress coding analysis</td>
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<tr>
<td>3. Master class equivalent – Training project of value-based research in terms of legacy crystallization in a cross-culture context</td>
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<td>4. Journal clubs</td>
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<tr>
<td>B) General research related competences</td>
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<tr>
<td>B1 Placing research in a broader scientific context</td>
<td></td>
<td></td>
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<tr>
<td>Philosophy of social science</td>
<td>WASS</td>
<td>2021</td>
<td>3</td>
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<tr>
<td>Systematic Literature Review</td>
<td>WASS</td>
<td>2022</td>
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</table>
B2  Placing research in a societal context

"Public perception on climate change through shared values lens - sustainable urbanisation in the context of economic transformation and climate change: sustainable and liveable cities and urban areas”

China Corporate Pavilion, Blue Zone, COP 26, Online, Glasgow, UK

C) Career related competences/personal development

C1  Employing transferable skills in different domains/careers

<table>
<thead>
<tr>
<th>Activity</th>
<th>Institution</th>
<th>Duration</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Teaching/supervision (40 hrs)</td>
<td>FDU</td>
<td>2020-2022</td>
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<td>Effective and efficient communication in academia and beyond</td>
<td>WGS</td>
<td>2023</td>
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**Total** 35.3

*One credit according to ECTS is on average equivalent to 28 hours of study load*
The research described in this thesis was financially supported by the NSFC-JPI Project, “Resource nexus for transformation to circular, resilient, and liveable cities in the context of climate change (RECREATE)” in the case of Chapter 3.

Financial support from Wageningen University for printing this thesis is gratefully acknowledged.
Exploring the Role of Externalization of Shared Values for Sustainability Transformation: Empirical Lessons from China

Yanyan Huang