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Exploring the use of speculative design as a participatory approach to more inclusive policy-identification and development in Malaysia



Emmanuel Tseklevs, ImaginationLancaster, LICA, Lancaster University, United Kingdom

Clarissa Ai Ling Lee, Faculty of Creative Arts, University of Malaya, Malaysia

Min Hooi Yong, School of Social Sciences, University of Bradford, UK

Sian Lun Lau, Department of Computing and Information Systems, Sunway University, Malaysia

This Case Study paper presents the first exploration of Speculative Design as a participatory democracy method for navigating the future of ageing in Malaysia. Speculative Design in the context of Global South is emerging, but without much data on how it is applied within different socio-economic conditions from the Global North countries. This Case Study considers the challenges and opportunities of employing Speculative Design as policy identification and development method from the context of Malaysia, a Global South country with its own unique characteristics. The paper concludes by suggesting that the novelty of Speculative Design as a policy-design approach in Global South countries, such as in Malaysia, requires the right selection of provocations and culturally familiar content to ease introduction of the methodology. Also, the efficacy of this approach as a participatory design application would require further enculturation within targeted communities, as well as sustained engagement through Champions.

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Keywords: speculative design, participatory design, social design, design research, inclusive design

Corresponding author:
Emmanuel Tseklevs
e.tseklevs@lancaster.ac.uk



Governments today are exploring and testing new ways to approach the future, policy processes and engagement with the public with the intent of achieving more inclusivity, openness and transparency (Junginger, 2013; Taylor, 2014; Whicher, 2021). Speculative Design¹ is used

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to provoke, inspire and provide a critical commentary of alternative possible futures (Cooper, 2019; Dunne & Raby, 2013).

The use of design within government institutions is an accelerating trend of global dimension (Bason, 2016; Junginger, 2013; Kimbell & Bailey, 2017). In recent years, there is growing interest in design by governments seeking to innovate practices of governing (Bailey & Lloyd, 2016; Bason, 2016; Whicher, 2017). There is a growing awareness of Speculative Design in highly specialist government teams. The Cabinet Office Policy Lab identified Speculative Design as the number one policy prediction tool for 2017 by stating that *'More policy makers will look to Speculative Design for answers'*. Policy Lab had worked with the UK Government Office for Science on its first ever Speculative Design project in government, with a focus on their Future of Ageing project aimed at exploring the challenges and opportunities of an ageing society (Voss et al., 2015). In the UK, the three-month pilot project ProtoPolicy investigated how Speculative Design methods could be used to help politicians, community groups, and citizens imagine the future implications of policy initiatives (Darby et al., 2015). The findings revealed that Speculative Designs were seen as innovative prompts for building empathy and provoking creative thinking among citizens in ways that exceed traditional communication mediums from government such as written reports. Nevertheless, a number of challenges were also identified, such as timescales, costs, and pressures of public opinion and party lines facilitating a constructive dialogue between stakeholders using design fictions to collect meaningful data and draw robust conclusions (Tseklevs et al., 2017). The 'What If?' project investigated the use of participatory approach to design fictions to explore the implications of UK's dementia policy from the perspective of voluntary service organisations and older people; in doing so, a number of insights and challenges were revealed. The findings of this research suggest that we need to create slower, more expansive design fiction interventions around health policy to give space for people of diverse abilities and experiences to explore and imagine futures afresh. They suggested that affirmative and critical diegetic prototypes may shape the discursive space around policy differently (Darby & Tseklevs, 2018).

However, we are aware that the examples above come from a developed Global North country that no longer grapples with developmental challenges and a postcolonial legacy that produced conditions of knowledge fragmentation, especially in the divergence and separation between indigenous and 'imported' knowledge (Khandekar et al., 2017). There is also the challenge of dealing with the unfamiliarity of a method that requires more active participation from those with the least agency (i.e. senior citizens, people living with disabilities) in a decision-making process (Smith et al., 2020). Additionally, one needs to reconsider what a design-based approach to problems would mean to the beneficiary stakeholders.

This Case Study paper details the findings and challenges of the ProtoPolicyAsia project, a 12-month project aimed at increasing local community participation in the Malaysian national policy-making process by working together with relevant government agencies on social issues relating to older persons.

The overarching aim of the study was to explore the use of Speculative Design as a Participatory Approach to more inclusive policy-identification and development in Malaysia.

This raised the following research questions [RQs]:

[RQ1] *‘how might Speculative Design be employed as a Participatory Approach to develop more inclusive policy-identification and development in Malaysia?’;*

[RQ2] *‘what are barriers and opportunities to participatory speculative design in Malaysia?’*

The specific study objectives were:

1. Work with the policy makers and local communities to co-design a series of participatory and speculative design training resources, in order to enable Malaysian Government agencies, tasked with addressing social issues, to develop community-based engagement methods.
2. Apply these resources within local policy makers and Malaysian local communities, in order to empower Malaysian local communities to participate in the policy-identification process of the nation.
3. Evaluate the impact of the resources and engagements, in order to assess the project’s proposed development impact on formulating inclusive, participatory and representative processes on social care issues.

1 Background and related work

1.1 Speculative design as a participatory method

Speculative Design is an approach that enables thinking about the future prospectively and critically (Dunne & Raby, 2013; Sterling, 2009). Speculative Design raises various “what if?” questions about the future. What if change is needed? What if things were different? What if we changed in these particular ways? Then it imagines what happens. It creates scenarios around these “what if” questions with tangible and realistic objects, with designers fabricating experiences around possible futures (Kirby, 2009).

Concerned with progress and ideas for the better, Speculative Design claims to account for how ‘better’ could mean different things to different people (Dunne & Raby, 2013). However, this claim is contested from several standpoints such as that of economic and ethnic diversity, as well as de-

colonialization and feminism (Pennington, 2018; Tlostanova, 2017; Tonkinwise, 2014), since a context-free application could disenfranchise or exclude certain communities.

Participatory Design has traditionally eschewed speculative practices. Instead, Participatory Design favours engagement of stakeholders and using the use of insights generated by speculative and critical designers over the development of their participatory speculative practices (Darby et al., 2018). While participatory design and Speculative Design seem to be in opposition to each other (where participatory design may risk aesthetic clarity and coherence, and Speculative Design, elitism, if restricted to art and design museums), both offer essential tools for creating the widespread momentum required of a design age (Dankl, 2016). Recently, explorations have been made into what value could be obtained when combining Participatory Design and Speculative Design, and as well as methods of participatory design fiction to explore social futures (Darby et al., 2018). Others such as Dankl (2016), argue that design should use the post-industrial skills exploited in participatory and Speculative Design to support a transformation of preconceptions on societal areas of interest, such as ageing and old age, through a bricolage of design methodology that combines foresight, inquiry, and implementation.

In participatory Speculative Design, the iteration of design invites a deliberative process where participants come together to evaluate and obtain a degree of consensus over a scenario that has been created. It could mean taking the mundane aspect of the participant's world, including examples from everyday objects that could be used as a starting point to get the participants out of their comfort zone. When designers are tasked with the role of forecaster, they engage in a speculative act that is aided by tangible objects. These objects are the means for building ideas as well as empathy in an effort to approximate the activities and experiences of end users (Lund & Germany, 2020). Thus, the public targeted by the participatory form of Speculative Design represents a relationality that is emergent and tested, validated or discarded over the course of engaging with a Speculative Design experiment.

While there has been work on the deployment of participatory design in Southeast Asia, such as work with the disabled in rural Cambodia (Drain et al., 2018), much of participatory research and debates have been confined to the Global North contexts, with only limited and peripheral contact within developing country settings (Byrne et al., 2004). Real-life challenges of implementing participatory design projects in developing countries, as well as how participatory design methods could be adapted to local conditions, are seldom investigated (Hussain et al., 2012). This is partly because of how participatory design literature in the Global South is largely focused on solving very 'down-to-earth' problems rather than in speculating about an unseen future (Hussain et al., 2012; Puri, 2004). This is understandable as the researchers have to deal

with scarcity in time, resources, and finances in underdeveloped communities. Even then, the participatory design practice requires more cultural translation to work with different cultural perspectives and expectations (Byrne et al., 2004; Hussain et al., 2012).

In highly unequal contexts, such as those that exist in the Global South, it is necessary to go beyond solutions from the Global North that are excessively purified and universalised to effectively address the differences and overflows that exist in these regions. For this challenge, we believe that a speculative approach to participatory design can be embedded as a situation-directed mode of inquiry for re-imagining forms of citizen participation. Such methods are meant to cater to the differential needs of citizen participation instead of insisting on consensus (Tironi, 2018). So far there has not been any direct work specific to how Speculative Design is deployed in Southeast Asia.

Applying Speculative Design research in Global South contexts, such as in Malaysia, which usually have a wide gap in resource access, education and standards of living within the same country, requires cross-disciplinary collaboration, cultural navigation, diverse representations, ethical sensibilities pertaining to local practices and habits, and recognition of habits from different design communities. This, in turn, requires new processes, or adaptation, to deal with challenges related to multiple voices, participation and power distribution, as well as to finesse the role of communities and public organisations.

If Speculative Design is about giving new meaning to the usual mundane approaches, a persistent question concerns whether the actors involved would require much more than their lived experiences, in order to participate most productively in meaning making; and how could the outcomes be contributory to problem solving even if the outcome itself does not lead to a complete solution (Auger, 2013; Coulton, 2019). How useful is Speculative Design for closed communities that are less exogamous, with a system they are comfortable with, as encouragement for thinking about the kind of future possibilities that do not resonate with their worldviews? There is still need for work that experiments with bringing together the tenets of Speculative Design in relation to cultures that might either interpret it differently, or have an understanding of practices akin to Speculative Design. In the next section, we will consider how Speculative Design is combined with participatory design for policy making.

1.2 Speculative design as a participatory method for policy making

The integration of design and futures is a relatively recent phenomenon, supported by individuals and organizations from different perspectives and contexts (Kelliher & Byrne, 2015). Policy makers often need to make policies for unknown and uncertain futures (van Dorsser et al., 2018). Nevertheless,

futures work (such as Speculative Design) is not used to its full potential as an element of policy analysis (van Dorsser et al., 2020). Futures work, especially links to possible futures and possible scenarios exploring what might happen, provide valuable insights for policy analysis, despite not being fully utilised currently (van Dorsser et al., 2020). There is an increasingly strong relationship between foresight and design, based on their orientation to the future, with increased in the sharing of tools used for creating and narrating possible alternative futures (Hines & Zindato, 2016).

Speculative Design does explicitly allow the mediation between institutions and communities in approaching problems at hand. Gandy et al. (2017) point out that, even if Speculative Design allows for the development of “*images of the future*” within social, technological, and regulatory contexts, designers, technologists, and policymakers often operate independently in developing visions that are out of sync with policy and each other. If communities are to have a substantive role in public participation, there would be a need for suitable socio-political environments to support them in meaningful engagement. Still, there are a sufficient number of documented cases where participation has yet to make significant inroads into government decision-making processes (Dong et al., 2013). Candy (2010) in Hines and Zindato (2016) identified a need for the “democratization” and “experientialisation” of futures and asserted the need for a methodology for “experiential scenarios” along with participatory ethos. Haldenby in Hines and Zindato (2016) explored the question of how to “*engage mass audiences in decision-making processes and experiences simulating different possible futures.*”

1.3 Participatory speculative design for policy making in Malaysia

Malaysia, as a small country (with a population of 32.7 million) in the formidably vast landscape of the Global South, introduces additional challenges as well as opportunities. Malaysia includes 11 states and two federal territories, located on the Malay Peninsula, known as Peninsular Malaysia. Two states, which are less developed, are on the island of Borneo, forming one federal territory consists of islands offshore of Borneo, referred to as Malaysian Borneo. The very diverse background in Malaysia makes policy-making even more challenging and hence local participation is even more important in this respect. Inclusivity is a key principle in Malaysia’s national socio-economic development agenda, to ensure all citizen enjoy the fruits of growth and development regardless of ethnicity, socio-economic status and geographic location.² For example, the underlying assumptions in literature emerging from a Global North perspective are usually that communities are democratic, they have high literacy rates, and that there is reasonable technological infrastructure in place. Although these assumptions can also be questioned in Global North projects, it is unrealistic to make any of these generalizations

in a developing country context (Hussain et al., 2012). In very different political and social Southeast Asian contexts, participatory processes do not arise naturally as a result of democratic aspirations or reasoned argumentation, as may be the practice of formal workplace settings in developed countries, like in Scandinavia or the UK (Dearden & Rizvi, 2008; Robertson & Simonsen, 2012). Paradoxically, however, participatory processes often need to be initiated by government officials in-charge, rather than by having them emerging idealistically from grassroots as a bottom-up process (Byrne et al., 2004). What happens then, when participatory design approaches are transferred to cultures that have much stronger social hierarchical structures than Scandinavian societies, with greater range in education and income than in Western countries (Hussain et al., 2012).

While ASEAN (Association of Southeast Asian Nations) governments intend to have more people-centric initiatives for increased inclusivity (ASEAN, 2015), the realities of policy-making in the region is one riddled with hierarchies and top-down imperatives, often in ways that are disconnected from realities on the ground. As one of the more developed countries among the developing ASEAN nations, Malaysia is a culturally heterogeneous country with uneven development among its various states. Inclusivity is a key principle in Malaysia's national socio-economic development agenda, to ensure all citizens enjoy the fruits of growth and development, regardless of ethnicity, socio-economic status and geographic location (Prime Minister's Department, 2016). Although Malaysia has policies to address vulnerable groups, such as older persons (Ministry of Health, 2011), a noticeable gap remains between policy and implementation (Siddiquee, 2014). While ProtoPolicyAsia intended to bridge the gap between the ideal and realities of practice, by advocating for a replicable systematic approach that could carry an idea from brainstorm to a point prior to implementation; it is still constrained by the culture of the system and the difficulties of breaking ingrained habits without resorting, once again, to top-down directives.

2 Methodology

The project combined participatory design and Speculative Design research methods to develop a participatory-design training programme aimed at introducing and inculcating Speculative Design into socio-technical issues relevant to healthy ageing and ageing in place, within the context of Malaysia. The programme was designed to be flexible and adaptable to the participants being trained in its methods, while allowing the latter to contribute to the development, improvement, and revision of their methods to better fit the needs, conditions, and preferences of communities that such a programme intends to benefit. The project engaged with selected stakeholders involving older adults, non-governmental agencies (NGOs), government agencies and technology innovation organizers.

More precisely, the research methodology included three main Actions. First, the co-design of a series of participatory and speculative design resources. Second, applying these resources within local policy-makers and local communities. Third, evaluating the impact of the resources and engagements.

Action One included Action-based workshops with local communities and policy-makers coming together to work on the particular policy challenges and priorities faced by each group in promoting community-based care and ageing-in-place.

Action Two included the development of speculative design prototypes (in a variety of formats – provocations, images, product guides, user-guides, newspaper articles, short-videos, etc) based on the co-design workshops.

Action Three involved an evaluation survey on the impact of the activities with the identified groups distributed before and after the workshops both online and offline to establish baseline (35 surveys completed before, 35 after). Also, an evaluation survey of the speculative design prototypes with public and other government agency member (140 completed surveys) and their analysis. The latter as it is beyond the aim of this paper is not discussed here.

The year-long project training programme, which took place in Kuala Lumpur, Malaysia (from February 2019–January 2020), included four workshops with civil servants, NGOs and community-based organisations (CBOs), three information dissemination workshops with CBOs, a public event, a select government meeting with policy makers and a training symposium with academics and policy analysts from the ASEAN region.

2.1 Participants

The research team conducted four workshops in 2019 (April, July, August and October) in Malaysia. A total of 78 participants attended the four workshops (45 in April and May, 17 in July, 5 in August, and 11 in October). The participants had a common interest in healthy ageing and came from diverse backgrounds: civil service, NGOs and CBOs. They were recruited in their capacity as civil servants with relevant portfolios; leaders of CBOs/NGOs that cater to, or have interest in, community-dwelling senior citizens; and other stakeholders keen to explore the ageing question further. The civil service employees were middle level management who were involved in the planning and strategy development of various agencies. The NGO/CBO leaders were active members championing their cause at local and national levels. All 78 participants had completed tertiary education, with the exception of two with only secondary school education. We identified 18 Champions from the first (April) workshop representing both the Malaysian Government and CBOs for further training in Speculative Design and for extended involvement in the development of

the prototypes. An additional 20 community-dwelling older adults participated in the July and October workshops to provide input. They were mostly retired, having previously worked in education, sales, and civil service. The research team also conducted a series of information dissemination workshops at three CBOs located in the Klang Valley (November–December 2019), a weekend outreach at a private university open day for the public (December 2019), one national level Ageing Select Committee in a government meeting (December 2019), and a training symposium with academics and policy analysts from the ASEAN region (January 2020). Both the national level meeting and ASEAN attendees had representatives from various government ministries with their respective task force on ageing.

Out of the 17 individuals that attended the July workshop, there were 13 females and 4 males with an average age of 43.47 years ($SD = 11.64$, range: 30–68 years). Ten were working in the civil service and the remaining seven worked in an NGO/CBO. The following table has the demographic details. [Table 1](#).

2.2 Training material

The programme’s training material covered principles and theories of Speculative Design using narration, emergence, provocation, for developing an idea that resonates with a futuristic world. The workshops began with problem creation (or rather identifying a problem in the current and near future) before moving on to co-designing solutions and developing prototypes. Opportunities to perform back-casting and future-casting to enable participants to experience the ‘problem’ in a multiverse environment were also included. Participants were also asked to build their speculative identities as part of a full process. They were introduced to the idea of the PESTLE model for forecasting ([Perera, 2017](#)), standing in for political, economic, social, technological, legal and the environmental by providing a critical framework for critiquing assumptions about future trends.

The workshops in April and July were supplemented with materials and output obtained from a previous workshop ([Lee et al., 2021](#); [Tseklevs et al., 2019](#)). Prototypes such as newspaper headlines and a machine for obliterating sugar from foods provided visual and tactile stimulations to the participants, and functioned as provocations. To help our participants visualise their prototype, we provided jars of modelling clay, large sheets of paper, sticky notes, and writing materials alongside general templates and questions. [Figures 1–4](#).

For each workshop, participants were asked to provide feedback on what they could recall about Speculative Design (from the July workshops onwards), learnt in that workshop, and hoped to achieve in their workplace or social organization. These questions were developed with the intention of gathering

Table 1 Demographic details of the 17 Champions in July workshop

<i>Participant</i>	<i>Sex</i>	<i>Age</i>	<i>Ethnicity</i>	<i>Work sector</i>	<i>Years of education</i>
01	Male	67	Malay	NGO/CBO	15
02	Female	37	Malay	Civil service	16
03	Female	41	Other	Civil service	13
04	Female	37	Chinese	NGO/CBO	14
05	Male	36	Malay	Civil service	15
06	Female	36	Malay	Civil service	14
07	Male	38	Malay	Civil service	13
08	Female	30	Malay	Civil service	14
09	Female	36	Malay	Civil service	15
10	Female	36	Malay	Civil service	14
11	Female	46	Indian	NGO/CBO	13
12	Female	37	Indian	Civil service	16
13	Female	35	Malay	Civil service	13
15	Female	68	Indian	NGO/CBO	15
16	Female	58	Indian	NGO/CBO	14
17	Female	45	Indian	NGO/CBO	11
18	Male	56	Malay	NGO/CBO	16



Figure 1 Champions from the training workshop sessions

feedback on the success of the training itself, and for the researchers to adapt to their learning pace.

2.3 Procedure

For this research, we developed a flexible curriculum using participatory-design training. The curriculum was designed to be agile and adaptable to



Figure 2 Workshop session with participants presenting speculative design concepts

participants' needs while allowing the latter to contribute to the improvisation of methods to better fit the needs, conditions, and preferences of communities such a programme intends to benefit.

The first workshop in April contained introductory materials to Speculative Design and examples of prototypes that were developed as critical interventions to healthy ageing. The two-day July workshop contained more technical information on both Speculative Design and participatory Speculative Design. The intention of the July workshop was to elevate the Champions from novices to experienced users of participatory design techniques. Participants were also asked to co-design the type of activities that will be deployed during the running of a one-day session with community-dwelling older adults. In that one-day workshop, immediately after the two-day workshop, the Champions, together with the researchers, ran a Speculative Design workshop leading to the production of prototypes aimed at addressing a rapidly ageing society and re-imagining the available infrastructures for its support.

Champions received more training in terms of future and design-thinking elements beginning from August, and were more directly involved in exploring the possibilities of their prototypes. The October workshop brought the Champions together with a separate group of community-dwelling older adults to get them involved in refining three prototypes. The December session

Exploring the use of speculative design



Figure 3 Showcasing the developed speculative design artefacts to members of the public



Figure 4 Training symposium with academicians and policy analysts

showcased the prototype to a wider public (open day event), community-dwelling older adults (senior citizens clubs), civil service (national meeting), and a training symposium with academicians and policy analysts.

Part of the output created by the Champions and the participants were a collection of Speculative Design prototypes developed from previous co-design workshops with citizens, NGOs and policy-makers. The aims of the Speculative Design prototypes were to create tangible and realistic objects by fabricating the experience of a possible future where public transport services in Malaysia and Kuala Lumpur were prioritising senior citizens' needs: the TPAPSAS and MHPB. Briefly, the Transport Payment and Priority Seat Allocation System (TPAPSAS) and Malaysian High Priority Bus (MHPB) constitute a public transport system combined with the cashless payment system that also included an active dynamic seating allocation in the buses. Older adults are given priority seating in the bus and rule-breakers are given penalties for failing to adhere to the rules by way of ejection from their seats, and flashing lights announcing the presence of the rule-breaker. The seamless entry that simply requires one to scan or tap the card or a wearable device at designated points allows the user access to the bus with minimal fuss. The speculative artefacts/prototypes developed to reflect this included: a) a poster of the future service, b) a user guide, c) terms and conditions of service, d) twitter feeds of citizen responses to the prototypes and e) video interviews containing citizen reactions (see <https://protopolicyasia.org/>). Nevertheless, a more detailed exploration and discussion of these are beyond the scope of this paper.

2.4 Data analysis

We collected both quantitative and open-ended qualitative data (open-ended survey questionnaire,³ field notes and observations during the workshop). For the open-ended feedback, we analysed the feedback using general qualitative analysis (Merriam and Grenier, 2019). The analysis for the open-ended feedback was led by one researcher to maintain objectivity as he was not involved in the July workshop organisation, with the analysis further supplemented by another researcher who was present in the July workshops. Both researchers coded the work separately before comparing them for data reliability. For the filed notes and observations of the workshops, we employed thematic analysis Braun and Clarke (2006) where all data collected were involved in a process of identifying themes throughout coding, indexing, and categorizing towards drawing themes.

3 Findings

In this section, we report the data collected over the course of conducting the workshops as well as through information provided in the written feedback of the participants in relation to the two research questions stated at the paper start. A survey of the participants' retention, perspectives, and responses to the knowledge received were also quantified to provide a macro-view of the overall quality of participation.

3.1 Workshop participant responses and perceptions on speculative design

The 18 Champions were first asked about the learning points, application and usefulness of Speculative Design in the workplace during the April 2019 workshop and then again in the July 2019 workshop. We used the same set of questions in both workshops (see [Appendix 1](#) for the questions) and analysed their answers against the workshop aims and learning points. We found that the responses varied greatly, demonstrating applicational comprehension and retention of knowledge. Four participants (out of 18) described conceptual understanding of Speculative Design compared to others, although they reported having not applied what they had learnt in their places of work. The other remaining participants reported that the April workshop was useful and that they have applied the strategies learned to their workplace. From our observation, we noticed that the information provided on the April post-workshop did not indicate that the participants had assimilated the content of the workshop. For example, some participants responded in a vague manner about the content “SD is useful” and described the discussions as “positive” but without much details included (Participant 4, 16). While the April workshop did leave an impression, as some participants were able to recall the discussion’s details quite vividly, it is also possible that the April workshop could have been sufficiently distinctive from their daily activities, contributing to the memory recall.

After attending the two-day workshop (in July 2019) targeted at improving their knowledge and skills, we asked a series of questions to probe their understanding of Speculative Design and the application of Speculative Design at the workplace. First, we asked them to rate their knowledge of Speculative Design on a Likert scale from 0 (none at all) to 10 (very much so) on various aspects of Speculative Design knowledge. Our results showed that perceived knowledge on Speculative Design was high; mean = 6.93, SD = 1.34 (range: 5 to 10). This is an indication that participants did not perceive the Speculative Design concept to be difficult, and that they were confident of their knowledge. To test whether participants understood Speculative Design, we asked them to “explain what Speculative Design means to a child”. The responses were terse, containing keywords such as “future”, “alternatives”, “brainstorming”. Their responses did not truly reflect the concept of Speculative Design as the participants were unable to divorce themselves from how their reality looks like, as illustrated by the quotes below.

Specific example of an object/scenario to illustrate speculation:

‘Dream of a better toy which will enrich your life.’ (Participant 1), *‘Imagine you could visit other planets via public transport i.e. MRT.’* (Participant 3)

Future:

'Your imagination about the future.' (Participant 6), *'Your presence is important for the future.'* (Participant 7), *'You imagine what can or cannot happen in the future.'* (Participant 16), *'What you will become when you grow up depends on what you do today.'* (Participant 18)

Thinking/imagining/brainstorming:

'Making an assumption' (Participant 2), *'imagination has no limits'* (Participant 4). *'Speculative means thinking out of the box by looking into different perspective and relate it [sic] to PESTLE'*. (Participant 10). *'No answer is a wrong answer'* (Participant 12).

On the questions asked specifically about using Speculative Design in developing policies and stakeholder engagement, participants were generally positive about using Speculative Design to influence policy-development but were unsure as to where it can be applied. Many proposed that group discussions such as focus groups and town hall meetings should use Speculative Design. One participant suggested using Speculative Design as a form of data collection – suggesting that (s)he is able to see a wider application than just at traditional town hall meetings. Another participant sees value in ... *"push[ing] for a prototype after a policy/action plan is officially introduced, we might eventually solved [sic] the problem of 'implementation'"* (Participant 3).

Participant responses, such as the ones presented below, demonstrate that implementation of participatory Speculative Design appears to be weak, but there appears to be many good intentions in sharing what is Speculative Design. Awareness of participatory Speculative Design is a good start.

'The Speculative Design can be applied especially to gather information from NGOs, private sectors, and community etc. in order to develop a policy.' (Participant 13), *'Culture of Speculative Design could be part of a policy or project creation.'* (Participant 1), *'Group discussion[s] together with policy makers, related NGOs and stakeholders.'* (Participant 4), *'Engagement with stakeholders/shareholders.'* (Participant 5), *'In developing @ creating new ideas or problem solving. As well as narrowing issues'* (Participant 6), *'Anticipate the outcome and problems arise [sic] but view it as one of the options to come to the process. Results may be different, and we might go back to the first/earliest stage.'* (Participant 9)

Furthermore, most responses were optimistic in that they hoped to apply this back to their workplace and disseminate the knowledge to their colleagues and friends. However, many also acknowledged the challenges of applying

Speculative Design e.g. getting upper management approval, appropriate support from team members, and overcoming the limitations of their scope.

3.1.1 Challenges of applying speculative design

‘Should be experienced by the top management. Once they understand the approach, our work will be lot easier.’ (Participant 6), ‘Very relevant, but it may be too open ended and may wrongly set expectations.’ (Participant 17), ‘Sometimes being done just for the sake of doing it for show’ (Participant 3)

3.1.2 Optimism in of applying speculative design

‘All relevant parties should be included & [be] willing to build the future together.’ (Participant 18), ‘Participation from [the] right group will certain [sic] bring a better solution to solve a problem’ (Participant 16)

From the one-day co-designing workshop, we again asked the Champions similar questions. The responses came back short and generic, indicating a possibility of fatigue in the Champions. For the Speculative Design knowledge, participants rated themselves as more knowledgeable, using a Likert scale from 0 “very poor” to 10 “very good” ($M = 8.21$, $SD = 0.97$) compared to pre-workshop ($M = 6.93$, standard deviation = 1.34), $t(13) = 2.92$, $p = .012$. The response to the questionnaire question of ‘explaining of Speculative Design to a child’ showed a repetition of terminology taught in the workshop e.g. future, alternatives, developing solutions, and it continued to be a struggle for participants to express themselves here.

As for the application of Speculative Design at the workplace, responses had more depth in the application of Speculative Design for work-related tasks such as information gathering and analysis (3), potential use of particular Speculative Design tools (3), and encouraging open-mindedness (3). This differed from the responses taken at baseline, because post-workshop responses were more explorative, including the question of themes using Speculative Design for exploration (3), future trends, and scenarios (4), and the facilitation of group discussions (4).

3.1.2.1 Information gathering.

‘Very useful for analysis process. Looking things for future than near future’ (Participant 10), ‘Deeper understanding on the needs and wants from the

actual users and to try to make [Sic] (Participant 11), *'The way to engage/gather information from different types of people'* (Participant 13).

3.1.2.2 *Potential use of speculative design tools.*

'To use provocation to encourage discussion & thinking of near & far future and not to overly think about current gaps that are not allowing new ideas to happen' (Participant 3), *'Prototyping'* (Participant 5), *'Identifying problem space, using tools as TREND (PESTLE)'* (Participant 12).

3.1.2.3 *Open-mindedness.*

'Open mind, try all chances' (Participant 9), *'Imagine what if. Participatory'* (Participant 17).

On the question of how Speculative Design can be used in policy/engagement, we found that participants reported benefits such as data gathering, alternative solutions generation, awareness generation, and increased in acceptance. Again, this differed from the baseline as participants brought up conditions that had to be met for the participatory approaches to be viable (Participant 5), while another was concerned that the method may be open-ended and create unmet expectations.

We asked participants about the key take-aways after their training and after the co-designing workshop. For the former, participants were focused on the SD process or particular concepts/methods (Participant 7), creativity (Participant 5), participation (Participant 4), and utility of prototypes and props (Participant 2). Whereas after the co-designing workshop, participants' responses focused much more on facilitation and participation (Participant 5), using SD to solve problems (Participant 7, 17), learning new methodology (Participant 12), and information gathering (Participant 10).

Overall, while the understanding of concepts appeared to decrease, reflections on practice became more thoughtful through later responses. Despite the terse responses, Champions were clearly reflecting on how they could best apply Speculative Design at work, with some voicing possible resistance from upper management.

3.2 *Participant responses on the training programme*

Most responses from the Champions regarding the July pre-workshop expectations of their role (on either day) did not include ideas of facilitation or taking Speculative Design back to their workplaces. One participant specifically stated that they did not expect to have to facilitate while another felt that there was a lack of clarity about their role. Post-workshop understanding showed a substantial increase in the champions' identification, facilitation, and

advocation of Speculative Design, indicating that the technical workshop learning objectives were successful in imparting such knowledge.

Champions' responses about what was needed for a successful workshop varied widely at the pre-workshop phase. Only two participants wanted more concrete examples to relate/explain elements of Speculative Design, while the others (n = 16) were unclear about it. At the post-workshop phase, participants were able to reflect on their experience of facilitating SD, with Champions wanting more time in the co-design workshop for problem identification and discussion, more practice before conducting a workshop with real stakeholders, etc. However, two Champions felt that the programme should have focused on "issues that can be solved," indicating a lack of acceptance of the principle of Speculative Design.

The training itself was well received by the participants. Our trainers were rated 3.88 on average, standard deviation = 0.72 on a scale of 1 – poor to 5 – excellent. The facilitators that were attached to the Speculative Design Champions were rated 4.23 on average (standard deviation = 0.59). The facilitators in Day 3 in the July workshop included other members of the team (who were not trainers in the past two days). Each facilitator was assigned to 2 Champions, which meant that the Champions received more personal training/feedback which gave the Champions the confidence to run the workshops together with the facilitators.

3.3 Participant and citizen responses to speculative design prototypes

We had 85 responses from the showcases conducted in Dec 2020. The majority of them were community dwelling older adults who primarily depended on others should they wish to travel.

We first asked them whether TPAPSAS and MHPB were necessary for older adults, and 53 participants (62%) agreed in the affirmative, while 2 participants disagreed. Others were ambivalent about it (35%). When asked about the desirability of the app (as in do you want this), many were uncertain about the reliability and enforcement, with many citing current scenarios faced in the public transport system. Many felt that the society at large needed some form of civic-minded education to provide priority to the elderly, citing physical infirmities and economic limitations. These same reasons were also put forward as to what the government should be doing more in meeting the needs of the elderly population. The economic concerns were further supported by claims regarding their pensions, financial dependency on their adult children, and rising living costs. While some respondents were generally happy to see that their needs are prioritised in the public transport system, they also raised concerns, such as costs to own the card (initial investment of RM350 ~ £65), which is

likely to prevent ownership, as well as unsuitability for the elderly with disabilities. Many of these concerns reflect their collective nature, in that the elderly population in Malaysia favour group activity with friends or family, and do not consider independent travel as a possible option. However, this is contradictory to our earlier July workshops when the older adults expressed intention to be more independent when traveling. Half of the respondents were also sceptical about the implementation of such devices. When probed further, many reported not being familiar with technology generally and that this fear and ignorance were likely to hinder their uptake.

We also presented our findings in a national level meeting on ageing-related matters. Here, the prototypes were warmly received, despite the confusion on having ‘futuristic’ items at hand. Many attendees represented various government agencies of our Champions, and they were more familiar with the possibilities of Speculative Design from previous exposure through earlier workshops prior to the project covered here. Other no-Champion agencies were curious to know whether Speculative Design can be used to solve immediate problems; suggesting that the problem-solving facet is likely to be the most attractive feature in Speculative Design. The question regarding the concept of the future is still misunderstood by most.

4 Discussion

In this section, we provide discussion and analysis of the different points that had been raised in the previous sections, particularly under findings, in relation to the two study research questions. Section 4.1 discusses the findings in relation to [RQ1] ‘*how might Speculative Design be employed as a Participatory Approach to develop more inclusive policy-identification and development in Malaysia?*’; whilst section 4.2 discusses the findings in relation to [RQ2] ‘*what are barriers and opportunities to participatory speculative design in Malaysia?*’. The analyses and discussions are drawn from the assessment of various workshop co-facilitators, who had been appointed specifically as participant-observers and note-takers. We begin our discussion by providing an analysis of the observations.

4.1 How participants made sense of participatory and speculative design

Participatory design itself was not a new idea for the Champions, having been exposed to similar methodology in their respective positions. They observed that participants in their focus groups tend to be similarly quiet and reluctant to interact. During the July 3rd co-design workshop, the researchers took an active step back to give the Champions opportunities to lead the groups. Having the researchers present was helpful for some of the Champions, who were feeling overwhelmed. However, some of the researchers were overly dominant in advising their respective Champions, which potentially curtailed the latter’s

confidence about their ability when it comes to facilitating Speculative Design practices within a collaborative group setting.

Champions and participants appear to have grasped some basic understanding of the concept of Speculative Design, as evidenced from the data analyses. Conservatively, this could have been attributed to the novelty of the situation which led to higher memory recall. Yet we also observed that many responses were not 'tied to current reality' in the development of Speculative Design concepts, indicating that this was problematic for some, thus holding them back from fully comprehending and applying Speculative Design. Moreover, we noticed that several off-training and non-recorded discussions were firmly rooted on current problems. This suggests that they were not able to differentiate plausible opportunities in Speculative Design. It could be that the participants were not able to distance themselves from the mundaneness of their work environment, which led to a spill over-effect. Our Champions from the public service were mainly from middle management which meant that they were dealing with day-to-day activities (typical grounded activities) rather than strategic ones.

We also note the possibility that participants were too tired at the end of the day to write long feedback in the post-workshop survey. However, despite their fatigue, their short responses were able to convey a deeper understanding on the overall Speculative Design concept, therefore suggesting that our training programme is robust and adaptive at meeting our initial aims. Further, we have observed that some Champions were incredibly diligent in taking notes during the "official" training sessions, but the knowledge was not transferred during discussions or the workshops with their participants. It is possible that they were not feeling confident in sharing their 'perceived inferior' knowledge, rather than due to actual poor understanding. Or the knowledge has not been synthesized.

In the case of prototyping, it was observed that many participants were hesitant in pushing the limits of their ideas beyond their comfort zone. Often, the ideas provided were very close to scenarios and applications already available in the market. Similar to previous observations, in the presence of someone with a perceived expertise or experience, the workshop participants may have applied a 'wait-and-see' attitude, awaiting feedback before pushing the limits further. Other than the aforementioned influence of cultural structure and hierarchy, reticence and passivity have been observed on several occasions. Also, given the lack of time availability for both participants and facilitators in working through all the details required to come up with a finished prototype, the transformation of a brainstormed idea to a polished prototype required significant intervention from our expert design researchers.

4.2 Barriers and opportunities to participatory speculative design in Malaysia and South East Asia

With regard to participatory design, the influence of cultural structure and hierarchy on discussion and interaction during the workshops formed another key observation. The status of a participant may be respected by other participants (such as a higher ranked officer, or a professor or a PhD holder). Hence, the latter may choose to listen to the former more rather than actively making comments and presenting their own ideas during the discussion (Ardichvili et al., 2006). The influence of perceived or granted respect due to hierarchical status or authoritarian stance is evident in an Asian culture such as Malaysia (Puteh-Behak, 2014; Teoh et al., 2018). For example, Puteh-Behak (2014) summarized some characteristics of the basic social structure of the Malay community whereby older people in the community are considered more knowledgeable, or people with leading positions will hold a higher status in a community. Another factor that may discourage some participants, especially the younger ones, to voice out their opinions, is the fear of losing face through what they perceive as making a bad proposal or point (Ardichvili et al., 2006).

Moreover, the way knowledge (truths) are framed within this context often relates to the way the research methods are framed and executed. Another challenge, which emerged during discussions in the workshops, was that of knowledge construction relating to cultural differences in defining ‘truth’. Differences in the education systems between Global North-South countries, coupled with cultural factors, result in different perceptions about abstract thinking (Rubinstein-Ávila, 2009). In design research, especially in participatory workshops, abstract thinking is often a useful tool employed in looking at the bigger picture and making sense of different types of information. Several research participants in the Global South contexts, such as in Malaysia, may lack the experience and confidence to engage in creative lateral thinking, and even to think critically about matters unfamiliar to them. Even in situations with a small number of workshop participants, there was still a level of unease when it came to thinking differently, which created conditions of cautious interactions. Also, some participants find it difficult to fully understand and contextualise open-ended questions (Cheema et al., 2018).

Several of the Champions who engaged in the Speculative design training session, perceived speculation as a way to generate new ideas, more so for output rather than the process itself. This hinders the possibility of growth, discovery and learning to push boundaries and develop what-if questions that challenge future trends by bringing future worlds into the present *via* Speculative Design artefacts. Many expressed enthusiasm for using Speculative Design in their organisation. However, it is not clear whether that is because the technique appears to be a “shiny new toy” or they truly understood the concept of

Speculative Design. Several months after the end of the training sessions, the research team received requests for support in running Speculative Design workshops. The requests, though, sought to employ Speculative Design in the form of problem solving (for instance, the Ministry of Housing and Local Government for nursing homes) and brainstorming (from the MyAgeing community-based organisation). Similar responses were gathered from the January 2020 sharing workshop.

Policy makers typically work on a large scale i.e. national and international level. Therefore, their impact would be far larger with the intention to cover everyone under their jurisdiction, yet deemed as less meaningful to an individual. While a national policy does affect individuals, said individual may not realise the planning and deliberation involved as they only see the specific outcome without recognising the processes within. Having a more participatory approach involving the grassroots would certainly enable groups of individuals participate in these discussions meaningfully. As for the CBO/NGO, using the disruptive techniques afforded by Speculative Design could also help propel their idea to policy-makers. The CBOs/NGOs are often used as a feeder during data gathering, but are not fully utilised for outcomes or influence on policies.

Some participants found the process to be too futuristic or ‘fantastical’, and therefore considered the process as failing to recognise how reality could be integrated into a plausible preferable future. However, most individuals are usually in favour of a preferred future; a future with minimal effort and maximal benefits and Speculative Design appears to feed into this mindset. Having demonstrated past prototypes on health initiatives e.g. sugar eliminator and e-health database, we found that our participants were able to link reality to a much preferred future, and this led to much less resistance and reluctance in pushing the limits. Although, one might still question whether they properly understood the full ethical implications of their preferences. The key would be to find the topic of strong relevance to the stakeholders to ease these obstacles.

Finally, it is unclear from the project’s outcome as to how well one would be able to translate the critical-creative thinking facilitated by Speculative Design into the development and implementation of design-centric/design-sensitive policies, aimed at envisioning short-to-long term solutions for complex socio-economic problems.

5 Conclusion

This study has reported on the exploration of Speculative Design as a Participatory Approach to more inclusive policy-identification and development in Malaysia. The key findings suggest that employing Speculative Design in a

Global South context, such as in Malaysia, requires adaptation to local contexts. This is true, especially as future thinking is unfamiliar to many societies still facing non-equitable development. Nevertheless, it was found that as a method Participatory Speculative Design can help disrupt the top-down policy-making in South East Asian countries, such as in Malaysia.

If we are to learn from research conducted in the area of participation, there is a need for more varied deployment of participatory design research methods across different demographics and purposes. Although we acknowledge the difficulties of enacting this effectively without the existence of sustainable champions that would spread the method to hard-to-reach communities while gaining the commitment of stakeholders with the greatest capacity to enculturate its use in policy-making (such as through the various government Ministries we had worked with).

However, there remain barriers, which have to be overcome if Speculative Design is to be used by governments as a way of envisioning the future. For instance, what information and evidence do policy-makers need in order to experiment with Speculative Design for policy-making? For this and similar reasons, Speculative Design's capacity for sustained public engagement, particularly as mediated through policy bodies, has thus far been under-explored (DiSalvo, 2014; Voss et al., 2015).

Such an engagement is unprecedented in most developing countries including Malaysia, where participatory approaches are mostly in their infancy, and the idea of engaging through Speculative Design as an approach to exploring local challenges and generating more inclusive debates on potential solutions is a novelty. The work done through this research project and presented in this Case Study paper is the starting point to establishing the use of participatory-Speculative Design as methodology and approach to tackling issues with policy resonance. More research is needed to better localize and measure the proposed method impact across more Global south countries, especially in South East Asia.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Notes

1. See Section 1.1 for definition.
2. Eleventh Malaysia Plan 2016–2020 (2016) Prime Minister's Department.
3. See Appendix 1 for the questionnaire.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.destud.2022.101118>.

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