Strengthening Singapore's Sustainable and Inclusive Urban Development

A Case Study of Singaporean Initiatives Facilitating Children's Participation in Urban Planning and Design

Figure 1 (SeaOfData, 2023)

Bachelor Thesis

2024

University of Groningen

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Word Count: 6640

Abstract

Researching children's participation in Singaporean urban planning and means by which it can be enhanced to strengthen its standing in sustainable and inclusive urban development, this case study adds substantial value to the previously West-centric exploration of the Child-Friendly City (CFC) concept. By engaging UNICEF's database of global CFC's, it provides novel insights on child participation practices and highlights best cases. The conceptualisation of children's participation in urban planning and its link to sustainable and inclusive urban development are investigated, and guiding frameworks by Horelli (1997), Lundy (UNICEF, 2018), and Hart (1992) are selected. With conclusions from a critical analysis of best-practices in Boulder, Wolfsburg, and Vienna, criteria to render a participatory space child-friendly are framed into an assessment framework later applied for the evaluation of three Singaporean initiatives. While best-practices reveal shortcomings, observations prove global commitment to inclusive planning participation. Findings confirm global and Singaporean initiatives collect children's perspectives and facilitate idea development. Global initiatives more commonly engage enabling mechanisms that warrant meaningful influence of children's contributions, thus their comprehensive involvement. Government-initiated projects revealing restricted children's involvement underscores Singapore's undemocratic and strict planning governance that limits effectiveness and inclusivity of participatory approaches, further strengthened by contradictory global trends. Unclear participant recruitment, engagement environments, and communication of findings challenge accessibility and child-friendliness of Singaporean participatory efforts. Respecting the institutional and cultural differences to global approaches, Singaporean planners are suggested to adopt global best-practices through organisational restructuring, introducing initiatives involving child-led councils that collaborate with decision-makers. Enhancing children's participation and influence, this is expected to improve the societal well-being of Singaporean citizens by assuring spatial adjustments that facilitate development of an inclusive and sustainable urban environment.

Keywords: Child-Friendly City; Children's Participation; Singapore; Urban Planning

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1. Introduction

1.1 Background

The 1989 UN Convention on the Rights of the Child marked a historic shift by recognising children's rights to thrive in urban environments (UN General Assembly, 1989). Next to highlighting their urban right to be protected, cared for, and accepted, it entitles children to articulate their viewpoints and directs decision-makers to include children in rulings that impact them.

Fast forward to 2024 and the UN Convention has resulted in a major rights-based urban planning approach: the child-friendly city (CFC) (Riggio, 2002). Globally enabled as a result of the UN operationalising the concept as the "Child-Friendly City Initiative (CFCI)" (UNICEF, n.d. a) and providing practical support, it addresses social disadvantages children experience as a vulnerable group in society (Biggs & Carr, 2015). Maximizing children's opportunities for development, safety, and accessibility to functions, cities develop in an environmentally friendly manner (Biggs & Carr, 2015) that improves the wider community's quality of life (Riggio, 2002), proving the CFC's impact in realising an inclusive and sustainable environment.

Declaring a CFC as effective once considered so by children, Riggio (2002) points to the importance of fostering diversity and environmental responsibility in a democratic and representative manner by enacting good governance and involving children in planning (Nordström & Wales, 2019). In other terms, to render a city child-friendly, efforts of planning cities *for* children must be widened to efforts of planning cities *with* children.

Power-sharing and collaborative planning result in children's perspectives progressing services and policies (ARUP, 2017) by broadening planners' viewpoints regarding human-environment planning dynamics (Nordström & Wales, 2019). Facilitation of children's participation reduces their urban invisibility and immobility (Ataol, et. al, 2019), strengthens confidence, competence, and socialization abilities (Biggs & Carr, 2015), and fosters sense of agency, inclusion, and place-attachment (Mansfield et. al., 2021), while maximizing inclusivity of decision-making (ARUP, 2017). Children's dynamic understanding of sustainable space and co-produced designs offering accessibility, safety, and recreational opportunities (Mansfield et. al., 2021) function as catalysts for community-wide sustainable development.

However, children's involvement in decision-making remains a key barrier to creating child-friendly environments, global engagement in planning practices showing significant variation (Ataol, et. al., 2019). Despite showcase-style participatory planning projects commonly overshadowing genuine attempts that ensure long-term engagement (Bartlett, 2005), the general progress towards child-friendly urban environments (Biggs & Carr, 2015) is undeniable and attributed to the UN Convention and CFCI as a strategy for inclusive and sustainable cities.

Examining UNICEF's database of UN-recognised CFCs (UNICEF, n.d. a) reveals diverse economic, social, and cultural contexts where the CFCI was implemented. Although eight countries in Asia are UN-CFC's, a geographical limitation of extensive research into the concept's effectiveness is evident, reflecting a gap in awareness of CFCI applications beyond the West and corroborating previous findings by Cordero Vinueza et. al. (2023).

As an almost 60-year-long member of the UN (Ministry of Foreign Affairs, n.d. b), Singapore ought to appeal to the UN's request for member states to develop as CFCs (Riggio, 2002). Not recognised as a CFC (UNICEF, n.d. a), it does not engage any initiatives explicitly in line with CFCI guidelines, thus presents little development in this regard. Nevertheless, Singapore's recognition as Asia's most sustainable city, exemplifying highly integrated urban development embedded in proactive planning governance and smart spatial practices (Arcadis, 2018), and its standing as a global model for urban growth (Kempton et. al. 2022), suggests resources and potential to achieve CFC-status. Singapore's commitment to the 2030 Agenda for Sustainable Development (Ministry of Foreign Affairs, 2018) underscores the goal of becoming a sustainable and inclusive society, highlighting the societal and temporal relevance of engaging CFC objectives and approaches. Masterplans for Singapore do not

explicitly plan for strengthened public planning participation or children's involvement and the range of government-initiated public engagement platforms do not guarantee final influence of citizens' contributions (Lee Kuan Yew Centre for Innovative Cities, 2018). This underscores Singapore's limited attention to democratic engagement, bottom-up governance, and formal planning arrangements for public participation (Soh & Yuen, 2006). As the result of the nation's system of a parliamentary democracy (Ministry of Foreign Affairs, n.d. a) manifesting itself in a competitive authoritarian manner that heavily limits civic engagement (Ortmann, 2011), Singapore differentiates itself from Western liberal democracies valuing execution of basic freedoms and enabling public participation (Gil, 2022). Singapore's highly-formalised institutional design and the government remaining the most trusted institution by locals (Edelman Trust Institute, 2024) restricts involvement of citizens in planning agendas and makes investigating children's participatory role a compelling endeavour.

1.2 Research Problem

Distinguishing itself from existing studies by providing an evaluation beyond Western contexts, this research aims to expose effectiveness of Singaporean initiatives that claim to enable children's participation, of those aged 0 to 18, in urban planning. By comparing local and international approaches, means by which Singaporean participatory approaches can be enhanced, or potentially serve as a model for planners abroad, are identified. To serve Singapore's inclusive and sustainable development, research findings shall nudge Singaporean planners to acknowledge the value of this planning strategy.

Considering this objective, the following research question is posed:

> *How can children's participation in Singaporean urban planning be enhanced to strengthen its standing in sustainable and inclusive urban development?*

Sub-questions intend to guide the research process:

- How does the CFCI conceptualise children's participation in urban planning?
- How do global initiatives enable children's participation in urban planning?
- How are current Singaporean initiatives employed to promote active engagement with children in urban planning?

1.3 Structure

Throughout sections 2 and 3, the thesis abstracts concepts foundational to the research topic into a theoretical framework and summarises interconnections into a conceptual model and preliminary assessment framework for the evaluation of initiatives. The proceeding section 4 justifies methodological choices for data collection, analysis, and case selection. Section 5 responds to the research question by discussing findings, fine-tuning and applying the assessment framework, and formulating suggestions for global and Singaporean planners. Concluding the research, central findings are summarized in section 6, and limitations and recommendations for future research are offered.

2. Theoretical Framework

To establish a theoretical foundation for the conceptualisation of children's participation, conclusions are drawn from a literature review of secondary sources.

2.1 The Child-Friendly City Concept

2.1.1 Children's Urban Well-being
Research reveals the primary purpose of the CFC concept is to set the rights of children as the top priority in community development (Riggio, 2002), the result of increasing awareness related to the

negative impact of the efficiency-oriented city on children's urban experience and visibility in planning (Ataol et. al., 2019). Traffic, high-rise living, crime, seclusion, prejudice, and inaccessibility to functions (ARUP, 2017) limit children's opportunities for socialization, independence, mobility, play, and skill-development (McGlone, 2016), restricting participation in city-life and constraining personal growth (Rakhimova, 2022). Cities planned without consideration of children neglect safety and accessibility of public spaces and services (Cordero Vinueza et. al., 2023), affecting all residents.

Consequently, by advocating for child-friendly physical functions linked to green spaces, water, sanitation, secure streets (Rakhimova, et. al., 2022), and residential density (Christian et. al., 2015), the CFCI benefits the wider society's welfare. On a social level, promoting children's opportunities for connection, protection from risks, community support, and freedom of expression (Riggio, 2002) shapes chances for play, interaction, and exploration (Christian et. al., 2015). The strengthening of social unity and resilience (Biggs & Carr, 2015) is linked with an improvement of all residents' (ARUP, 2017) well-being, growth, and cognitive abilities (Christian et. al., 2015), as well as of economic value, sustainability, and citizen's independence (ARUP, 2017), and the natural environment's condition (Oliver et. al., 2011).

2.1.2 Children's Urban Rights and Capabilities
Community-wide benefits represent the motivation for cities applying the UNICEF-introduced CFCI, which operationalises the messages of the 1989 UN Convention on the Rights of the Child (UNICEF, n.d. b). These recognise the right of individuals under eighteen to be protected from discrimination, have their interests and views respected, a space for development, and freedom of expression (UNICEF, n.d. b), the latter encouraging children's participation in communal urban life and urban planning processes (Ataol, et. al., 2019).

As a social justice tool facilitating opportunities for marginalised groups, Nussbaum and Sen's "Capability Approach" (CA) (Dixon & Nussbaum, 2012) rationalizes the operationalisation of this rights-based mindset into the CFCI (Peleg, 2013). The CA recognises children as independent agents (Hart and Brando, 2018) with individual human dignity and capability and equal entitlement to adults to act out their urban rights, which are to match their capacities (Dixon & Nussbaum, 2012). It values children's unique perspectives (Nordström & Wales, 2019) proven to facilitate sustainable urban development (Malone, 2015). Emphasizing freedom of capability use as long as it doesn't harm others (Dixon & Nussbaum, 2012), the CA guides the cautious inclusion of children in communal spatial decisions. Stressing the need for context-specific consideration dependent on care provided for children's capacity-building and participation acknowledges the importance of a solid knowledge foundation to facilitate children's rational decision-making. In the absence of this, securing children's participation rights in official processes is ineffective and chances unsustainable decision-making that negatively affects the broader community's welfare.

2.2 Children's Participation in Urban Planning: Approaches and Methods

2.2.1 Methodological Approaches to Children's Participation
Combining normative and explanatory concepts, Horelli (1997) categorizes six techniques that allow for child-inclusive planning, Table 1 corroborating each with an example applied in an international participatory case with children. Directing data collection, *diagnostic* approaches conventionally gain analytical insight by questioning children, while *expressive* methods urge children to express feelings and ideas creatively. *Situational* approaches structure events to facilitate knowledge development, such as discussions, and *conceptual* methods encourage abstract thinking through activities. On an enabling level, *organisational* and *political* methods facilitate the implementation of children's proposals, partly by influencing policy, engaging councils or forums.

Table 1: Overview of Horelli's (1997) Methodologies

	Method	Horelli's (1997) definition	Practical example
Data Collection	*Diagnostic*	Systematic tool to assess a perspective and circumstance	Changsha, China: as the introductory method to the Work Camp of Changsha 2015, insight into children's awareness of the relevant site is gained by means of a traditional questionnaire survey (Yao and Xiaoyan, 2017)
	Expressive	Creative expressive techniques	Bam, Iran: as part of an initiative to re-build a neighbourhood severely affected by the 2003 earthquake, children are given the chance to express needs and ideas by creating paintings and charts, and building models (Rismanchian and Rismanchian, 2007)
	Situational	Simplifies learning processes by constructing a situation	City of Charles Sturt, Australia: as part of the Child and Youth Friendly City (CYFC) Forum, a set of students act as an expert panel and converse about the value of design, and spatial characteristics and preferences, with support of specialists from diverse sectors (School for Creating Change, n.d.).
	Conceptual	Abstract thinking stimulated by physical or theoretical tools	Changsha, China: children's perspectives on spatial attributes are sought during the Work Camp of Changsha 2015 by engaging a photography-based activity where children take pictures of liked and disliked sites (Yao and Xiaoyan, 2017)
Data Implementation	*Organisational*	Organised structure or formation facilitates the implementation of a project	Pietarsaari, Finland: the Pietarsaari Youth-Council for children aged 14 to 19 gives members the right and ability to influence municipal bodies and decision-making (Council of Europe, 2011)
	Political	Participants influence a political choice through efforts of gaining awareness and visibility	Scotland: the governmental initiative Children's Hearing Scotland (CHS) enables collaboration between Panel Members, Area Support Team members, and children to make and implement legal decisions concerning children (Children's Hearings Scotland, 2020)

2.2.2 The Lundy Model of Children's Participation

Operationalising the Convention's rights for children (UNICEF, n.d. b) into an evaluation context, the Lundy Model of Participation (UNICEF, 2018) (Figure 2) proposes criteria that facilitate good governance through effective inclusion of children in urban agendas (Riggio, 2002). Questioning a case for whether direct initiative was taken to engage children of any background in a safe, accessible, flexible, and child-friendly *space*, the model considers a child's spatial familiarity, size and dynamic of the participant group, and appropriate settings for children's involvement (UNICEF, 2021). Examples are intimate workshops or individual sessions at schools, playgroups, public spaces, or at home, with children's well-being as the primary motivator for the style of the participatory environment. Additional inquiries on the extensiveness of informative and theoretical insight given to children, transparency of their involvement, and variety of opportunities for expression uncover if children are properly given a *voice* to share concerns. Children's level of knowledge, language, and communication are important for facilitators to consider. Reviewing processes for communication of children's views, the enabling power of the *audience* that receives information and the degree of children's awareness regarding these factors further reflect effectiveness of a participatory case. Preparatory efforts or collaboration with children regarding audience composition and responsibility ensure receiving bodies are informed and inspired to enable children's participation. Decisively, the model highlights degree of a child's *influence* on final decision-making, reviewing if and with which procedures children's views are critically considered by those in power. Discussing expectations with children and providing justifications for decisions legitimizes children's participation.
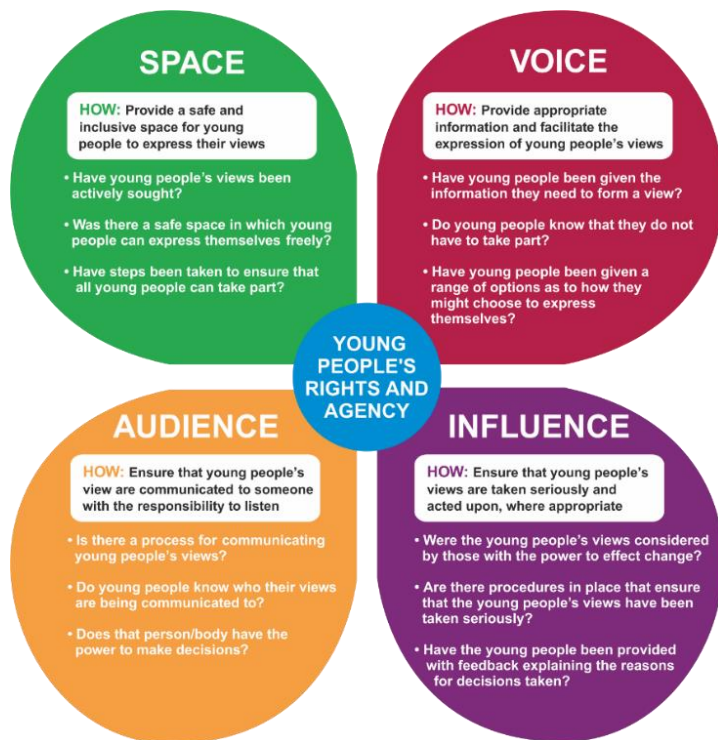
Figure 2: The Lundy Model (WHO, 2018)   Figure 3: Hart's Ladder of Children's Participation (1992)
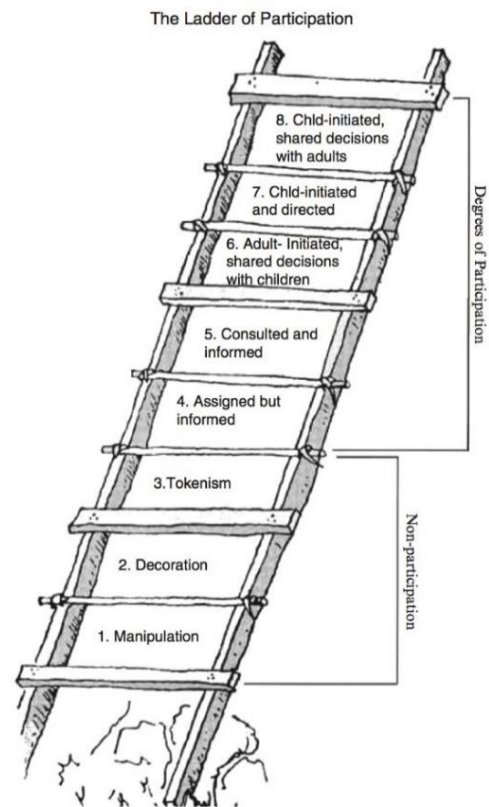
2.2.3 Hart's Ladder of Children's Participation

Establishing levels of children's engagement, Hart's Ladder of Children's Participation (1992) structures children's involvement with respect to adults' roles and children's influence (Figure 3). Beginning with forms of non-participation, *manipulation* concerns "participatory" cases wherein no effort is put towards facilitating children's understanding, just as in the following level of *decoration* where children are, however, transparently used for show. *Tokenism* presents instances when children are told they are given a voice but are kept from any chance to use it. Entering levels of genuine participation, *assigned but informed* encompasses voluntarily and transparently involved children who are made aware and have a meaningful, clearly defined role. Being consistently consulted with, their perspectives are, however, given comparatively more consideration, thus chance to influence planning decisions in cases categorized as *consulted and informed*. At the level of *adult-initiated, shared decisions with children*, parties have equal involvement in decision-making and management responsibilities, differentiating itself from *child-initiated and directed* instances by adults remaining the initiator and director. At the highest level lies *child-initiated, shared decisions with adults*, where children and adults have joint decision-making capability in a child-initiated project.

2.2.4 Synthesis of Primary Concepts

Horelli's (1997), Lundy's (UNICEF, 2018), and Hart's (1992) models each engage valuable factors that can lead evaluation of an initiative's effectiveness. Linking these works initiates the construction of the assessment framework, a preliminary adaptation displayed in Figure 4.

As Hart's (1992) levels of genuine participation facilitate and respect children's contribution, these are imagined to meet Lundy's (UNICEF, 2018) criteria of space, voice, and audience. Children's influence on development of strategies and measures is guaranteed in the four most participatory stages, involving efforts of co-production, consistent consultation, and Horelli's (1997) enabling strategies of organisational and political sorts. Without progression towards implementation of children's contributions, engagement is limited to data collection and children's influence is

restricted, with such cases scoring low on Hart's (1992) ladder and not fulfilling Lundy criteria (UNICEF, 2018).

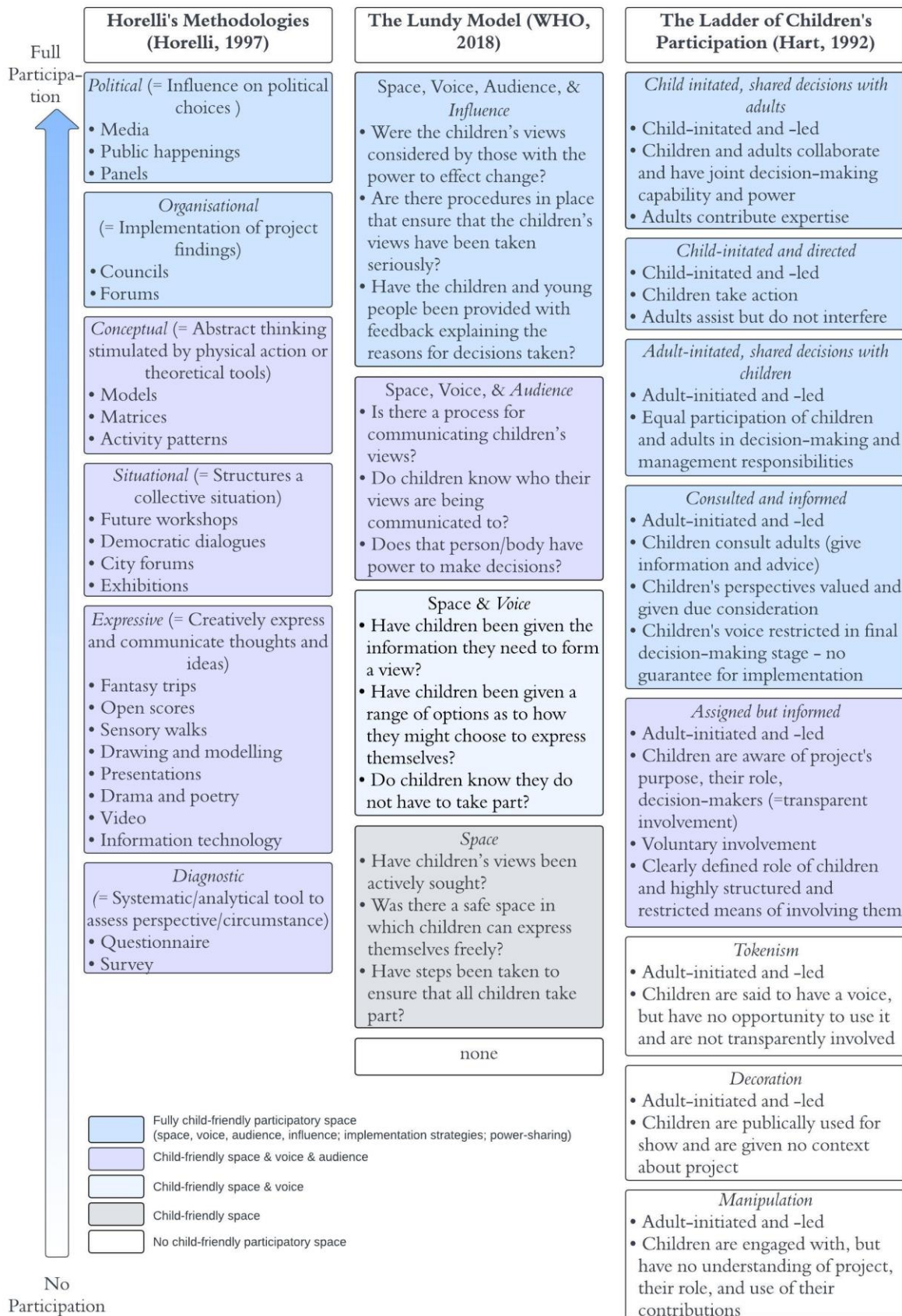| Horelli's Methodologies (Horelli, 1997)	The Lundy Model (WHO, 2018)	The Ladder of Children's Participation (Hart, 1992)
Political (= Influence on political choices) • Media • Public happenings • Panels	Space, Voice, Audience, & *Influence* • Were the children's views considered by those with the power to effect change? • Are there procedures in place that ensure that the children's views have been taken seriously? • Have the children and young people been provided with feedback explaining the reasons for decisions taken?	*Child initated, shared decisions with adults* • Child-initated and -led • Children and adults collaborate and have joint decision-making capability and power • Adults contribute expertise
Organisational (= Implementation of project findings) • Councils • Forums		*Child-initated and directed* • Child-initated and -led • Children take action • Adults assist but do not interfere
Conceptual (= Abstract thinking stimulated by physical action or theoretical tools) • Models • Matrices • Activity patterns	Space, Voice, & *Audience* • Is there a process for communicating children's views? • Do children know who their views are being communicated to? • Does that person/body have power to make decisions?	*Adult-initated, shared decisions with children* • Adult-initiated and -led • Equal participation of children and adults in decision-making and management responsibilities
Situational (= Structures a collective situation) • Future workshops • Democratic dialogues • City forums • Exhibitions		*Consulted and informed* • Adult-initiated and -led • Children consult adults (give information and advice) • Children's perspectives valued and given due consideration • Children's voice restricted in final decision-making stage – no guarantee for implementation
Expressive (= Creatively express and communicate thoughts and ideas) • Fantasy trips • Open scores • Sensory walks • Drawing and modelling • Presentations • Drama and poetry • Video • Information technology	Space & *Voice* • Have children been given the information they need to form a view? • Have children been given a range of options as to how they might choose to express themselves? • Do children know they do not have to take part?	*Assigned but informed* • Adult-initiated and -led • Children are aware of project's purpose, their role, decision-makers (=transparent involvement) • Voluntary involvement • Clearly defined role of children and highly structured and restricted means of involving them
Diagnostic (= Systematic/analytical tool to assess perspective/circumstance) • Questionnaire • Survey	*Space* • Have children's views been actively sought? • Was there a safe space in which children can express themselves freely? • Have steps been taken to ensure that all children take part?	*Tokenism* • Adult-initiated and -led • Children are said to have a voice, but have no opportunity to use it and are not transparently involved
	none	*Decoration* • Adult-initiated and -led • Children are publically used for show and are given no context about project
		Manipulation • Adult-initiated and -led • Children are engaged with, but have no understanding of project, their role, and use of their contributions

Full Participation ↑ No Participation

- Fully child-friendly participatory space (space, voice, audience, influence; implementation strategies; power-sharing)
- Child-friendly space & voice & audience
- Child-friendly space & voice
- Child-friendly space
- No child-friendly participatory space

Figure 4: Preliminary Assessment Framework

As stressed by the CA, this synthesis of frameworks is to be applied critically, the effectiveness of children's involvement in decision-making dependent on enabling actions for their capabilities (Dixon & Nussbaum, 2012). Therefore, assigning a methodology with a set degree of effective participation is irrational, as without support for information- and power-sharing or insufficient space, voice, and audience (UNICEF, 2018), organisational or political involvement (Horelli, 1997) of children may undermine others' capabilities, result in unreasonable decision-making, or threaten tokenistic participation. Similarly, Hart's (1992) division of child-initiated projects are not to be unanimously interpreted as "best-practices", himself declaring the ladder as no evaluation tool (Organizing Engagement, 2019). Child-initiated efforts, too, have critical preconditions for success, such as a child-friendly space, and their voice valued by an audience willing to support proposal implementation (UNICEF, 2018). Thus, in the assessment framework, organisational and political engagement tactics (Horelli, 1997), and child-initiated approaches are ranked highly under the assumption of all Lundy criteria (UNICEF, 2018) are met and effective initial engagement strategies are in place to prepare children and the participatory space.
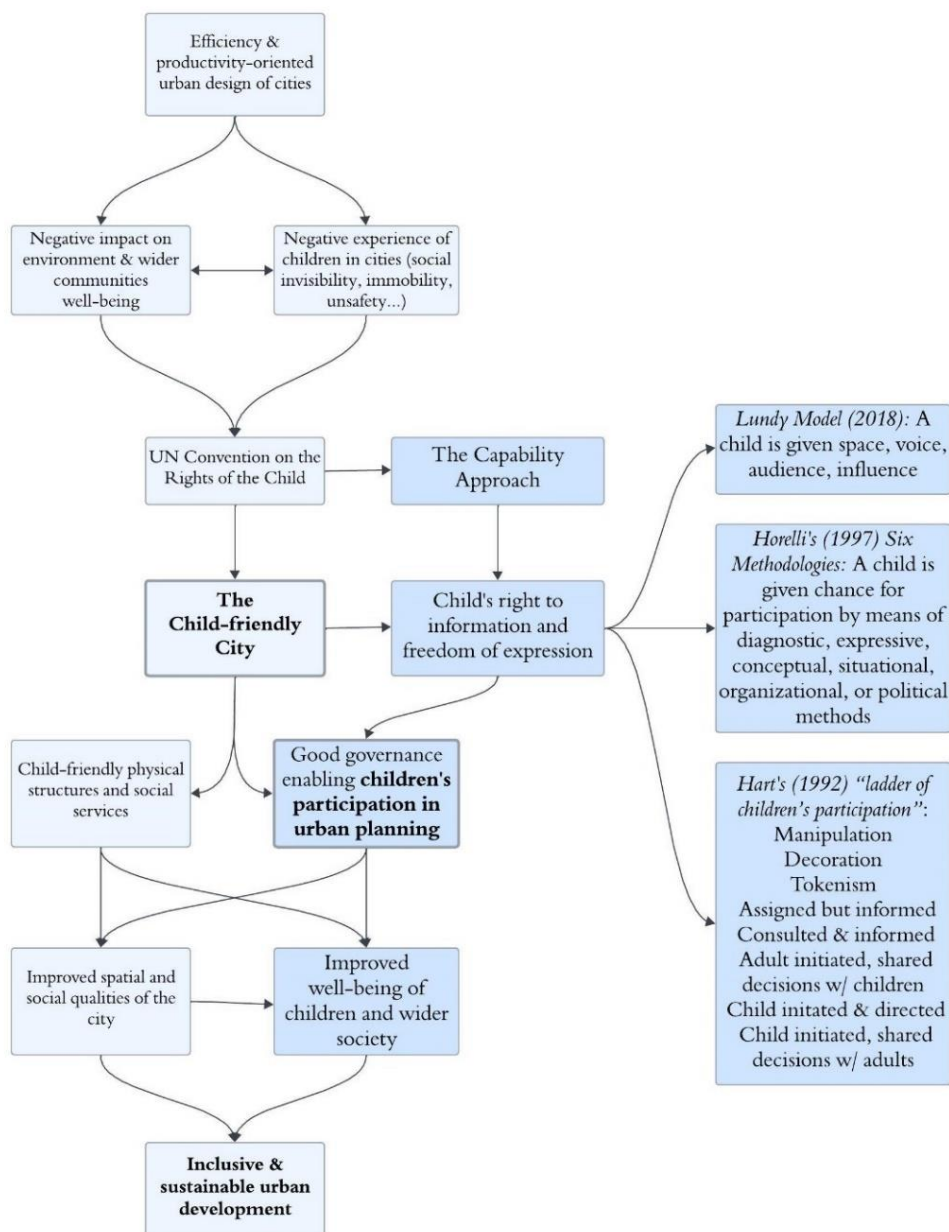
3. Conceptual Model

Figure 5: Conceptual Model

Figure 5 conceptualises theories central to the study, along with interconnections between components. The model represents how the adverse urban experience of children nudged the UN's formulation of children's rights (Ataol et. al., 2019), the direct link to the CA's recognition of children's capability to participate (Peleg, 2013), and operationalisation as the CFC (UNICEF, n.d. b). Improvement of spatial (Rakhimova, et. al., 2022) and social (Riggio, 2002) qualities, and overall well-being (ARUP, 2017) resulting from child-friendly structures and participation, facilitates inclusive (Biggs & Carr, 2015) and sustainable (Malone, 2015) urban development.

The model visually highlights the core concepts for the analysis of children's participatory role in planning. Applying a suitable methodology (Horelli, 1997) that provides children with space, voice, audience, and influence (UNICEF, 2018), cases of children's participation can be assigned a certain level on Hart's (1992) ladder, this creating the foundation for the assessment framework (Figure 7). Findings are expected to replicate linkages presented in the conceptual model, particularly the causal relation between children's involvement in planning and inclusive and sustainable urban development.

4. Methodology

4.1 Justification of Methods and Data Collection

Designed as a case study, this qualitative research offers insights into the context of children's planning participation in CFCs by reducing the research scope (Bromley, 1990) to the national level of Singapore. A literature review of secondary data directed the research process, a summary of sources presented per sub-question in Table 2 and provided in detail in appendix A.

Table 2: Overview of Sources

	Academic Papers	Grey literature	Total
Initial exploration into children's participation in urban planning (introduction & theoretical framework)	17	7	24
Global initiatives of children's participation in urban planning	3	8	11
Singaporean initiatives of children's participation in urban planning (& introduction to singapore & case selection)	5	15	17
(Other (methodology/appendix/images))	(2)	(5)	(7)
Total (excluding "other")	25	30	**55**

Responding to the first sub-question, key literature related to the conceptualisation of children and children's participation as bounded in the CFCI, was narratively reviewed. Serving foundational knowledge development and engaging concepts in dialogue (Synder, 2019), this initiated the assessment framework (Figure 4), commanding the evaluation of initiatives. Keywords "child", "participation", "child-friendly city", and "urban planning" were appointed while exploring academia on platforms such as Google Scholar and Scopus, steering literature selection.

Advised by the second sub-question, the subsequent analysis exposed best-practices by engaging UNICEF's inventory of global CFCs (UNICEF, n.d. a), warranting high-quality data and a reasonable selection of best-practices. By "investigating and synthesizing evidence" (Synder, 2019) of the CFCI in practice, a systematic review of global initiative reports on enabling conditions expanded awareness of critical factors for inclusive planning participation, finalizing the assessment framework (Figure 7). Valuing quality over quantity, having limited this analysis to three global initiatives facilitates a thorough analysis and a credible selection of best-practices.

In line with the final sub-question and finalizing the case study, three Singaporean initiatives were systematically reviewed. Searching Scopus, Google Scholar, and grey literature sources served the

selection. Singaporean initiative's effectiveness was reflected on by applying criteria of the assessment framework, contextualising case study findings and administering identification of commonalities and distinctions to global cases (Bromley, 1990).

By synthesizing findings and conclusions, along with suggestions for planners, the central research question is resolved.

4.2 Data Analysis

Following the initial literature review, the initiative analysis centred on components identified in existing theories and evaluation frameworks. Presented in the preliminary assessment framework, this guided the recognition of three best-practices. Identified processes that establish initiatives as best-practices finetuned the assessment framework that was handled as a checklist during analysis of Singaporean initiatives. Singaporean cases were critically reflected on by considering each criterion, shortcomings transformed into suggestions for local planners.

4.3 Inclusion Criteria

Concerning selection of initiatives, inclusion criteria were set to establish a neutral basis for the analysis. Global initiatives were involved if the affiliated city is documented in the UNICEF CFC database (UNICEF, n.d.) and sufficient availability of supporting literature was recognised. Searching for high-quality initiatives, cases engage appropriate enabling methodologies (Horelli, 1997), procedures fulfilling Lundy criteria (UNICEF, 2018), and conditions ranking them highly on Hart's ladder (1992).

Selection of Singaporean initiatives faces the impractical reality of rare local instances of children's planning participation. Therefore, the singular inclusion criterion relates to an initiative's central aim to involve children in public planning.

Further ethical considerations are provided in Appendix B.

4.4 Data Quality

As corroborated in Appendix A, quality of data is certified as academic papers are almost exclusively recently published in journals, and grey literature sources are issued by official government or organisation websites. Judgement of Singaporean approaches is justified as criteria for the assessment framework was identified through analysis of global initiatives from similar temporal recency, thus with parallel technical resources.

4.5 Case Selection and Description

This study's case selection stems from the CFC's geographical limitation, Singapore's rich urban planning capacity distinguishing it from other Asian metropolises (Hamnett & Yuen, 2019), and the lacking previous research conducted on the concepts application in context alike.

Singapore, a leading global city-state in Southeast Asia (Lee et. al., 2016) (Figure 6) has a population density of 8424 people per km2 (UNData, n.d.), making it the third most densely populated country globally (Globaldata, n.d.). While facing challenges like population growth and resource limitations, Singapore's integrative planning strategies and comprehensive governmental approach to urban development (Hamnett & Yuen, 2019) has fostered sustainable and social growth and established it as a highly developed market economy (Lee et al., 2016).

Although devoted to the 2030 Agenda for Sustainable Development (Ministry of Foreign Affairs, 2018), thus the goal of becoming a sustainable and inclusive society, governmental initiatives such as REACH, eCitizen Ideas!, Our Singapore Conversations, and others restrict citizen engagement to

collection of opinions and ideas and do not extend involvement to level of implementation (Lee Kuan Yew Centre for Innovative Cities, 2018).
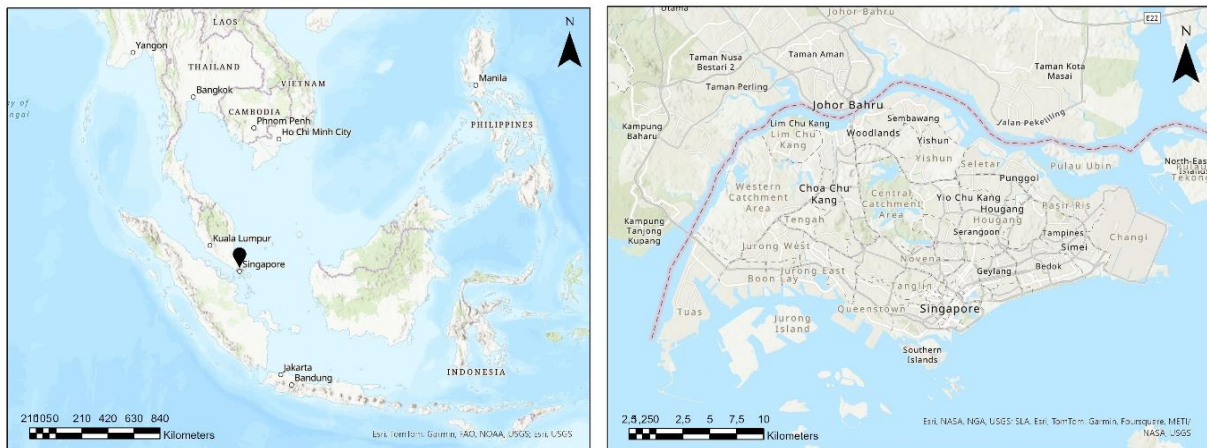

Figure 6: GIS-Map of Singapore

Considering foundational mechanisms enabling citizens influence on decision-making are yet to be implemented, structures facilitating children's participation in urban planning fall short as well. As an integral step for Singapore to foster inclusivity, but countering the nations centralised governance approach (Soh & Yuen, 2006) and efficiency-oriented attitude (Lee Kuan Yew Centre for Innovative Cities, 2018), this frames the complexity of engaging the CFC concept in Singaporean context. Examining children's involvement in the technocratic decision-making setting of Singaporean spatial planning (Hamnett & Yuen, 2019), thus exploring the practical application of the CFCI in a diverse setting beyond the predominantly Western focus (Cordero Vinueza et. al., 2023), this study offers novel insights into the practical implementation of the CFC concept.

4.6 Limitations and Positionality

While inclusion criteria reduce risk of subjectivity, the researcher managing the final judgment of a case's suitability introduces research bias during data collection. Maximizing the objectivity of research outcomes, research conclusions rests on a framework derived from thorough analysis of credible secondary literature, making this process bias-free.

Although a former resident of Singapore and familiar with local controversies regarding limited public participation and inclusivity in national decision-making, the author identifies as an outsider and maintains an objective stance, having had no direct prior involvement in such debate. Public participation is exclusive to Singaporean citizens (Leong, 2000), underscoring the author's restricted relation.

5. Findings

5.1 Global Best-Practices of Children's Participation in Urban Planning

Developing criteria for effective children's participation, an analysis of three "best-practices" completes the assessment framework (Figure 7), priming it for the evaluation of Singaporean initiatives. Best-practices are selected as a result of the critical involvement of models by Horelli (1997), Lundy (UNICEF, 2018), and Hart (1992). Analysis findings are condensed in Table 3.

Table 3: Analysis of Global Best-Practices

Initiative	*Finding 1:* Horelli's (1997) data collection methods are commonly followed by organisational methods that enable data implementation	*Finding 2:* Efforts to involve children in planning fulfill Lundy's criteria (UNCIEF, 2018) by ensuring a child-friendly space, voice, audience, and enabling influence on final decision-making	*Finding 3:* An organisational arrangement, such as a children's council, enables implementation of their findings, and ensures influence on decision making, presenting a child-led case	Accomplishments	Challenges
Best-case 1: **Comprehensive Housing Strategy – Boulder, Colorado** (Growing Up Boulder (GUB), NPO- initiated, Comprehensive Housing Strategy, neighborhood re-design)	Data collection: • **Expressive** (drawings, models, presentations) • **Situational** (field trips) • **Conceptual** (photography activity) Data implementation: • **Organisational** (written report, presentations at meetings)	• **Space** (marginalized children, at school, no-cost, voluntary) • **Voice** (informative presentations and films, early collaboration with professionals, various participatory methods) • **Audience** (written communication of findings, children's presence during communication of findings, child-recruitment efforts, co-production, actors' voluntary involvement, adult-initiated) • **Influence** (announcement for use of children's contributions in future plans)	• Children are aware of their role and project • Transparent and consistent consultation • Children's contribution is valued and communicated • After data collection, children are involved in a restricted manner, limiting influence • Project is adult-initiated and adult-led • --> **"Consulted and Informed"**	• Engagement efforts for marginalized children • Children feel encouraged, heard, comfortable, and safe to express themselves • No uncertainty regarding suitability of organisational method, as supportive data collection methods are in place	• Exclusion of children below school-age • No announcement of facilitators regarding children's freedom not to participate • Lacking transparency regarding reasons for final decision-making • **No enabling procedure of children's contributions** • **Children's influence is restricted**
Best case 2: **Children's Advisory Board – Wolfsburg, Germany** (Municipal level, board for children aged 8 to 13, government -initiated)	Data collection: • **Situational** (simulated council meetings) Data implementation: • **Organisational** (Children's Advisory Board)	• **Space** (distribution of flyers, stimulated council meetings, intimate groups, no-cost, voluntary) • **Voice** (stimulated council meetings, provision of potential focus-topics) • **Audience** (Children's Advisory Board to communicate findings, children's presence during communication of findings, child-recruitment efforts, co-production, actors' voluntary involvement, adult-initiated) • **Influence** (Children's Advisory Board)	• Children are aware of their role and project • Transparent and consistent consultation • Children's contribution is valued and communicated • Children's board leads the implementation of children's contribution, thus, children have influence • Project is adult initiated, but child-led • --> **"Adult initiated, shared-decisions with children"**	• Children feel encouraged, heard, comfortable, and safe to express themselves • No uncertainty regarding suitability of organisational method, as supportive data collection methods are in place • **Co-production of spatial strategies guarantees data implementation, thus, children's influence** • Entire process, but the project initiation, is **child-led**	• No direct engagement efforts for marginalized children • Exclusion of children below the age of 8 • No announcement of facilitators regarding children's freedom not to participate • Facilitators provision of potential focus-topics threatens authenticity of children's involvement • Lacking transparency regarding reasons for final decision-making
Best case 3: **Workshop Junges Wien – Vienna, Austria** (government -initiated, Children and Youth Strategy for Vienna, "Toolbox" of workshops and guides, children "become the staff", Children and Youth Advisory Council, Vienna City Council, budget)	Data collection: • **Diagnostic** (questionnaire) • **Conceptual** (inspection report, awarding medals), Data implementation: • **Organisational** (Children and Youth Advisory, management board of experts)	• **Space** (diverse institutions, information in 178 languages, children's pace and language level, no-cost, voluntary) • **Voice** (informative presentations and films, early collaboration with professionals, provision of guiding questions) • **Audience** (Children's and Youth Advisory to communicate findings, children's presence during communication of findings, child-recruitment efforts, co-production, actors' voluntary involvement, adult-initiated) • **Influence** (Children's and Youth Advisory, child-provided feedback, transformation to Vienna Children and Youth Strategy, integration into City Council, government-provided budget)	• Children are aware of their role and project • Transparent and consistent consultation • Children's contribution is valued and communicated • Children's council leads the implementation of children's contribution, thus, children have influence • Project is adult initiated, but child-led • --> **"Adult initiated, shared-decisions with children"**	• Direct engagement efforts for marginalized children • Children feel encouraged, heard, comfortable, and safe to express themselves • No uncertainty regarding suitability of organisational method, as supportive data collection methods are in place • **Co-production of spatial strategies guarantees data implementation, thus, children's influence** • Entire process, but the project initiation, is **child-led**	• Exclusion of children below the age of 6 • No explicit announcement of facilitators regarding children's freedom not to participate • Facilitators provision of guiding questions threatens authenticity of children's involvement • Lacking transparency regarding reasons for final decision-making

5.1.1 Collecting Children's Perspectives

Across cases, initial involvement efforts collect data on children's views, expand their theoretical understanding, and initiate development of solutions by applying Horelli's (1997) diagnostic, expressive, situational, or conceptual methodologies. Fulfilling Lundy criteria (UNICEF, 2018) of space, voice, and audience, this prepares for a productive participatory environment.

"Effective" child involvement acts proactively seek children, employ strategies that promote socioeconomic diversity within participant groups, and create a safe participatory space (UNICEF, 2018). Next to making participation voluntary and cost-free, targeting schools with a significant portion of socially marginalised children, as seen in Boulder's Comprehensive Housing Strategy (Derr & Kovács, 2015), certifies accessibility of an initiative. Wolfsburg's public distribution of flyers as a child recruitment method for their government-initiated "Children's Advisory Board" (Roth et al., 2019) or Vienna's engagement of diverse institutions and offering information in their government-initiated "Werkstadt Junges Wien" initiative in 178 languages (Scruggs, 2021) exemplify further tactics making participation feasible for children. Particularly Boulder's and Vienna's direct engagement efforts encouraging socially vulnerable children demonstrate inclusivity and accessibility. Wolfsburg's public recruitment endeavours make participation possible, yet absence of explicit diversity efforts reduces likelihood of assembling a diverse group, further hindered by the council's small size.

Boulder's activities situated on school-ground (Derr & Kovács, 2015), Wolfsburg's simulated council meetings and formation of intimate groups (Roth et. al., 2019), and Vienna's adaptation to children's pace and language level (Scruggs, 2021) safeguard a comfortable participatory space (UNICEF, 2018). Perspectives of children younger than school age, ranging from 4 to 8 years, are excluded, revealing age-inclusiveness as a shortcoming across best-practices. This counters the primary message of the CA, wherein children's inclusion is defended under their individual agency and right to be respected and heard (Dixon & Nussbaum, 2012). Boulder's and Vienna's informative presentations and films (Derr & Kovács, 2015) and early collaboration with professionals (Vienna City Administration, 2019) contextualise the project to children, empower them, and stimulate development of ideas. This facilitates use of their voice (UNICEF, 2018), which reproduced board meetings realise in Wolfsburg (Roth et. al., 2019). Providing structure for involvement creates an attainable participatory space for children (UNICEF, 2018), done in Boulder by offering various participation methods (Derr & Kovács, 2015). The city's participation initiative Growing Up Boulder (GUB), a non-profit organisation (NPO), initiates neighbourhood co-design (Clusman & Mintzer, 2023) by allowing children to communicate opinions and ideas expressively (Horelli, 1997) through drawings, models, and presentations or conceptually (Horelli, 1997) through photography-based activities (Derr & Kovács, 2015). Similarly, Wolfsburg's situational (Horelli, 1997) strategy of simulated council meetings (Roth et. al., 2019) and provision of potential themes (Kinderfreundliche Kommunen, n.d.) to children fosters their understanding. Performing an exemplary version of their efforts allows children insight into depth of their role and influence. Vienna engages a diagnostic and situational (Horelli, 1997) approach in which "children become the staff" (Vienna City Administration, 2019), report views in response to facilitator-posed questions, and award "medals" to enjoyed aspects. Provision of discussion templates by facilitators demonstrates and leads participatory processes, yet accompanies risk of influencing participation outcomes, thus threatening authenticity of children's involvement. Children's voluntary involvement across initiatives implies they are aware of their freedom to opt out of the project, though facilitators announcing so would enhance creation of a transparent and comfortable participatory environment and, hence children's expression of views.

Boulder's facilitators' written communication of children's proposals to officials (Derr & Kovács, 2015) or Wolfsburg's (Kinderfreundliche Kommunen, n.d.) and Vienna's (Vienna City Administration, 2019) children's councils provide an audience (UNICEF, 2018) by connecting children with powerful decision-making bodies. Enabling a transparent environment, children's presence during communication of findings ensures familiarity with audience composition and accurate representation of perspectives. Direct child recruitment efforts, tactics for co-production, actors' voluntary involvement, and adult initiation of projects assure children's perspectives are valued, respected, and deemed constructive by the audience.

5.1.2 Implementing Children's Perspectives
Organisational methods (Horelli, 1997) are commonly employed to advance initial efforts of children's participation to the level of implementation, ensuring children's voices are heard by a proper audience (UNICEF, 2018) and enabling children's influence (UNICEF, 2018) on decision-making.

As, in each case, the enabling organisational structures follow effective preparatory engagement strategies, concerns raised by the CA (Dixon & Nussbaum, 2012) regarding risks of children's involvement in decision-making can be dismissed. Wolfsburg's and Vienna's children's councils provide procedures that ensure children's direct influence (UNICEF, 2018) on decision-making, measures and designs being co-produced. While officials in Boulder respect children's contributions and announce significance for future decisions, absence of a specific enabling procedure, as well as project advisors representing children in the final planning stage (Derr & Kovács, 2015), restrict children's influence (UNICEF, 2018). Councils facilitate discussions between experts, officials, and children and result in co-analysed and -produced solutions through efforts of power-sharing (Roth et. al., 2019). Particularly exemplary is Vienna's highly organised approach, maximizing children's influence (UNICEF, 2018) by involving child-provided feedback, transformation into the Vienna Children and Youth Strategy, integration into the City Council, and an enabling government-provided budget (Vienna City Administration, 2019). Transparency regarding final decision-making reasons is lacking in each case. However, statements such as "they feel taken seriously" and "they feel they have been able to help shape developments in an autonomous manner" (Roth et. al., 2019) in post-project inquiries in Wolfsburg, but encountered in each case, confirm positive influence of participatory initiatives on children's confidence and feelings of inclusion.

5.1.3 Final Evaluation of Global Initiatives
Children involved in each initiative have full awareness of their role and the project, are holistically consulted by diverse methods of data collection, have their contribution valued, and chance to discuss findings with decision-makers. Joined with the presence of all Lundy components (UNICEF, 2018) and Horelli's (1997) collection and implementation methodologies, initiatives rank into Hart's (1992) top four levels of genuine participation. Wolfsburg's (Roth et. al., 2019) and Vienna's (Vienna City Administration, 2019) councils enable the collaborative implementation of findings (Horelli, 1997), representing a high degree of children's influence (UNICEF, 2018) on final decisions. Although nudged by facilitator-provided outlines, final topics being chosen by children ensure a child-led approach, consistent engagement, and influence (UNICEF, 2018). Involving Hart's (1992) consideration of child-versus-adult initiation and recognising project objectives and participant recruitment processes are prompted by adults, defines Wolfsburg's and Vienna's initiatives as "adult initiated, shared decisions with children". In Boulder, children's perspectives are sought and valued, but not guaranteed to affect official decision-making (Derr & Kovács, 2015). Power is unequally shared, children excluded in final stages and advisors control communication processes, illustrating Hart's (1992) level of "consulted and informed".

Overall, best-practices reveal global participatory efforts foster a productive environment for children's participation in planning. Common shortcomings related to age-inclusivity and transparency underscore importance of consistent and inclusive involvement of children. Findings reinforce a two-tiered methodological approach structuring comprehensive children participation: 1) collaborative data collection, facilitating space, voice, and audience (UNICEF, 2018), and 2) collaborative data implementation, ensuring influence (UNICEF, 2018). Employing organisational methods (Horelli, 1997) that enable children's influence (UNICEF, 2018) on decision-making and facilitate collaboration between children and decision-makers, global approaches demonstrate commitment to inclusive planning participation. Findings of the analysis of best-practices advance the preliminary assessment framework into its final version visualized in Figure 7.
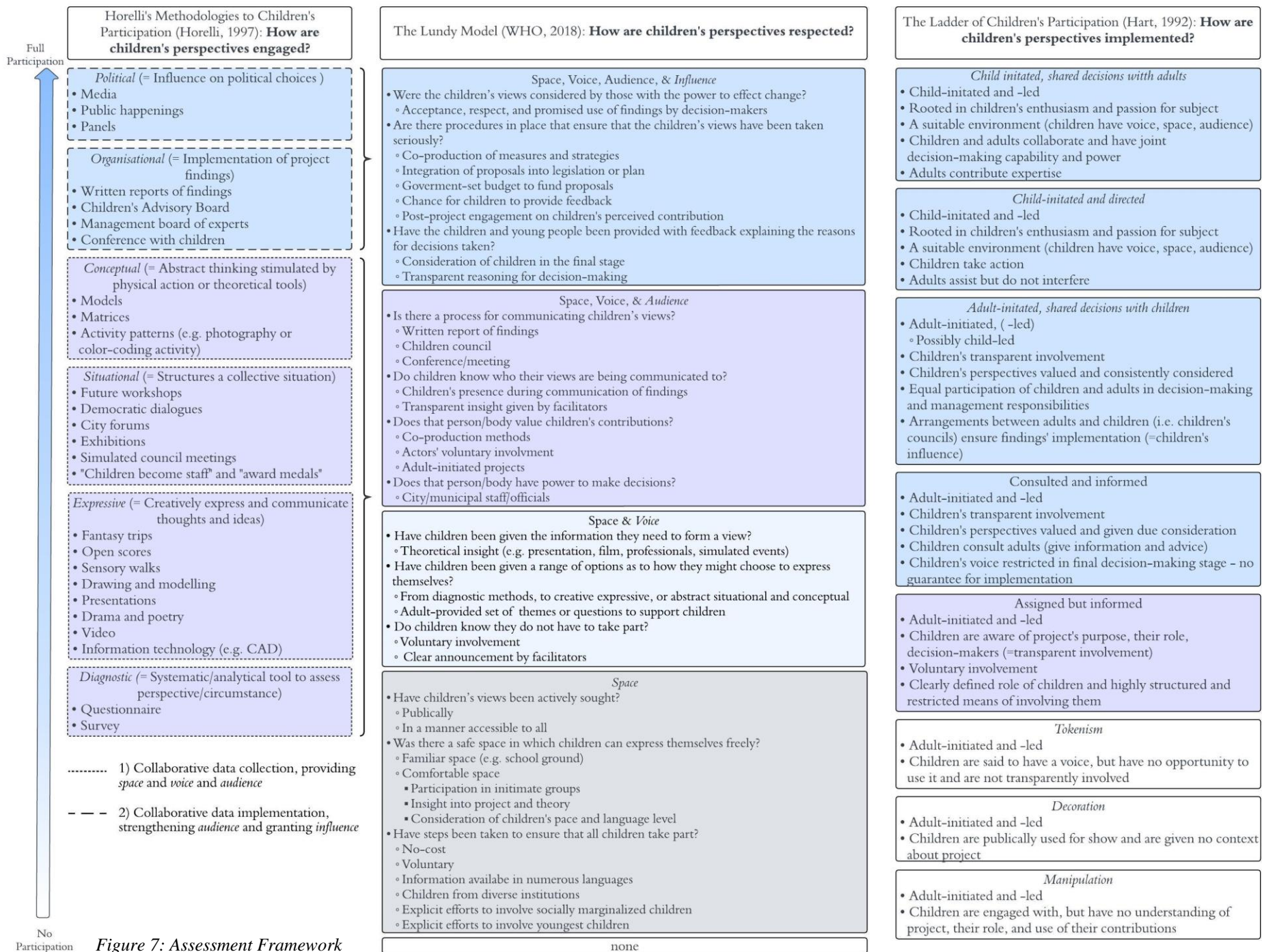
Full Participation

Horelli's Methodologies to Children's Participation (Horelli, 1997): How are children's perspectives engaged?

The Lundy Model (WHO, 2018): How are children's perspectives respected?

The Ladder of Children's Participation (Hart, 1992): How are children's perspectives implemented?

Political (= Influence on political choices)
• Media
• Public happenings
• Panels

Organisational (= Implementation of project findings)
• Written reports of findings
• Children's Advisory Board
• Management board of experts
• Conference with children

Conceptual (= Abstract thinking stimulated by physical action or theoretical tools)
• Models
• Matrices
• Activity patterns (e.g. photography or color-coding activity)

Situational (= Structures a collective situation)
• Future workshops
• Democratic dialogues
• City forums
• Exhibitions
• Simulated council meetings
• "Children become staff" and "award medals"

Expressive (= Creatively express and communicate thoughts and ideas)
• Fantasy trips
• Open scores
• Sensory walks
• Drawing and modelling
• Presentations
• Drama and poetry
• Video
• Information technology (e.g. CAD)

Diagnostic (= Systematic/analytical tool to assess perspective/circumstance)
• Questionnaire
• Survey

.... 1) Collaborative data collection, providing *space* and *voice* and *audience*

– – – 2) Collaborative data implementation, strengthening *audience* and granting *influence*

Space, Voice, Audience, & *Influence*
• Were the children's views considered by those with the power to effect change?
  ◦ Acceptance, respect, and promised use of findings by decision-makers
• Are there procedures in place that ensure that the children's views have been taken seriously?
  ◦ Co-production of measures and strategies
  ◦ Integration of proposals into legislation or plan
  ◦ Goverment-set budget to fund proposals
  ◦ Chance for children to provide feedback
  ◦ Post-project engagement on children's perceived contribution
• Have the children and young people been provided with feedback explaining the reasons for decisions taken?
  ◦ Consideration of children in the final stage
  ◦ Transparent reasoning for decision-making

Space, Voice, & Audience
• Is there a process for communicating children's views?
  ◦ Written report of findings
  ◦ Children council
  ◦ Conference/meeting
• Do children know who their views are being communicated to?
  ◦ Children's presence during communication of findings
  ◦ Transparent insight given by facilitators
• Does that person/body value children's contributions?
  ◦ Co-production methods
  ◦ Actors' voluntary involvment
  ◦ Adult-initiated projects
• Does that person/body have power to make decisions?
  ◦ City/municipal staff/officials

Space & *Voice*
• Have children been given the information they need to form a view?
  ◦ Theoretical insight (e.g. presentation, film, professionals, simulated events)
• Have children been given a range of options as to how they might choose to express themselves?
  ◦ From diagnostic methods, to creative expressive, or abstract situational and conceptual
  ◦ Adult-provided set of themes or questions to support children
• Do children know they do not have to take part?
  ◦ Voluntary involvement
  ◦ Clear announcement by facilitators

Space
• Have children's views been actively sought?
  ◦ Publically
  ◦ In a manner accessible to all
• Was there a safe space in which children can express themselves freely?
  ◦ Familiar space (e.g. school ground)
  ◦ Comfortable space
    ▪ Participation in intimate groups
    ▪ Insight into project and theory
    ▪ Consideration of children's pace and language level
• Have steps been taken to ensure that all children take part?
  ◦ No-cost
  ◦ Voluntary
  ◦ Information availabe in numerous languages
  ◦ Children from diverse institutions
  ◦ Explicit efforts to involve socially marginalized children
  ◦ Explicit efforts to involve youngest children

Child inited, shared decisions with adults
• Child-initated and -led
• Rooted in children's enthusiasm and passion for subject
• A suitable environment (children have voice, space, audience)
• Children and adults collaborate and have joint decision-making capability and power
• Adults contribute expertise

Child-initated and directed
• Child-initated and -led
• Rooted in children's enthusiasm and passion for subject
• A suitable environment (children have voice, space, audience)
• Children take action
• Adults assist but do not interfere

Adult-initated, shared decisions with children
• Adult-initiated, (-led)
  ◦ Possibly child-led
• Children's transparent involvement
• Children's perspectives valued and consistently considered
• Equal participation of children and adults in decision-making and management responsibilities
• Arrangements between adults and children (i.e. children's councils) ensure findings' implementation (=children's influence)

Consulted and informed
• Adult-initiated and -led
• Children's transparent involvement
• Children's perspectives valued and given due consideration
• Children consult adults (give information and advice)
• Children's voice restricted in final decision-making stage – no guarantee for implementation

Assigned but informed
• Adult-initiated and -led
• Children are aware of project's purpose, their role, decision-makers (=transparent involvement)
• Voluntary involvement
• Clearly defined role of children and highly structured and restricted means of involving them

Tokenism
• Adult-initiated and -led
• Children are said to have a voice, but have no opportunity to use it and are not transparently involved

Decoration
• Adult-initiated and -led
• Children are publically used for show and are given no context about project

Manipulation
• Adult-initiated and -led
• Children are engaged with, but have no understanding of project, their role, and use of their contributions

No Participation

Figure 7: Assessment Framework

5.2 Singaporean Initiatives of Children's Participation in Urban Planning

To assess the Singaporean participatory planning environment for children, three local initiatives are reviewed by engaging the assessment framework. Findings are summarized in Table 4.

Table 4: Analysis of Singaporean Initiatives

Initiative	*Finding 1:* In Singapore, various methods are applied for data collection, providing children with a suitable space, voice, and audience to share their views	*Finding 2:* In Singapore, the implementation of children's contribution, thus, the influence on final decision-making is restricted	Challenges	Accomplishments

Case 1: **Urban Planning Festival** (by Urban Redevelopment Authority, government-initiated)	• Data collection:
	  • **Expressive** (presentations, modelling, information technology)
	  • **Situational** (workshops, exhibitions, Young Planner's Forum, tours)
	  • **Conceptual** (activity patterns (Fun Run, Jamming Activity, Geography Challenge))
	
	 -> **Space** (publicly accessible, no-cost, voluntary)
	 -> **Voice** (activities and challenges for knowledge-building, various participatory methods)
	 -> **Audience** (actors' voluntary involvement, adult-initiated by decision-makers)
		• Data implementation: none
		
		 -> adult-initiated and led (by government), children are aware, voluntary involvement, clearly defined role, restricted influence --> **assigned but informed**
			• Children feel encouraged, heard, comfortable, and safe to express themselves	• Exclusion of children under secondary-education age
				 • Lacking transparency in areas of participant recruitment, involvement of marginalized children, environment of participatory space, communication procedure of findings
				 • No enabling structure for implementation of findings
				 • Objective to train children bigger than objective to work with their perspectives

Case 2: **Hack Our Play** (by non-profit organisation, jointly-created playground)	• Data collection:
	  • **Diagnostic** (interviews)
	  • **Conceptual** (activity patterns (crayon conversations, pop-up play)
	
	 -> **Space** (at school, intimate groups of children and parents, no-cost, voluntary, welcoming for young children)
	 -> **Voice** (facilitator-provided guiding questions, voluntary)
	 -> **Audience** (co-production, actors' voluntary involvement, adult-initiated by decision-makers)
		• Data implementation:
		  ◦ **Organisational** (written report of findings)
		
		 -> **Influence** (co-production (50% production with professionals, 50% production with children, set procedures for implementation – <u>physical</u> realization), children-provided feedback)
		
		 -> adult-initiated and led (by NPO), transparent and consistent involvement, perspectives valued, co-production --> **adult initiated, shared decisions with children**
			• Children feel encouraged, heard, comfortable, and safe to express themselves
			 • **Inclusion of younger children** (pre-school and primary-school age)
			 • **Clear enabling structure** for implementation of findings (co-production)
				• Lacking transparency in areas of participant recruitment, involvement of marginalized children, knowledge-building efforts
				 • Small range of options for involvement

Case 3: **The Somerset Belt** (by National Youth Council, part of SG Youth Action Plan, government-initiated, initiative name: "Singapore Together: Shape Your Somerset")	• Data collection:
	  • **Diagnostic** (desktop research, ethnography (field study))
	  • **Situational** (Discussion, Lecture, Urban Hack)
	  • **Conceptual** (photowalk, walking conversations, prototype testing (model))
	
	 -> **Space** (publicly accessible, no-cost, voluntary)
	 -> **Voice** (activities and studies for knowledge-building, various participatory methods)
	 -> **Audience** (co-production, actors' voluntary involvement, adult-initiated by decision-makers)
		• Data implementation:
		  ◦ **Organisational** (the Working Panel)
		
		 -> **Influence** (co-production (set procedures for implementation – <u>conceptual</u> realization (masterplan)), children provide feedback)
		
		 -> adult-initiated and led (by government), transparent involvement, perspectives valued, children consult adults, restricted influence --> **consulted and informed**
			• Children feel encouraged, heard, comfortable, and safe to express themselves
			 • **Children influence final decision-making** – consistent involvement of up until the design of the masterplan
				• Exclusion of children under the age of 15
				 • Lacking transparency in areas of participant recruitment, environment of participatory space, communication procedure of findings
				 • Lacking transparency regarding spatial implementation/ physical realization of co-designed masterplan (termination of children's involvement after this stage?) -> uncertainty regarding influence of masterplan, thus, of children
				 • Lacking follow-up communication with children

Examining Singaporean initiatives reveals clear presence of local efforts fostering children's participation in urban planning, particularly engaging child-inclusive data collection, hence delivering participatory space, voice, and audience (UNICEF, 2018).

Initiative purpose being to enrich planners' knowledge on how to enhance space, the annual Urban Planning Festival (UPF) (URA, 2018a) organised by the government-affiliated Urban Redevelopment Authority (URA) effectively provides volunteering students from secondary and higher education with an accessible and student-friendly space to share their voice (UNICEF, 2018) through expressive, situational, and conceptual means (Horelli, 1997). Arrangements of activities and challenges, options to be trained as tour guides, and workshops foster children's knowledge of spatial tools and Singapore's planning efforts, while a forum and exhibition of ongoing sub-initiatives, wherein children's proposals catalyse planners' decisions, encourage exchange and development of ideas. During co-creation of a playground, the NPO-led "Hack Our Play" (HOP) initiative (Rahman et. al., 2020) also facilitates an appropriate space (UNICEF, 2018) and encourages young children to express themselves. Organising voluntary participatory actions on school-ground, involving parents, and engaging diagnostic and conceptual (Horelli, 1997) tactics such as field observations, interviews, "crayon-conversations"[1], and pop-up play (Rahman et. al., 2020), the latter two particularly attending to young children's capabilities, idea development is supported. Both adult-initiated projects, an audience (UNICEF, 2018) that values children's contribution is assumable. Involvement of co-production efforts in the case of HOP (Rahman et. al., 2020), as well as the re-design of an area in Singapore's central shopping district (Tuber, 2020), the Somerset Belt, strengthens this aspect. The government-initiated participatory project "Singapore Together: Shape Your Somerset" proposes children from diverse institutions between ages 15 to 35 a space to develop a youth district (Tuber, 2020). Inviting children to participate through diagnostic, conceptual, and situational means (Horelli, 1997), building their knowledge through desk research, photo walks, field studies, and lectures, and collecting insight through discussions, Urban Hack, and prototype-testing (Shape Your Somerset, 2019), the sharing of their voice (UNICEF, 2018) is furthered.

Although given a space, voice, and audience (UNICEF, 2018) to share views, application of children's perspectives and ideas, thus their influence (UNICEF, 2018) on decision-making, is constrained. While experts are involved throughout the entire project that is initiated by decision-makers (URA, 2018a), therefore initiative-results of UPF reach those with implementation power, the precise communication procedure is unclear and, hence Lundy's criterion (UNICEF, 2018) of audience not fulfilled. Children's contributions are not guaranteed to have influence (UNICEF, 2018), as nothing but these "possibly inspiring plans" is announced (URA, 2018b), or any enabling structure is arranged. One primary objective being to "cultivate appreciation of urban landscape and local planning" (URA, 2018a), uncovers the educative objective for children's involvement. Children's participation as tour guides or in activities building children's knowledge of Singapore's history and planning, and knowing the festival is government-initiated, creates the impression of a motivation to market Singapore's urban planning. Children free to voice ideas but not heard, the objective to train youth greater than the objective to grow from their perspectives, and the lacking transparency on implementation and influence of children's contributions, result in the initiatives ranking on Hart's (1992) level of "assigned but informed". As the other government-initiated project, yet involving co-production of a masterplan (Shape Your Somerset, 2019), the Somerset Belt falls into the higher level of "consulted and informed" (Hart, 1992). Involvement of an organisational structure (Horelli, 1997), the Somerset Working Panel (Shape Your Somerset, 2019), enables youths from diverse communities to support implementation of children's inputs under the consistent guidance of professionals and decision-makers. Involved in creating spatial suggestions and reviewing plans exhibits children's comprehensive involvement. However, termination of their participation after co-designing the masterplan, coupled with lack of follow-up communication

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[1] Crayon-conversations are a child-friendly communication method. Facilitators pose questions to children who respond by drawing their answers as images (Rahman et. al., 2020).

methods and insight into process of translating children's ideas into action leaves uncertainty regarding implementation of the masterplan, thus extent of their influence (UNICEF, 2018). Contrasting this, the NPO-initiated HOP project's (Rahman et. al., 2020) co-creation efforts, organisation of feedback-dialogues with children, and written communication of findings exemplify a Singaporean case wherein children influence (UNICEF, 2018) decision-making up until the final design-stage, in post-project evaluation, and maintenance procedures (Rahman et. al., 2020). Exhibiting an instance of implementation of findings, consistent involvement of professionals and children, and fulfilment of all Lundy criteria (UNICEF, 2018), HOP (Rahman et. al., 2020) ranks on Hart's (1992) level of "adult initiated, shared decisions with children".

Two out of three instances engaging data implementation tactics, one to full extent, and each involving diverse data collection methods puts into perspective the depth of Singaporean children's involvement in urban planning. Contrasting government-led initiatives restricting children's influence and NPO-initiated projects proving the opposite reflects Singapore's constraining realm of public participation (Soh & Yuen, 2006). Singapore's efficiency-oriented and top-down institutional design (Soh & Yuen, 2006) and high degree of public trust regarding government decisions (Edelman Trust Institute, 2024) restrict government-initiated projects' effectiveness. Hampering degree of children's influence (UNICEF, 2018), these forces reason why Singaporean initiatives are limited to Horelli's (1997) data collection methods and are ranked below Hart's (1992) levels of genuine participation. Global government projects are ruled by Western democratic principles (Gil, 2022), hence institutional and cultural attitudes that value meaningful public engagement. Thus, findings expose the opposite trend, global government-initiated projects attaining a higher degree of children's influence (UNICEF, 2018) than NPO-initiated projects. Differences to global initiatives, along with lacking transparency regarding recruitment of participants, diversity-certifying procedures, overall participatory environment, communication of findings, and more, create doubt regarding accessibility and child-friendliness of Singaporean participatory initiatives.

5.3 Suggestions for Global and Singaporean Planners

Reviewing global and Singaporean participatory initiatives with respect to criteria enabling inclusivity of approaches exposes primary differences, serves to compare overall effectiveness, and the development of suggestions for planners.

International and local cases engage various tactics that expand children's theoretical awareness, encourage, comfort, and validate them, and enable sharing of ideas and development of spatial suggestions. While analysed cases engage collection methods that facilitate space, voice, and audience (UNICEF, 2018), stage of implementation is more commonly reached in international cases. Singaporean planners are advised to model after global best practices' organisational structures (Horelli, 1997) that safeguard children's influence in planning (UNICEF, 2018). Respecting Singapore's strict local governance and formal planning structures (Soh & Yuen, 2006), suggesting open-mindedness regarding child-initiated projects is critical, yet implementation is unforeseeable. A proposed compromise acts upon the CA's link between children's rights and capability to participate (Dixon & Nussbaum, 2012) by recommending an increase in facilitation for adult-initiated but child-led projects ranked on Hart's (1992) level of "adult-initiated, shared decisions with children". Assigning children a meaningful role in participatory initiatives by taking an organisational approach (Horelli, 1997), forming a children's council accessible to all children wherein strategies are co-produced, progresses children's involvement until post-implementation phases while not undermining the government's influence who remains involved in final negotiations and applies national resources. Easing government control during engagement process but safeguarding its influence on deciding choices not only renders Singaporean participatory space child-friendly but supports well-being of Singaporean citizens (ARUP, 2017) by assuring production of unique yet feasible spatial adjustments (Mansfield et. al., 2021), facilitating inclusive (Biggs & Carr, 2015) and sustainable (Malone, 2015) urban development. Building upon insights from global initiative reports, Singaporean planners are recommended to provide more transparency regarding

participant recruitment and communication procedures to at least achieve the baseline of comprehensive children's involvement according to Hart's ladder (1992), thus the level of "consulted and informed". Mitigating possibility for inaccurate interpretation of initiatives' inclusivity and effectiveness, this will allow analysts to comprehensively evaluate approaches. Assumed insufficient due to absence of data on engagement effort's with marginalised children, Singaporean planners could model after Boulder's or Vienna's approach of engaging diverse institutions to increase accessibility of participatory spaces.

Although global approaches facilitate more inclusive children's involvement, international planners can draw inspiration from Singapore's HOP's (Rahman et. al., 2020) mechanism of providing participatory space to younger children. Global planners could employ HOP's (Rahman et. al., 2020) child-friendly communication methods to broaden age-accessibility of their initiative, enhancing inclusivity and diversifying perspectives gathered. Global planners are also advised to strengthen children's awareness regarding their freedom not to participate, as well as justifications for final decision-making. To avoid compromising authenticity of children's involvement, facilitators should remain objective when building children's knowledge and providing templates for idea development. In general, involving mechanisms proven to enable effectiveness of initiatives abroad, local planners can facilitate sustainable and inclusive local urban development.

6. Conclusion

Researching the application of the CFCI in the Singaporean context, this case study conducts a critical literature review of general CFC concepts, global applications, and Singaporean initiatives to explore the linkage between children's participation in Singaporean urban planning and sustainable and inclusive local urban development. The study reasons institutional and cultural contextualities for differences in extensiveness of previous explorations into global and Singaporean participatory realities with children, and for the contrasting environments between these. As planners in Eastern contextual realities lack examples similar to their settings, this research provides a novel insight into the application of the CFC and diversifies available literature for the convenience of global planners and decision-makers.

Applying Horelli's (1997), Lundy's (UNICEF, 2018), and Hart's (1992) models to global best-practices of participatory planning instances with children, criteria for meaningful participation are framed into an assessment framework. Although generating valuable results, this is a representative piece that does not capture the variability of participatory planning environments with children. Given the aim to identify global best practices, the gap in awareness of CFCI applications beyond the West highlights a West-centric bias in determining effectiveness criteria, subjecting results to generalization. Bearing this in mind, future endeavours could apply the assessment framework in efforts to analyse participatory planning with children in other global contexts. To enhance representativeness of the framework, upcoming studies could employ the research's methodological steps to review successful initiatives from more culturally and governmentally diverse settings and engage a larger sample of best-practices.

Respecting the research limitation, the analysis of "global" approaches substantiates general progress towards child-friendly urban environments (Biggs & Carr, 2015). Revealing diverse involvement opportunities, transparent insight, and knowledge-building efforts as critical factors fostering a child-friendly participatory space, the analysis reveals globally-proven arrangements for meaningful child involvement to Singaporean planners to yield greater societal and environmental benefits. Respecting factors leading to restrictions in effectiveness and inclusivity of Singaporean approaches, the identified efficiency of organisational structures and government-aided initiatives in facilitating consistent dialogue with decision-makers and ensuring children's influence on planning directs formation of suggestions. Collaboratively developing spatial strategies that leverage children's dynamic spatial understanding (Nordström & Wales, 2019), as well as professionals' expertise, assures societal well-being of Singaporean citizens (ARUP, 2017) and inclusive (Biggs & Carr, 2015) and sustainable (Malone, 2015) urban development, meeting goals of the 2030 Agenda for Sustainable Development (Ministry of Foreign Affairs, 2018). Nudging Singaporean planners to acknowledge the merit of this planning strategy, research findings provide globally valuable insights. Diversifying

awareness on the CFC concept, supplying a suitable assessment framework for future research, and proving relation to strengthened urban sustainability and inclusivity catalyses planners globally to enhance children's participation in urban planning.

Acknowledgements

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Appendices

Appendix A: Overview of Sources

Academic Papers:

Initial exploration into children's participation in urban planning (introduction & theoretical framework):

Number of source	Title of Source	Author	Year of Publication	Journal
1	Children's Participation in Urban Planning and Design: A Systematic Review.	Ataol, Ö., Krishnamurthy, S. & van Wesemael, P.	2019	*Children, Youth and Environments*, *29* (2), 27-50.
2	Integrating Children's Rights into Municipal Action: A Review of Progress and Lessons Learned.	Bartlett, S.	2005	*Children, Youth and Environments*, *15*(2), 18–40.
3	Age- and Child-Friendly Cities and the Promise of Intergenerational Space.	Biggs, S. & Carr, A.	2015	*Journal of Social Work Practice: Psychotherapeutic Approaches in Health, Welfare and the Community*, *29*(1), 99-112.
4	The influence of the neighborhood physical environment on early child health and development: A review and call for research.	Christian, H., Zubrick, S.R., Foster, S., Giles-Corti, B., Bull, F., Wood, L., Knuiman, M., Brinkman, S., Houghton, S. and Boruff, B.	2015	*Health & place*, *33*, pp.25–36.
5	Making Child-friendly Cities: A socio-spatial literature review.	Cordero Vinueza, V., Niekerk, F., & van Dijk, T.	2023	Cities, 137, Article 104248.
6	Children's Rights and a Capabilities Approach: The Question of Special Priority.	Dixon, R., & Nussbaum, M.	2012	Cornell Law Review, 97(3), 549.
7	A capability approach to children's well-being, agency and participatory rights in education.	Hart, C. & Brando N.	2018	*European Journal of Education*, *53*, 293–309.
8	Children's participation: From tokenism to citizenship.	Hart, R.	1992	Innocenti Essays. 4.
9	A methodological approach to children's participation in urban planning.	Horelli, L.	1997	*Scandinavian Housing and Planning Research*, *14*, 105-115.
10	Children's rights and the crisis of rapid urbanisation: Exploring the United Nations Post 2015 sustainable development agenda and the potential role for UNICEF's child friendly cities initiative.	Malone, K.	2015	*The International Journal of Children's Rights, 23*(2), 405–424.
11	"Critical Agents of Change?": Opportunities and Limits to	Mansfield, R. G., Batagol, B., & Raven, R.	2021	*Journal of Planning Literature, 36*(2), 170-186.

	Children's Participation in Urban Planning.			
12	Pop-Up kids: exploring children's experience of temporary public space.	McGlone, N.	2016	*Australian Planner, 53*(2), 117-126.
13	Enhancing urban transformative capacity through children's participation in planning.	Nordström, M. & Wales, M.	2019	*Ambio , 48*, 507–514.
14	Kids in the city study: research design and methodology.	Oliver, M., Witten, K., Kearns, R.A., Mavoa, S., Badland, H.M., Carroll, P., Drumheller, C., Tavae, N., Asiasiga, L., Jelley, S., Kaiwai, H., Opit, S., Lin, E.-Y.J., Sweetsur, P., Barnes, H.M., Mason, N. and Ergler, C	2011	*BMC Public Health, 11*(1).
15	Reconceptualising the Child's Right to Development: Children and the Capability Approach.	Peleg, N.	2013	*The International Journal of Children's Rights, 21*(3), pp.523–542.
16	Measuring child-friendly cities: developing and piloting an indicator assessment tool for sustainable neighborhood planning.	Rakhimova, N., McAslan, D. and Pijawka, D.	2022	*Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, pp.1–27.
17	Child friendly cities: good governance in the best interests of the child.	Riggio, E.	2002	*Environment and Urbanization, 14*(2), 45-58

(Total count: 17)

Global initiatives of children's participation in urban planning:

Number of source	Title of Source	Author	Year of Publication	Journal
1	How participatory processes impact children and contribute to planning: a case study of neighborhood design from Boulder, Colorado, USA.	Derr, Victoria & Kovács, Ildikó	2015	*Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 10*, p. 1-20.
2	Children participation in planning processes: the case of Child Friendly City project in post-earthquake Bam, Iran.	Rismanchian, O. and Rismanchian, A.	2007	*URBAN DESIGN International, 12*(2-3), pp.143–154.
3	Exploration on Ways of Research and Construction of Chinese Child-friendly City-A Case Study of Changsha.	Yao, S. and Xiaoyan, L.	2017	*Procedia Engineering, 198*, pp.699–706.

(Total count: 3)

Singaporean initiatives of children's participation in urban planning (& introduction to Singapore & case selection):

Number of source	Title of Source	Author	Year of Publication	Journal

1	Public participation in China and the West.	Gil, O.	2022	
2	Long-term planning and development for urban and regional inclusion, safety, resilience, and sustainability. Insights from Singapore.	Kempton, Y, Salvati, L, and Vardopoulos, I.	2022	*Region & Periphery*, *14*, 58-78.
3	Citizen Participation and Policy Making in Singapore: Conditions and Predicaments.	Leong, H.K.	2000	*Asian Survey*, *40*(3), pp.436–455.
4	Singapore: Authoritarian but Newly Competitive. Journal of Democracy, 22(4), pp.153–164.	Ortmann, S.	2011	*Journal of Democracy, 22*(4), pp.153–164.
5	Government-aided participation in planning Singapore.	Soh, E.Y. & Yuen, B.	2006	*Cities*, *23*(1), pp.30–43.

(Total count: 5)

Other (methodology/appendix/images):

Number of source	Title of Source	Author	Year of Publication	Journal
1	Academic contributions to psychological counselling: I. A philosophy of science for the study of individual cases. (Methodology)	Bromley, D. B.	1990	*Counselling Psychology Quarterly, 3* (3), 299–307.
2	Literature review as a research methodology: An overview and guidelines. (Methodology)	Synder, H.	2019	*Journal of Business Research, 104*, 333-339.

(Total count: 2)

Grey Literature:

Initial exploration into children's participation in urban planning (introduction & theoretical framework):

Number of source	Title of Source	Year of Publication	Publisher
1	*Cities Alive: Designing for Urban Childhood.*	2017	Arup
2	*Ladder of Children's Participation.*	2019	Organizing Engagement
3	*Convention on the Rights of the Child.*	1989	UN General Assembly
4	*Conceptual Framework for Measuring Outcomes of Adolescent Participation.*	2018	UNICEF
5	*Guidance on Child and Adolescent Participation as part of Phase III of the preparatory action for a European Child Guarantee, 1.*	2021	UNICEF
6	*Initiatives Explore Child Friendly Cities initiatives around the world.*	n.d.	UNICEF

| 7 | *What is the Child Friendly Cities Initiative?.* | n.d. | UNICEF |

(Total count: 7)

Global initiatives of children's participation in urban planning:

Number of source	Title of Source	Year of Publication	Publisher
1	*City of Boulder Launches the UNICEF Child Friendly Cities Initiative to Enhance Lives of Young People.*	2023	Boulder Colorado Government
2	*How Vienna involves children in shaping the city.*	2021	Cities Today
3	*Child and youth participation in Finland - A Council of Europe policy review.*	2011	Council of Europe
4	*Beispiele und Erfolge.*	n.d.	Kinderfreundliche Kommunen
5	*Good Practice in Child Friendly Cities.*	2019	Kinderfreundliche Kommunen
6	*5000+ Child & Youth Friendly City Forum.*	n.d.	School for Creating Change
7	*About us: Children's Hearings Scotland.*	2020	UK Government
8	*Your Vienna for future - Junges Wien - Stadt Wien.*	2019	Vienna City Administration

(Total count: 8)

Singaporean initiatives of children's participation in urban planning (& introduction to Singapore & case selection):

Number of source	Title of Source	Year of Publication	Publisher
1	*Singapore and Hong Kong among Top Ten cities in Arcadis Sustainable Cities Index*	2018	Arcadis
2	*2024 Edelman Trust Barometer Singapore Report.*	2024	Edelman Trust Institute
3	*Largest Countries in the World by Population Density in 2021 (People per Square Kilometers).*	n.d.	Globaldata
4	*International Case Studies of Smart Cities: Singapore, Republic of Singapore.*	2016	Inter-American Development Bank
5	*Towards more participatory governance in Singapore - Lee Kuan Yew Centre for Innovative Cities.*	2018	Lee Kuan Yew Centre for Innovative Cities
6	*Towards a Sustainable and Resilient Singapore - Singapore's Voluntary National Review Report to the 2018 UN HighLevel Political Forum on Sustainable Development.*	2018	Ministry of Foreign Affairs
7	*About Singapore.*	n.d.	Ministry of Foreign Affairs Singapore
8	*UN.*	n.d.	Ministry of Foreign Affairs Singapore
9	*Singapore Together: Shape Your Somerset.*	2020	Psdchallenge, Singapore Government

10	*Planning Singapore: The Experimental City.*	2019	Routledge
11	*LET'S HACK OUR PLAY!*	2020	The City at Eye Level.
12	*Singapore.*	n.d.	UNData
13	*Integrating the youth in city planning.*	2018	Urban Redevelopment Authority
14	*Speech by Mr Desmond Lee, Minister for Social and Family Development and Second Minister for National Development, at the Urban Planning Festival and CUBE Award Ceremony 2018.*	2018	Urban Redevelopment Authority
15	*Somerset Belt Masterplan.*	2019	Youth Action Plan

(Total count: 15)

Other (methodology/appendix/image):

Number of source	Title of Source	Year of Publication	Publisher
1	*Written answer by Ministry of National Development on revival of annual competitions or festivals for Urban and Built Environment.* (Appendix)	2024	Ministry of National Development (MND)
2	*Netherlands Code of Conduct for Research Integrity.* (Appendix)	2018	NWO
3	*Minimalistic Singapore.* (Image)	2023	SeaOfData
4	*Ethical Considerations of Conducting Systematic Reviews in Educational Research.* (Appendix)	2020	SpringerVS
5	*'Engaging young people for health and sustainable development: Strategic opportunities for the World Health Organisation and partners'.* (Image)	2018	WHO

(Total count: 5)

Appendix B: Ethical Implications

Regarding ethical implications that may render the study challenging, the chosen methodology reduces significant concerns for issues traditionally linked to primary data collection. Nevertheless, the conducted literature review of secondary sources conforms to ethical terms and academic integrity by ensuring appropriate citation manner of referenced sources. Additionally, the researcher prioritizes the primary values set up by the "Netherlands Code of Conduct for Research Integrity" (Netherlands Code of Conduct for Research Integrity, 2018). Honesty, scrupulousness, transparency, independence, and responsibility are guaranteed by a significant share of the thesis lending comprehensive insight into the literature search strategy, case selection choice, and review of findings (Suri, 2020).

Appendix C: Parliament Response

The following presents a copy of the official government response (MND, 2024) initiated by Mrs Ting Ru He:

"Written answer by Ministry of National Development on revival of annual competitions or festivals for Urban and Built Environment

Apr 3, 2024

Question No: 5925

Question by: Ms He Ting Ru

To ask the Minister for National Development (a) whether there have been any recent similar initiatives to the Urban Planning Festival held annually by the Urban Redevelopment Authority between 2016 and 2019; and (b) whether there are any plans to revive the annual Challenge for the Urban and Built Environment workshop and competition.

Answer:

The Urban Redevelopment Authority (URA) organises a slate of initiatives to engage youths on urban planning, including experiential learning workshops, career forums, as well as youth-specific engagements on the Long-Term Plan and Draft Master Plan. These initiatives have replaced the Urban Planning Festival, which was cancelled in 2020 due to the COVID-19 pandemic.

The annual Challenge for the Urban and Built Environment (or CUBE) is held around November each year. The 2023 edition of CUBE brought together 140 participants from 18 schools to re-imagine the future of the former Jurong Bird Park site.

More information on URA's youth programmes can be found on URA's website." (MND, 2024)