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Lead Author: Jack R. Lehane

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Participatory Architecture and Co-Design Preliminaries

ENERGY PATHFINDER

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Author : Jack R. Lehane

UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh

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Participatory Architecture and Co-Design Preliminaries

0. Foreword

This document traces a thematic and genealogical inquiry into the evolving and intersecting fields of co-design and participatory design (PD), both of which offer a tangible lens for understanding the landscapes within which extant and emerging opportunities for co-creation are nested. It does not explicitly aim to present any absolute or 'stand-alone' genealogy of co-design, but use a genealogy as a serving structure for investigating key dimensions of co-design to allow the intersections of architecture with the (otherwise voluminous) subject matter of 'participation' to be revealed. As the first deliverable, this document informs subsequent methodological review for user-centred post-occupancy evaluation (POE) in the second deliverable, *'Towards Co-Design in Post-Occupancy Evaluation (POE)'*. Section 1 foregrounds what is at stake for understanding co-design as a subject matter and its intersecting fields; the structural and conceptual point of departure for the inquiry. Section 2 shows the inherent complexity within co-design definition through divergence in its consensus and interwoven social, political and civil rights origins. Section 3 outlines underpinnings to the status quo of Section 2, identifying counterpoint positions to these origins. Section 4 delineates examples of classifications of participation and associated conditions of its qualification. Section 5 illuminates changing roles of such principles in practice, and their underlying relevances within emerging spaces for co-creation. Lastly, this document concludes with Section 6: Final Notes.

Keywords:

co-design, participatory design (PD); architecture (PA), co-creation, communities of practice

CONTENTS

1 INTRODUCTION : BREAKING GROUND

Post-modern shifts and increases in connectivity have, in turn, given rise to new opportunities for understanding how people interact (Bauman, 2000; Sennett, 1998).[1] What was previously small-scale cooperation has grown to become sequences of open production and collaborative, innovative, practices (Schneider, 2006; 2007).[2] Amidst such shifts in understanding, there is a (re)emergence of participatory practice and collaborative stakeholder engagement — especially within the field of architecture. The concept of agency is being restructured, conventions are being challenged, and values are being questioned — necessitating previous understandings of what project engagement could or should look like to be revisited. However, this shift tends to be in friction with previously established top-down practices, around which real-world pragmatics, socio-economic climates and value sets are echoed. One need not look very far to see relevance of 'participation' to architecture as *"a force for change in the creation and management of environments for people"* (Sanoff, 2008).[3] This research therefore opens up a dialogue with the formalised fields of co-design and participatory design (henceforth 'PD') which offer crystallisations of an otherwise abstract territory; through which emerging opportunities for co-creation may be consolidated and understood. It is therefore necessary to explore the wider fields of co-design and PD to reveal its intersections, to decodify the separative paradigm that we have created for ourselves in a world of *"undemocratic"* specialisation (Bannon, *et al.*, 2012: p.38; De Carlo, 1980: p.77).[4] As such, its respective intersections with social theory, political backdrops, philosophical underpinnings and emergence of key concepts and principles are traced. This aims to challenge assumptions regarding what co-design in future built environments might look like. By tracing such a genealogy, this literature review composes the literary space within which the later deliverables are positioned. Indeed, by illuminating the intersections of architecture and PD what it means for architecture to participate, or enable participation, can be harnessed; a prerequisite for subsequent operationalising within real-world environments — whilst simultaneously opening up a new field of inquiry into these new spatial conditions.

2 INTERSECTIONS : A CONTEXTUAL MATTER

2.1 Towards a (Non)Definition of Participation

PD is a term used to describe design process and practice that actively involves all stakeholder groups, particularly collective end-users in the design and decision-making process (Jenkins 2010; Curl, 2006)[5]. Whilst sometimes referred to as a singular entity such as above, both participatory and co-design are composed of many open-ended approaches and perspectives. As Sarah White acknowledged (1996), without a definitive and shared definition of participation, many people can discuss *participation* but mean very different things.[6]

This is substantiated by Elizabeth Sanders *et al*. (2008) in *Co-Creation and the New Landscapes of Design* who, as part of an investigation in design research divergence, acknowledge a paradox that for all literature existing on PD in general very little outlines what defines participation in the first place.[7] Sanders *et al*. (2008) investigate a growing divergence within associated design research; from a user-centred approach to a co-designing approach. Within this, the landscape of human-centred design (HCD) research includes PD research (user as partner), user-centred research (user as subject), and the smaller area of critical design. PD research is illustrated as including the subsets of both primarily Scandinavian contributions, as well as the emerging field of generative design and its generative toolkits (Section 5). In partial response to this, Lars Bo Andersen *et al*. (2015) develop an analytical understanding of what constitutes PD from *Actor-Network Theory (ANT)* — adapting from Latour (2008).[8] Consequently, participation becomes, fundamentally, a relational and heterogeneous network progressing through particular projects and processes. Intending not to develop another participation method, it aims to serve as a resource for framing participation method as a continuously unsettled matter of concern whereby *"participation, as a matter of concern, goes against universal standards for participation and the ability to claim, as a matter of fact, what is and what is not participation"* (Andersen *et al*., 2015)[9]. From this, it is understood that participants are not stand-alone subjects but network configurations,

participation is not tied to designated events but always partially at play, and that there is no gold standard for participation (Sanders *et al.*, 2008).[10]

The field of PD is understood as becoming dispersed and, by extension, what it means to participate (Beck, 2002; Bødker, 2003; Christiansen, 2003; Dittrich, 2003; Kanstrup, 2003; Bødker & Iversen, 2002).[11] PD was, and is, often acknowledged as a systems design approach for work settings — and, as discussed in *Contestations and Points of Origin* (Section 2.2), this is certainly where it has some of its roots. However, any perceived exclusivity by this application has been challenged by its application within other settings and manners of user participation — also in alternative non-work settings (Ivari, 2007; Ivari et al., 2010).[12] This lack of consensus is reflected by further examples that can be traced. For example, it is felt by some practitioners that PD should include a political activist component — i.e. community improvement in its entirety (Cahill, 2007; Carroll & Rosson, 2007; Hanzl, 2007; Luck, 2007; Reich *et al.*, 1996; Toker, 2007).[13] Meanwhile, others identify PD as an explicit practice to improve work-life experience within an organisation (Blomberg *et al.*, 1993; Clement & Van den Besselar, 1993; Mumford, 1987; Kensing, 1983).[14] Despite an absence of universally accepted definitions, basic frameworks have also been formalised in an attempt to define participation for application in various contexts (e.g. see Section 4.1: *Typologies, Motivations and Qualifications* for more detail). This diffusion is amplified further by the significant diversity in discussion regarding the employment of specific methodology within participatory practice (Howcroft & Wilson, 2003; Sanoff, 2007; Wagner & Piccoli, 2007; Törpel, 2005).[15]

However, as posited by Clay Spinuzzi (2005) in 'The Methodology of Participatory Design' that, *"Theoretically, [PD] is founded on constructivism, a theory that explicitly resists the notion that knowledge can be completely formalised and classified"*.[16] The inferred paradox is that the constructivist foundation of PD, on which a definition would conceivably exist, is *classified* according to its *unclassifiable* nature; singularly defined by its potential for multiple definitions. Nonetheless, as a philosophical underpinning of the such diverse and contextual nature of participation, this constructivist paradigm, whilst not 'proving' the validity of a contextual

definition of participation, also does not insubstantiate such a definition. Therefore, with respect the preceding literature investigated, it may be deduced that a definition for any such formalised participation within architecture can be potentially consolidated through a constructivist approach — substantiates architecture's point of intersection with participation as an interdisciplinary field of inquiry for increasingly contextual conditions.

2.2 Contestations and Points of Origin

The exact origin of such formalised PD and co-design is a contested subject. Contrary to the formalised systems approach of PD stemming from Scandinavia in the 1960's, for example, citizen participation in community decision-making can be traced back as early as Plato's *Republic* (Plato *et al*., 1992).[17] Additionally, the right for citizen participation is acknowledged by some historians as a shaping force on the early American frontier; an already active desire for citizens to have influence on their own lives (Billington, 1967).[18] With increasing populations and techno-sociological developments, and to occupy the growing space in the decision-making process, citizens delegated their decision-making to elected representatives — growing into a system of public election and volunteer organisations (De Tocqueville, 1959).[19]

In *Challenges and Opportunities in Contemporary Participatory Design*, Robertson and Simonsen (2012) credit contemporary PD and its literature as originating from the 1960's; as a result of society members' wishes to have more influence on the decisions in their lives.[20] Associated social and political reform marked turning points in societies across the world — from Australia to Paris — punctuated by strikes, occupations of factories and universities, and even halts in the economy (Nichols, 2009; Bourg, 2007)[21]. This came at the peak of a golden age of economic prosperity and represented the strength of a new and emerging youth culture. Amidst high post-war employment, a welfare 'safety net' was experienced, with higher numbers of students attending universities than ever before. This resulted reduced anxieties for getting a job, passing exams, and pressures for climbing bureaucratic ladders (Hobsbawm, 1994).[22] As a consequence, aged and outworn social conventions and hierarchies were

greatly questioned and undermined — allowing space for the emergence of a new generation gap[23]; setting a space for principles to be practiced and frameworks to be tested.

As a product of a range of social, political and civil rights movements (Robertson & Simonsen, 2012; Bourg, 2007)[24], participatory design has redefined architecture and design processes (Blundell-Jones, 2005).[25] However, this diversity is manifest in systems development across multiple contexts. For clarity within such heterogeneity, there is utility in classifying respective PD origins according to geographical region, before later exploring of their emerging territories. In the context of Britain, the idea that the public should 'participate' in planning is credited as being first reported in 1965 (Taylor, 1998) by the report of the Planning Advisory Group (the 'PAG' report).[26] However, this 'participatory' position was also held by the primary users, who experienced an autocratic view of the planning system.[27] This was owed to a lack of consultation with them as the primary users — as well as proper consideration of how the built environment influenced them. The emerged PD field created a platform through which users can actively participate in the design process, and established the context with which not only the presence or absence, but the *level* of participation can be measured and compared. However, key questions arise regarding the conflict between the measurable and comparative aspects of participation, or lack thereof. Scandinavia set the scene for a democratic approach, not for the providing of these answers, but for the framing of such questions.

In the case of Scandinavia, PD is identified primarily as a manner of systems design with active *user* participation. Credited as where cooperative/co-design practice originated from (Bødker, 1993)[28], the participatory (cooperative) approach in Scandinavia arose in the 1970's with many of the democratic and social values of modern design, as well as Nordic (Kensing, et al., 2012)[29]. Politically driven by Marxist ideals, democracy was aimed to be fostered in the workplace (Winograd, 1996; Spinuzzi, 2005)[30] — in response to a lack of technology experience by labour unions, imposed systems developments that contrasted sharply with workers' traditional ways of working, and increased control and automation displacing job

opportunities (Ehn & Kyng, 1987; Zuboff, 1988).[31] As a result, systems-based participation served as a means of emancipating the users within such systems (Spinuzzi, 2005).[32]

This emergence was rooted in the combination of two research programs for such worker empowerment. This was enabled firstly through the 'collective resources' research program that formed research programs with labour unions, focusing on union empowerment through technological education (Bjerknes, et al., 1987).[33] The second program 'socio-techncial systems design', as illustrated in *'Designing Human Systems* (1983)*'* and *'Sociotechnical Systems Design – Evolving Theory and Practice* (1987)', focused on empowerment through the *designing and changing* of these technologies for autonomous workgroups — advanced primarily by British researchers at the Tavistock Institute in the UK (Mumford, 1983; 1987; Mumford & Beekman, 1994; Leitch & Warren, 2010).[34] Both of these research programs arose from the Norwegian Industrial Democracy Project in the 1960's. However, as Emery and Thorsrud (1976) posit, the British contribution to PD is often overlooked.[35] An example of the latter research approach is manifest in the Norwegian Iron and Metal Workers Union (NJMF), headed by computer scientist Kristen Nygaard (Nygaard & Bergo, 1975).[36] Nygaard's view on design, objects, and systems had considerable influence on PD practice, even to this day. Aided by action research[37], Scandinavian researchers set out to collaboratively develop and refine new technologies — in turn giving workers back control over their own work (Clement & Van den Besselar, 1993; Bertelsen, 2000). Allowing greater human flexibility in the use of systems, a clear route to the digital age was established through a systems thinking approach.

North America bears considerable systems relevance to extended participatory development within Europe. As the US systems theorist C. West Churchman (1968, p.231) writes in *The Systems Approach*, systems thinking *"begins when first you view the world through the eyes of another"*.[38] Churchman (1971), in *The Design of Inquiring Systems*,[39] incentivised what became known as a *soft systems approach* — that was co-developed with his colleagues at Lancaster University, UK (Checkland, 1981).[40] As an earlier systems influence, this is credited as one of the first more collaborative PD methodologies applied in PD projects during this

time, and facilitated the use of different prototyping tools and methods (Andersen *et al.*, 1990).[41] *The Design of Inquiring Systems* (1971) articulates a variety of perspectives for viewing 'systems', according to different philosophical approaches. Examples include Leibniz' philosophical approaches to system components existing in harmony, compared and contrasted with the *"dialectical philosophy of Hegel"* linking to the synthesis of conflicting ideas (Bannon and Ehn, 2012).[42] Churchman shows how our world views (paradigms) govern the direction of the systems we create, and also importantly illustrates the conflicting philosophies in systems approach. Whilst Churchman's work is not as especially visible in PD today, it still bears heavy influence on contemporary design research (Nelson and Stolterman, 2003).[43]

Notwithstanding such emergent overlaps in systems influences within the PD field, a subset of formal design participation in North America was commercially motivated; addressing usability difficulties in the industrial design field that caused inefficiencies in bringing products to market (Shapiro, 2005).[44] However, extending beyond this industrial counterpart, citizen participation in built planning was still employed — increasing social responsibility with many practitioners rejecting traditional ways of practicing design. In *Origins of Community Design*, Sanoff (2005) acknowledges the influence of Paul Davidoff's (1965) advocacy model of intervention in both North America and the UK.[45] Translating participatory practice across boundaries is not without its frictions, owing to (at least in part) the diversity of *"languages of design and of ethnography evolved in quite different contexts and in relation to different concerns"* (Schuler and Namioka, 2017).[46] Contrary to this, Joan Greenbaum (1991) writes that the growth of multicultural pluralism in non-Scandinavian contexts such as North America still offered themselves as a bedrock for potential PD practices through vehicles such as cooperative design (i.e. 'co-design').[47] By means of grants and technical assistance, citizens were given the right to participate in planning and implementation — through which "*volunteer citizen participation continues to be one of the key concepts in American society"* (Sanoff, 2008).[48]

Despite PD's increasing importance in developing contexts (Braa, 1996), PD literature is traditionally located within westernised business contexts, with minimal application in

developing countries — particularly for social development (Byrne and Sahay, 2007).[49] As a result, the literature related to developing regions is largely located in more recent decades than the original systems-based PD origins outlined above. This literature, whilst still region-specific, simultaneously tend to be indicative of broader significances with respect to developing context approaches. However, as contended by Sofia Hussain et al. (2012), most of PD literature in developing countries is credited as stemming from such information system (IS) design.[50] Puri et al. (2004) illustrate this through offering insight into three case studies on health information systems in South Africa, India and Mozambique — communicating that in each of the respective case studies, different participatory approaches had to be adopted.[51] In the case of South Africa, an already existing culture of community participation enabled researchers to gather a diversity of participants to establish a common project vision. However, in India's case, Puri et al. (2004) state that the bottom-up approach did not work, owing this to the hierarchical government structure that was prominently established within community decision-making. As a result, the Chief Minister of the state was required to instigate any participatory processes. In the third case of Mozambique, a participating university served as a crucial mediating bridge between bureaucracy and community.[52] Additional literary outputs signify a gap in PD in developing contexts — in that often PD methods are listed and described, but detail as to how participation was organised and its degrees of success is often overlooked (Sharma, et al. 2008; Lalji and Good, 2008).[53]

Further to this, Elovaara, Igira, and Mörtberg (2006) investigate similarities and differences between two health care projects in Tanzania and Sweden.[54] As a result of this study, it was identified that participation by stakeholders could not be taken for granted, owing to cultural, technological and organisational restrictions (e.g. lack of human resources). Elovaara *et al*. (2006, p.113) concluded that, *"… participation and how to participate has to be negotiated and adapted to the local setting"* . Byrne and Sahay (2007) attest to this in one form, stating that participation by stakeholders is often assumed in a given project, but that there is a common need to develop this capacity — particularly those beyond the development of IS systems (Byrne and Sahav, 2007; Hussain *et al.*, 2012).[55]

3 UNDERPINNINGS : (INTER)DISCIPLINARY COUNTERPOINTS

3.1 Connecting to Wider Fields

Whilst not negating the PD origins referred to above, distinct counterpoints to formalised participation — in terms of origin and significance — can also be brought to light. Simonsen and Robertson's (eds.) *Routledge International Handbook of Participatory Design* (2012)'offers the first set of counterpoints to the above social underpinnings of PD — shedding further light on such formalised antecedent to PD systems as we understand them today (Bannon and Ehn, 2012; Cross, 1982).[56] Liam Bannon and Pelle Ehn (2012: p.38) submit that the PD foundations were laid even prior to the referred origins outlined in Section 2.2: *Contestations and Points of Origin* above — specifically through the intersections of the reflective, craft tradition, and the rationalist, modern tradition encompassing and the transdisciplinary ideas of systems thinking from computers to product design — such as in the case of the Bauhaus.[57]

Inaugurated in 1919, the Bauhaus is credited as introducing the design movement with its inter-sectionalist goal of uniting art and technology (Bannon and Ehn, 2012).[58] By designing progressive social and cultural values in designed objects as vehicles for social change, it differentiated itself from conventional fine arts schools' practices (Droste, 1998).[59] The *'funkis'* functionalist approach to design encompassed traditional craftwork and its production, becoming synonymous with the growing working class and welfare and *'folkhemmet'* social democratic ideologies. Whilst this political radicalisation was controversial (falling on the 'wrong' side of Germany's political divide in Nazism's Third Reich) key Bauhaus individuals (including Moholy-Nagy, Van der Rohe and Walter Gropius) as exiles were well received in the international scene and US; forming the avant-garde for the modern international style (Wolfe, 1982).[60] However, as acknowledged by Marshal Berman, this became a pedestal for only specialised architects to assert change in the world (Berman, 1982)[61] — transforming itself into an *"undemocratic social elitism"* (Bannon and Ehn, 2012, p.38).[62] Nonetheless, people

became aware that *"social problems could be solved with scientific rationality"*.[63] Through this, social underpinnings of alternative approaches to design were set.

Whist initially focused on the labour movement and its values in the 1970's, PD progressed considerably following the 1980's and the UTOPIA project. This led to a number of projects such as the *EureCoop/EuroCode* projects (Grønbæk et al., 1993)[64] and AT project (Bødker *et al.*, 1993)[65]. What were previously implicit ideals of modern design became explicit. Bauhaus concepts re-emerged through the PD transition (Ehn, 1988; Winograd, 1996)[66] and even 'institutionalised' through attempts to re-establish it as a 'Digital Bauhaus' (Ehn, 1998; Binder *et al.*, 2009).[67] This generated subsequent points of origin for new systems-based prospects.

Extendedly, whilst PD has progressed community development and urban planning areas, one of the main areas of its *design* development is still said to be rooted in its systems approach to *technological* development. Following the progression of modernity, Enid Mumford, as shown in *Designing Human Systems* (1983) and *Sociotechnical Systems Design – Evolving Theory and Practice* (1987), was notably concerned with the progression of participatory practice in information systems design in the UK.[68] This was also the case with the (albeit more explicitly politically-posed[69]) Scandinavian systems designs, illustrated by Kristen Nygaard.[70] Both of these were influenced by the UK Tavistock Institute's coined 'socio-technical systems', and their associated *action research* method of it.[71] *Action research* is credited to Kurt Lewin of the US during the war years. Lewin describes action research as *"a comparative research on the conditions and effects of various forms of social action and research leading to social action"*.[72] The defining component of action research is said to be its *"spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action"*.[73] This action research opened up new avenues for participatory engagement — and is sometimes referred to as *participatory action research (PAR)*. *"Design was seen as the design of knowledge systems"*.[74] PAR helped to change these systems.

At the outset of formalised participatory design evolution, aforementioned alternative approaches to design are further reflected in a systems-based capacity — as shown by Tavistock researchers. This underlying significance is also rooted in what one may consider a 'system'. The term 'system' as used by the Tavistock researchers is credited as extending from the already emerging work on 'open systems theory' — made known by cyberneticist/ biologist Ludwig von Bertalanffy's (1950) paper on '*The Theory of Open Systems in Physics and Biology*'[75] — highlighting the idea of social systems, technical systems, and environmental systems all requiring an individual and interconnected balance for optimal overall system output. Fred Emery, Austrialian researcher at Tavistock, significantly furthered this systems approach. The core element of this work's success was the realisation that the concept of a 'system' was not already defined in the natural world, but generated from a perspective and approach. The focus was not on technology itself, but *how* it was introduced and used. The pioneered socio-technical thinking sparked a series of significant PD progression through its constructivist methodology. This is significant as its emerged field of 'interaction design' from Human-Computer Interaction (HCI) and computer systems provided a key link between the design movement and systems design thinking. Whilst scientific approaches were still maintained and showed significant merit, the exclusively engineering perspective shifted towards a consolidating of a design community-engagement perspective as part of this. It is this that provided the link to the fields of product design and architecture.[76]

4 CLASSIFICATIONS : SITUATING KNOWLEDGE

4.1 Typologies, Motivations and Qualifications

Processes concerned with social transformation posit an important epistemic and sytematic challenge; that is the classification of levels and qualifications of participation needed for co-design. Participation as a subject matter remains a messy, complex, multifaceted and often intangible thing. For this reason, there is a challenge in its qualification and measurement. Indeed, many frameworks have been developed for structuring and assessing participatory processes. However, there are still disparities in consensus of such measurement. As Jacobson (2007)[77] acknowledges, *"agreed-on measures of participation are not available"*. Nonetheless, through understanding the different classifying forms that participation and co-design come in, we may still allow increased understanding of their relationships to — and opportunities for — the stakeholders involved. Incentivised by a lack of common ground for a unified understanding of common definition in participatory approach, Helena Almeida and Pedro Vaz Serra (2017) call for *"the construction of a type of 'architecture' of participation* (Almeida & Serra, 2016; emphasis by author) *… a conceptual network that sets the parameters for it evaluation"*.[78]

Building from *Towards a (Non)Definition of Participation* (Section 2.1), select typologies may evidence structural insights for further understanding of what constitutes participation (Table 4.1.A). As Eva Brandt (2006) writes, *"organising collaboration between… various competencies and interests is challenging and therefore designers need frameworks [typologies], which can accommodate this work"*.[79] Whilst extensive investigation of each typology rests beyond the scope of this deliverable, a sample is used as a vehicle for understanding larger typological evolutions of participation's classifications in advance of further literary review. Briefly discussed, in chronological order, are: the *Ladder of Citizen Participation* (Arnstein, 1969)[80]; *Types of Farmer Participation* (Biggs, 1989)[81]; *Prototypical Approaches to Innovation Development* (Probst *et al.*, 2000)[82]; *Continuum of Participation* (Chambers, 1997)[83]; and *The Engagement Triangle* (Capire Consulting Group, 2015)[84].

TABLE 4.1.A : A NON-EXHAUSTIVE LIST OF PARTICIPATION TYPOLOGIES (1969—2020)

No.	Typology	Source
1	Balanced E-Participation Index	Pirannejad, Ali; Janssen, Marijn; and Rezaei, Jafar. (2019). 'Towards a Balanced E-Participation Index: Integrating Government and Society Perspectives.' In: *Government Information Quarterly*, Vol. 36(4).
2	The Community Engagement Components Practical Model	Ahmed S.M., Neu Young S., DeFino M.C., Franco Z., Nelson D.A. (2017). 'Towards a Practical Model for Community Engagement'. In: *Journal of Clinical and Translational Science*: Vol.1(5): pp. 310–315. October.
3	The Engagement Triangle	Capire Consulting Group. (2015). 'The Engagement Triangle' In: *Publications*. [online].
4	Digital Participation Pathway	The Scottish Government. (2014). *Digital Participation: A National Framework for Local Action*. April.
5	Archetypes of Community Participation	Kaizen Partnership. (2012). *Some Thoughts on Community Participation*. July 19. [online].
6	Six Principles of Online Participation	Davies, Timothy G.; Bhullar, Sangeet; and Dowty, Terri. (2011). 'Rethinking Responses to Children and Young People's Online Lives.' In: *EU Kids Online 2 — Final Conference, LSE*: London, UK.
7	Ladder of Online Participation	Bernoff, J. and Li, C. (2010). *Social Technographics Revisited – Mapping Online Participation*. Cambridge, UK: Forrester Research.
8	Five Key Dimensions of Participation	Kudva, N. & Driskell, D. (2009). 'Creating Space for Participation: The Role of Organizational Practice in Structuring Youth Participation.' In: *Community Development*, 40(4), pp.367–380.
9	Six-Step Model	Goździk-Ormel, Ż. (2008). *Have Your Say!*, Strasbourg, France: Council of Europe.
10	RMSOS Framework	Goździk-Ormel, Ż. (2008). *Have Your Say!*, Strasbourg, France: Council of Europe.
11	Matrix of Participation	Badham, B. and Davies, T. (2007). The Involvement of Young People.' In: R. Harrison, C. Benjamin, S. Curran and R. Hunter (eds.) *Leading Work with Young People*, London, UK: Sage.
12	Triangle of Participation	De Backer, K. and Jans, M. (2002). *Youth(-work) and Social Participation: Elements for a Practical Theory*, Brussels, Belgium: Flemish Youth Council.
13	Seven Realms of Children's Participation in City Plan. & Design	Francis, M. and Lorenzo, R. (2002). 'Seven Realms of Children's Participation.' In: *Journal of Environmental Psychology*. Vol. 22(1–2): pp.157—169.
14	Typology of Participation	Agarwal, B. (2001). Participatory Exclusions: Community Forestry and Gender: 'An Analysis for South Asia and a Conceptual Framework.' In: *World Development*, Vol. 29(10): pp.1623–1648.
15	A Ladder of Participation	Kanji N. and Greenwood L. (2001). *Participatory Approaches to Research and Development in IIED: Learning from Experience*, London, UK: IIED.
16	Pathways to Participation	Shier, H. (2001). 'Pathways to Participation: Openings, Opportunities and Obligations'. In: *Children & Society*, Volume 15, pp.107–117.
17	Prototypical Approaches to Innovation Development	Probst, K., Hagmann, J., Becker, T. and Fernandez, M. (2000). *Developing A Framework For Participatory Research Approaches in Risk Prone Diverse Environments*. Deutscher Tropentag 2000 in Hohenheim.
18	Continuum of Participation	Chambers (1997). *Whose Reality Counts? Putting the First Last*, London, UK: Intermediate Technology Publications.
19	Degrees of Participation	Treseder, P. (1997). *Empowering Children and Young People: Training Manual*. London, UK: Children's Rights Office and Save the Children.
20	A Typology of Interests	White, Sarah C. (1996). 'Depoliticising Development: The Uses and Abuses of Participation.' In: *Development in Practice*, 6(1): pp.6–15.
21	Typology of Participation	Pretty, J. (1995) Participatory learning for sustainable agriculture, World Development, 23 (8), 1247– 1263
22	Ladder of Participation	Hart, R.A. (1992). *Children's Participation; From Tokenism to Citizenship*. Florence, Italy: United Nations Children's Fund (UNICEF) Int'l Child Development Centre.
23	Types of Farmer Participation	Biggs, S.D. (1989). *Resource-Poor Farmer Participation in Research: A Synthesis of Experiences From Nine National Agricultural Research Systems*. OFCOR Comparative Study Paper. ISNAR, The Hague: pp. 3-37
24	Describing and Analyzing Rural Development Participation	Cohen, J.M., & Uphoff, N.T. (1980). 'Participation's Place in Rural Development: Seeking Clarity Through Specificity'. In: *World Development* 8(3), pp. 213-235.
25	Ladder of Citizen Participation	Arnstein, S.R. (1969). A Ladder of Citizen Participation. *Journal of the American Institute of Planners*, Vol. 35, No. 4, (June), pp. 216.

The first typology is Sherry Arnstein's (1969) *Ladder of Citizen Participation* (Table 4.1.B) which posits a clear reflection of the heterogenous nature of what may constitute 'participation'. Of eight different categorisations ('rungs') of incrementally increasing citizen influence, Arnstein states that only the final three rungs constituted true citizen power — and therefore true citizen participation.[85] However, the first of many limitations to such classifications can be seen. Firstly, existing arguments against community control are acknowledged, such as that *"[community control] is incompatible with merit systems and professionalism"*.[86] Moreover, Arnstein's categorisations do not acknowledge the infinite possible combinations of less defined attributes of any participant or their interactions, notwithstanding what constitutes a decision-maker for respective agency as well as the abstracted nature of 'power' itself. Nonetheless, Arnstein's ladder structure reflects the increasing levels of decision-making agency that is inherent within many typologies that followed it. From *Describing and Analyzing Rural Development Participation* (Cohen, *et al.*, 1980) to the *Balanced E-Participation Index* (Pirannejad, *et al.*, 2019), the later evolved typologies are shown to echo Arnstein's structuring of variations of power-sharing between the public and an agency (Buchy, Ross *et al*., 2000).[87]

TABLE 4.1.B : LADDER OF CITIZEN PARTICIPATION (Arnstein, S., 1969)

Participation Level	Qualification	Characteristic Features
Citizen Control	(Citizen Power)	Guaranteeing of shared power (control) for participants to govern program or institution in full charge of policy and managerial aspects, and be able to negotiate conditions under which "outsiders" may change them
Delegated Power	(Citizen Power)	Citizens have dominant decision-making authority over plan, mutual trust of accountability, and power-holders begin the bargaining for change
Partnership	(Citizen Power)	Joint committees for power redistribution, with mutually understood ground rules established
Placation	(Tokenism)	Degree (minority) of citizen power, although "token" representation is still apparent
Consultation	(Tokenism)	Citizens allowed opportunity to hear and be heard, although not necessarily allowed influence.
Informing	(Tokenism)	Primarily one-way channel from officials to citizens, with little opportunity for feedback, citizen project influence or timely negotiation.
Therapy	(Non-Participation)	A "masqueraded" participation, whereby officials focus on "curing" citizens' pathology.
Manipulation	(Non-Participation)	"Rubberstamping" citizen participation to "educate" them and/or engineer their support.

A second example is Biggs' (1989)[88] *Types of Farmer Participation* (Table 4.1.C). This model further resonates the linear structuration of agency; also extending from Arnstein's ladder (1969). However, within this typology we can see that the relational aspect of participation becomes more explicit, as seen through the structuration of internal and external actor power 'relationships' (networks). This is specifically with four modes of incremental variants across: contractual; consultative; collaborative; and collegiate (participation). With an increased emphasis of contextual engagement, stages within a project timeline and (relational) 'mutual learning', each increment demonstrates an emergent trend towards contextual and relational thinking. Biggs' typology was then generalised by Probst *et al*. (2000) in order to enable it to encompass more general participatory engagements (Table 4.1.D), thereby increasing its utility for applications within wider disciplines and fields of inquiry.[89]

TABLE 4.1.C : TYPES OF FARMER PARTICIPATION (Biggs, S.D., 1989)

Mode	Objective
Collegial	Mutual learning whereby informal research is enabled as part of local control over project
Collaborative	Local people and researchers collaborate as partners in process of designed projects
Consultative	People's opinions are taken into consideration before interventions made
Contractual	People are contracted into scientist's project participation for enquiries or experiments

TABLE 4.1.D : PROTOTYPICAL APPROACHES TO INNOVATION DEVELOPMENT (Probst *et al.*, 2000)

Approach	Characteristic Feature
Farmer-Controlled Research	Farmer-initiated: Contractual – Consultative. Local organisations who have control over resources initiate contracts with research service providers to overcome specific constraints.
Participatory Learning and Action Research	Researcher or Community-initiated: Collaborative – Collegiate. Knowledge developed through critical learning and experiential learning, in an ongoing process of action in a real-life context.
Farmer First	Researcher initiated: Consultative – Collaborative. A summarisation of a family of approaches, whose commonality is the emphasis on participation by farmers in the generation, testing and evaluation of farming technology for sustainable agricultural production.
Transfer of Technology	Researcher initiated: Contractual – Consultative. Based on a positivist science paradigm, this linear model transfer innovation proposals to farmers, who adopt or reject the external innovations.

In distinct departure from 'static' increments was the evolution of *The Continuum of Participation* (Chambers, 1997) which represented a spectrum of engagement. Although technically linear in its construction, it foregrounds the understanding of contextual engagement across different actors as a multi-dimensional continuum inclusive of nuances, mixes and sequences. Rooted in a departure from previous dichotomous thinking, Chambers' continuum underpins an important paradigm shift that reveals further limitations of earlier typologies, further attested to by Tristan Claridge (2004) whereby *"many definitions of participation hint at the participation continuum"*.[90] Limitations extending from earlier approaches include: ownership (e.g. whose evaluation is it?); value sets (e.g. for whose purpose and why?); assessment (e.g. analysed and used by whom?); and empowerment (e.g. who gains and why?). While such questions can be said to underpin all typologies, it is this pivot that can mitigate against potential missteps of static rungs, potentially too large a space between 'rung' increments, and the earlier dichotomies that created them.

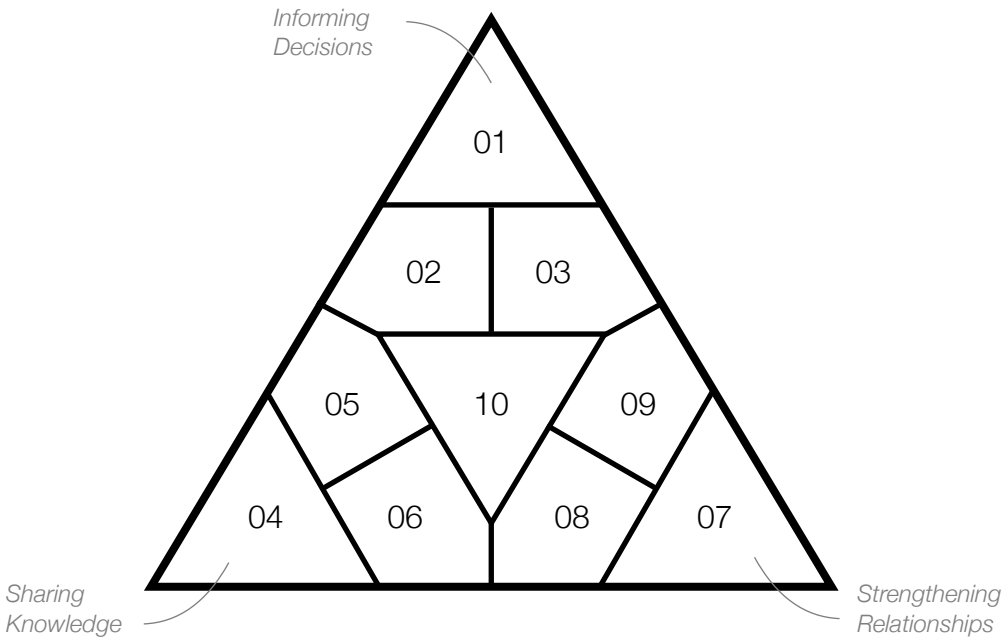
TABLE 4.1.E : CONTINUUM OF PARTICIPATION (Chambers, 1997)

Nature of Process	Rapid Rural Appraisal (RRA) ⟷	Participatory Rural Appraisal (PRA)
Mode	Elicitive // extractive	Empowering
Professional's Role	Investigator	Facilitator
Information Owned, Analysed and Used By	Professional	Local people
Typical Methods	Secondary sources, observation, interviews with local experts	Shared visual analysis, Venn diagramming, group checking and validation
Objective Long-Term Outcomes	Data collection, plans, projects, publications	Empowerment, sustainable local action and institutions

While considerably linear structurations of agency still extends to present day typologies such as in the *Balanced E-Participation Index* (Piranejad, *et al*., 2019)[91] and the *Ladder of Online Participation* (Bernoff and Li, 2010)[92], many other typologies are emerging whose structures represent a departure from such uni-dimensional linearity. Such examples include the *Community Engagement Components Practical Model* (Ahmed, *et al*., 2017)[93] which helps

situate community engagement activities in relation to institutional priorities, capabilities, and ongoing programs across five primary elements, and *The Engagement Triangle* (Capire Consulting Group, 2015)[94] — speaking more to relational and contextual engagements. Through relational conceptualisations of engagement such as *The Engagement Triangle* in particular (Fig. 01), objectives and techniques can be navigated according to desired outcomes; informing decisions (decision-making agency), building capacity (enhancing knowledge, behaviour or awareness), and strengthening relationships (facilitating and sustaining community connections).

FIG. 01 : THE ENGAGEMENT TRIANGLE (Capire Consulting Group, 2015)



Notwithstanding the small sample size of the typologies discussed, preliminary structural significances are seen to emerge. Moreover, all sample typologies represent a consideration of a particular type of stakeholder, suggesting certain importance in its relevance to any participatory configuration. Secondly, more contemporary typologies tend to also take into account more relational factors than their earlier counterparts — speaking to an increased awareness of situating participation within increasingly multi-faceted contexts. Indeed, typologies that have more than one dimension of classification appear to simultaneously maintain a stronger consideration of relational aspects of participation. Conducive to this

deduction is Biggs and Sharp's (2004) recent positioning; maintaining that a multiplicity of perspectives present valuable utility within any adaptive process and, by extension, typology.[95] Although some typologies may be more applicable than others in a given context, basic qualifications still allow comparisons to be made. Bucky *et al.* (2000) substantiates this important distinction, in that a given typology's higher 'rungs' on the participation (or power) continuum are not necessarily better than those on the lower rungs. Of distinct relevance to the employment of any formalised participation within a project is the awareness of the fact that a project includes some participatory elements does not necessarily lead to a project's success, or expected outcome (Carpentier, 2009; Shapiro, 2005).[96] Indeed, even how processes such an information flow are maintained, as well as who initiates participation (regardless of exact classifications) remain pressing questions. In light of these latent considerations within which each structuration is nested — and as also deduced in *Towards a (Non)Definition of Participation* (Section 2.1) — both a given typology's use and its qualification can be considered as remaining premised on a case by case basis. Whilst there is not yet an identified "*gold standard"*[97] for participation, it can be inferred that participation on this spectrum may begin to be characterised according to the positioning of the questioner within the respective context(s) — therefore characterising any definition or qualification as a *contextual* matter. The epistemic challenge of any typological framing of participatory practice is therefore further underpinned by the contextual nature of the knowledge employed.

Reiterating Clay Spinuzzi's (2005) echoing of multiplicity in *The Methodology of Participatory Design* enables a revision of the theoretical underpinnings of such typological significances. Imparting that *"theoretically, [PD] is founded on constructivism, a theory that explicitly resists the notion that knowledge can be completely formalised and classified"*[98] — knowledge is viewed in PD as occurring through networks and relationships; the interaction between participants, practices and design artefacts. In this sense, it is maintained that knowledge does not merely reside in the head, but is a condition of a certain context.[99] In acknowledging knowledge as an inseparable condition of its context, it logically follows that such knowledge

of participation can be considered as a *situated knowledge*. In the case of typologies, increasing end-community input embodies an increased input of *tacit* situated knowledge of the vernacular.[100] *"This kind of* [tacit] *knowledge can only be revealed through practice in a particular context and transmitted through social networks",*[101] and *"to some extent it is "captured" when the knowledge holder joins a network or a community of practice"*.[102] Acknowledging that all knowledge within the realm of PD systems can be understood as a *situated knowledge*, as Spinuzzi (2005) maintains, it logically follows that orders of typology for the application of such knowledge (PD and co-design) bears considerable efficacy in incorporating such tacit situated knowledge's input within emerging participatory engagement.

4.2 Mapping Methodology

The emerging (typological) landscapes (e.g. Sections 4 and 5 respectively) are rooted in the integrated topographies of *methodology*. Two diverging methodological approaches of PD, whilst both still falling under the umbrella of the constructivist paradigm, are credited by Bannon and Ehn (2012) as being the *problem-solving model*, and the *reflective practice* paradigm.[103] Herbert Simon's *The Sciences of the Artificial* (1969) represents the former and, having merit in his approach, carried great influence in the design research community. However, whilst close to the computer science field, it was still considerably far removed from the alternative practice-based approach of the Bauhaus. Continued investigation into what constituted design research, and design issues' formalisation, is reflected across a number of publications as part of the developing design research movement (e.g. Gregory, 1966; Cross, Naughton and Walker, 1981; Cross, 1982; 1984; 1989; 1990; 1994; 1995; 2001; 2002).[104]

The scientific approach eventually culminated in the famed futurist and inventor Buckminster Fuller developing of the concept of '*comprehensive anticipatory design science* (CADS)' — shortened to *'design science'*. *"Society operates on the theory that specialization is the key to success, not realizing that specialization precludes comprehensive thinking"* (Fuller, 1968, p.24).[105] This key concept by Fuller was furthered reinterpreted and developed by Sydney A. Gregory's 'Design Science' (1966).[106] The latter (reflective practice paradigm) is represented by

Donald Schön's (1983) famed publication '*The Reflective Practitioner*', and stands in a form of opposition to the traditionally rationalist problem-solving scientific approach.[107] Whilst Schön never officially endorsed PD, great value was placed on 'conversational design', encouraging open dialogue with users. This became a more favourable mainstay in PD approach; through the perspective of the designer being a *reflective practitioner*.

Nonetheless, Simon and Schön acknowledge design situations' natural complexity. Whilst Simon attempted to transform this messiness into a stable state of mathematics, Schön submits that a stable state does not exist and that we should pay attention to the ways that professionals manage this 'messiness'.[108] Referring back, it is Churchman's already identified philosophical paradigms such as Leibniz and Hegel that influenced further PD thinking regarding the development of a more explicitly Marxist approach. This extended not from the synthesis of design ideas but from a variety of interrelated social and material controversies (Ehn, 1988).[109] The concept of design as a 'designerly' practice played a significant role in this as strongly influenced by Dewey (1934; 1938) who posited a general epistemology of creative and investigative processes originating from real-life situations in *Art as Experience* and *Logic: The Theory of Inquiry* — argued as fundamental to understanding this complexity.[110]

Further to this, Claudio Ciborra and Giovanni Francesco Lanzara (1983) are considered pioneers of applying the pragmatic-reflective and practice approach to PD and co-design settings — through their emphasis on collaboration and design-thinking.[111] This systems approach was continued by multiple professional systems designers (Andersen et al., 1990)[112] and the design theorist Erik Stolterman (1991), whose work shed light on the hidden rationality of design work (Nelson and Stolterman, 2003; Löwgren and Stolterman, 2004).[113] These solidified the learning-by-doing perspective for PD enquiry (e.g. methods of prototyping such as Greenbaum and Kyng's (1991) referred *design-by-playing* and *design-by-doing*).[114] The investigating of work conditions and practices (such as through these tools for PD enquiry) opened up an avenue for the including of ethnographic practices (including sociological and anthropological investigations). This resulted in the emerged field of 'design-anthropology'.

Rather than carrying out typical ethnographic practices, they design-anthropology intends to *"do design directly"* in everyday settings (Halse, 2008).[115] As an emerging and evolving field, many intersections with PD and co-design are still uncharted.

Despite this, qualitative conditions are becoming increasingly important in understanding participatory systems and their processes. These qualitative elements are echoed further in Szebeko and Tan's (2010) *'Co-designing for Society'*, which outlines co-design differentiations from PD: *"Co-design differs from some of these areas as it includes all stakeholders of an issue not just the users, throughout the entire process from research to implementation"*.[116] In some contrast, Sanders and Stappers (2008) write that *"the terminology used until the recent obsession with what is now called* co-creation/co-design *was* participatory design*"*.[117] Nonetheless, co-design, with its collaborative and participatory elements, is also credited as being able to reformulate new collective sets of values within an organisational system.[118] However, adaptation is deemed necessary for successful implementation of these principles in practice, according to the context. This is further distinguished by Part III in the publication — explicitly focusing on qualitative *ethnographic field methods*; *cooperative design techniques and experiences*; and *contextual inquiry as a participatory technique*. This shift then gave rise to increasing participatory practice's accessibility, demonstrated by Patricia Leavy's provision of a user-friendly PD handbook, *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches* (2017).[119] Structured according to five main approaches to social and behavioural science research, five main areas (as per title) are suggested for participatory inquiry — attesting to the constructivist foundations and multidimensional trends of the typologies (Section 4.1). Leavy also illustrates paradigms (or world views) as key research frameworks through which research is approached and filtered[120] — described as the *"philosophical substructure of the research"*.[121] The handbook provides a clear breakdown of research elements: philosophical (including paradigms as the world-views through which knowledge is filtered), praxis, and ethics (such as Jansen and Pieter's previously mentioned paradigm shift). This includes the representation of *'community-based participatory action research* (CBPAR)' as a detailed component, alongside the participatory and community-based research elements that are guided throughout.

5 SPATIAL AGENCIES : EMERGING LANDSCAPES

5.1 Changing Roles of Principles in Practice

Built on such methodological approaches (Section 4.2) are the principles employed within different structures and systems for participation — which vary from being implicit (such as paradigms) to explicit (such as distinct pillars for approach). However, consensus on principles in participatory and co-design is still lacking, as denoted by the variety of PD frameworks that exist (including those for even the describing of 'methodological principles').[122] Ingredients of methodological approach can also be used to generate principles in participatory and co-design. Simonsen and Robertson, in '*Methods: Organising Principles and General Guidelines for Participatory Design Projects'*, describe a method as a *"recipe"* for employing these principles.[123] Consistent with the inherently contextual nature of PD and co-design already established (Sections 2, 3 and 4 respectively), as Checkland (1981: p.33) wrote in *Systems Thinking, Systems Practice* that any methodology, as a set of principles of method, must be unique to the contexts that it's applied.[124] However, Simonsen and Robertson have since acknowledged that while there is an extremely high quantity of PD tools and and techniques available, there is a distinct lack of methods.[125] The *MUST Method* was conceived in response to this. Based on the study of 13 projects with American, Danish and multinational companies spanning a decade, the MUST Method combined the use of ethnographic techniques and intervention — and presents six general principles on which the method is based: (1) *participation*, (2) *close links to project management*, (3) *design as a communication process*, (4) *combining ethnography and intervention*, (5) *Co-development of IT* (artefact), *work organization* (designer), *and users*' (user) *qualifications*, and (6) *sustainability*.[126]

However, a core methodological principle is argued as remaining the same; in that whilst related approaches such as user-centred design carries out research *on behalf* of the users, *"PD research must be done* with *the users"*.[127] Schuler and Namioka's *Participatory Design: Principles and Practices* (2017) establish a stepping stone to understanding the possibilities of

effective systems design whilst navigating a diversity of perspectives. Whilst focused on HCI, the papers compiled are founded on the key concern of *who does what to whom* — bearing significant relevance to wider participatory approach for this reason. The papers also confront the key issue of the applicability of PD method outside of environments of origin such as Scandinavia. Schuler and Namioka clarify that, while an alternative to traditional design specialisation, *"PD… is not against expertise"*, but that *"special expertise becomes yet another resource to draw on — not a source of unchallenged power and authority"*.[128]

Spinuzzi (2005) emphasises a risk in defining PD as an *orientation* or general approach, rather than a distinctive *methodology*. The risk is that (despite having an open-ended approach), *"we are tempted to articulate a few general principles and retrofit our existing techniques to accommodate them"*.[129] Nonetheless, Liz Sanders acknowledges in *From User-Centered to Participatory Design Approaches* (2002) that design has shifted from designing *for* users to designing *with* users.[130] Sanders writes that *experience design* is an emerging field within this shift, and builds on the understanding that multi-stakeholder input can be improved when given the appropriate tools. The importance of *experience* in design progression is credited to the emerging intersection of the social sciences and design systems, contributed to at the time by examples such as Jensen (1999).[131] A key emphasis is the idea of *interdependence* between stakeholders involved in the progression of participatory and co-design systems.

Of the PD and co-design tool concepts generated as part of these practices, one of the most influential was that of the 'language game' — which bridged researcher-designers and users through the generation of a common language; an important address of the aforementioned barrier of language diversity in Section 2.1 (Ehn, 1998; Schuler and Namioka, 2017).[132] The tools of prototyping were used to avoid making and using a technical language. In the case of tools, Brandt discusses *exploratory design games* (EDG) as a framework for the organising of participation in PD projects. A variety of EDG are assessed — in the end providing basic elements to be considered by future PD designers' use. The purpose of EDG's is not

competition-based, as is typical of traditionally competitive game settings, but to use props (as seen previously in the Nordic UTOPIA Project) to take advantage of a variety of expertise, interests and preferences. In '*Concept Design Games'* — Habraken *et al*.'s (1988) development of nine EDG's for improved participatory urban environments are assessed.[133] Brandt concludes that there is no fixed type or number of EDG's, but that some are more appropriate for contexts than others. Brandt also concludes that the games (and their respective rules) create a common ground for everybody to equally relate to; becoming *"things-to-think with".*[134] In keeping with a reflective approach to design that has become a standard for appropriate participatory practice[135], reflections from different participants become key ingredients in *"re-seeing the task, which gives new meaning"*.[136]

Spinuzzi builds on existing literature in '*The Methodology of Participatory Design'* for criteria of assessment of PD as part of this methodological topography. These criteria are: (1) *improved quality of life*, (2) *collaborative development*, and (3) an *iterative process*. Criterion 1 is argued as being achieved through: (1a) *reflexivity and agreement,* through mutual reassessment and synchronised interpretations and (1b) *codetermination* for shared ownership and decision-making. Criterion 2 is founded on: (2a) *involvement*, ensuring researchers allow definitive routines for continuous and methodically addressed users' concerns, and (2b) *mechanisms for consensus and representation*, allowing valid representation of users where they may be unable to participate to full capacity (e.g. a workplace of 2000 workers). Criterion 3 is viewed as a core element in PD to respond effectively[137], where *"tacit knowledge and invisible practices are by their nature difficult to tease out"*.[138] Departing from previously more anthropocentric engagements (e.g. Ferreira, 2018)[139], emerging fields such as 'architectural regeneration' open up pathways that further attest to this; requiring models that draw upon contextually-situated knowledge for a wider stakeholder base (Orbaşlı *et al.*, 2020: p.335).[140]

Models for accessing such experience are overviewed briefly. *Make Tools* are credited by Sanders at the time of writing as being the next major development in design. Sanders also

found that a considerably wide range of 'toolkits' are available for accessing the increasingly important experiential aspects of design, and that *"Make Tools are becoming a new language for co-design"*.[141] Similar to EDG's, Make Tools offer a common platform for connecting different ideas and perspectives from different disciplines, especially when *"users should be involved in the design process from an early stage, before any prototyping or basic design decisions are made"*.[142] These are especially beneficial at the 'fuzzy front end' of the design process — fruitfully responded to through a *generative design* approach to toolkits and design, allowing new unanticipated results. These incorporate 'emotional toolkits' and 'cognitive toolkits' making artefacts including *"maps, mappings, 3-D models of functionality, diagrams of relationships, flowcharts of processes and cognitive models"*.[143] In short, Sanders advocates for designers to be trained and become involved in the construction of new tools, especially amidst increasing roles of cultural sensitivity in relation to communities as they "constitute an important resource" (e.g. Oliver, 2003; cited in Orbaşlı *et al.*, 2020).[144]

Extended approaches to frameworks and methodologies such as *Participatory Action Research* (PAR) include Bonilla and Farris' *A Short Guide to Community Based Participatory Action Research* (2011). Community Based Participatory Action Research (CBPAR) fundamentally challenges who plays the role of who is the researcher and who is being researched as a means of addressing practical concerns of a community. A sequence of steps is provided for putting this into practice: (1) Project Design and Implementation, (2) Partner Engagement (note: in some cases this may occur before Step 1), (3) Data Collection, (4) Data Analysis, and (5) Reporting (Dissemination for Action).[145] Stakeholders are involved throughout the entirety of the process — from deciding the research question, to developing data collection tools, to analysing and disseminating findings. By defining the research question at the front end of the design process, the 'end-user' community influences the 'influencer' (structure). This structure allows the redefining of policy-making that they would also be influenced by — cyclically redefining democratic approaches to design.

5.2 Emerging Conditions and Opportunities

Critically locating such changing roles and principles are emerging conceptualisations such as agile frameworks and open innovation, reconfiguring the notion that all objectives or deliverables with a project engagement must be preconceived, or even exist within a project timeframe. Indeed, prospective lenses invite a sustaining of participation after project timeframes, or even allowing new forms to emerge post-project (e.g. Saad-Sulonen, *et al.*, 2018).[146] As supported by Simonsen and Herzum (2008, 2012), a "sustained PD approach" inclusive of large-scale experiments allows organisations to experiment and learn beyond initial project and design phases.[147] This is credited in response to Shapiro's (2005) earlier call for large-scale systems in PD.[148] *"The community design movement now faces a new challenge, to create a wider civic vision that crosses social and physical divides and promotes a broad vision of social and environmental justice"* (Sanoff, 2005).[149] Both participatory and co-design's demonstration as proficient and viable approaches to social development is further validated in the United Nations' '*Participatory Dialogue: Towards a Stable, Safe and Just Society for All* (2007)' to explore *"the role and principles of participatory dialogue in creating more socially cohesive societies"* as well as examining *"what elements are essential to creating societies that are resilient"*.[150] As systems that can encompass shared perspectives for innovative outcomes, participatory and co-design are increasingly recognised as key components in (open) innovation's development, implementation and sustainability.[151]

Nonetheless, despite being identified as a key component, there is still divergence with respect to the appropriateness of community participation theory's applications. Despite community participation long-established as having been *"the hallmark of many successful development projects around the world"* (Chamala, 1995)[152], it has also been reminded that there are still opposing positions when it comes to implementation realities, rather than academic documents reference (e.g. Michener, 1998)[153]. This over-emphasis of 'front-end' participation in development projects is attested to by Cleaver (1999: p.597) substantiates this

perspective whereby *"despite significant claims to the contrary, there is little evidence of the long-term effectiveness of participation in materially improving the conditions of the most vulnerable people, or as a strategy for social change".*[154] It is clear that merely making resources available for use is not enough with participatory practice, but that further — and sustained — research is a requisite (Lisius, 2012).[155]

These deficiencies may be partially explained by the issue of scalability of participatory systems' application. *"In recent years, it has been a major challenge to participatory design to embrace the fact that much technology development no longer happens as design of isolated systems in well-defined communities of work".*[156] Whereas formalised participatory systems were first confined to small focused test-beds and processes, the opportunities for the creation of *mass-PD* are now available (e.g. internationally-accessible participatory-based platforms) and, by extension, emerging international community-based practices — opening up a new avenue for PD scalability and growth independent of institutional restrictions. This avenue includes the realms of entrepreneurship, enterprise and the emerging field of 'open innovation'.[157]

Future action is researched around new artefacts and systems through emerging approaches and techniques for post-participation — including community scripting (Huybrechts et al., 2018), and design and living labs (Binder, Brandt, et al., 2011).[158] When consolidated with existing organisations, networks and systems (Bjögvinsson, *et al.,* 2012), these techniques and approaches permit the projecting of participation into a post-project future. However, many of these prospective frameworks have run the risk of becoming a tick-box exercise (Moore, 2020)[159] — especially when submersed into governmental and other organisational policies, further compounding existing disparities of consensus. Whilst warranting a dedicated inquiry to overcome such disparities in their integration, a clear path is apparent for the viability of participation within both existing and emerging contexts — beyond the scope of traditionally closed systems.

6 CONCLUSIONS : FINAL NOTES

This document has delineated eight select spatial dimensions of the co-design and participatory design (PD) literature in order to understand what formalised participatory engagement entails. It has highlighted implications for participation that stem from a diversity of contextual matter, and traced how the concept of participation within different forms of organisation unfolds according to a variety of trans-border, political and paradigmatic motivations, uses and applications. In particular, eight primary lines of inquiry within extant literature were investigated (Table 6.1):

TABLE 6.1 : CONCLUDING LINES OF INQUIRY

Section	Line of Inquiry
Section 1.0	What's at stake for understanding participation within emerging spacial conditions
Section 2.1	Divergence of consensus of participation definition, and increasing contextual relevances
Section 2.2	Locating influences of participation within interwoven social, political and civil rights origins
Section 3.1	Counterpoint positions and underpinnings to such status quo origins of participation (Section 2.2)
Section 4.1	Classifications and qualifications of configurations of participation, and situating this knowledge
Section 4.2	Integrated topographies of methodology, and increasingly emerging qualitative conditions
Section 5.1	The changing role of principles in practice, agile frameworks and open innovation
Section 5.2	Underlying relevances of spatial agencies within emerging conditions of participation

What has started as an alternative answer to social organisation has shifted to a continuous reassessment of how we define the question. Notwithstanding such iterative evolution, participatory processes, and participation's qualification within them, remain iterative, contextually-bound and never unidirectional but relational; entirely a shared process. In order to move the explored post-modern complexities of participation and co-design across the boundary of emergent forms of cooperation today, it is necessary to consolidate these conditions within both a rationale and methodological framework to expand disciplinary knowledge and application. The next deliverable thereby proceeds with investigation of a user-centred post-occupancy evaluation (POE) rationale and methodology in building retrofit — in advance of identifying co-design praxis pathways towards informing future retrofit projects.

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