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Participants' Perceived Quality of the Deliberative Process of Participatory E-Backcasting as a Social Learning Tool: A Prototype Participatory Valuation Approach of Abuja, the FCT of Nigeria.

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ABSTRACT

Social learning is increasingly becoming a normative goal in planning cities. Social learning is often conflated with other concepts such as participation and pro-environmental behavior, and there is often little distinction made between individual and wider social learning. One of the goals of this paper is to asses the extent of social learning through the application of e-backcasting via a prototype participatory valuation process. The valuation is carried out in ways that attempts at transforming and redirecting the learning ability of participants into self-directed, proactive learning without physical contact. The use of online and blend instruction virtually offer participants the flexibility and opportunity to collectively participate at the same time learn without being limited to the constraints of time, space and distance. 239 consenting persons within the ages of 18 and 68 years participated. Participants had access to varying social media technologies (like Facebook, emails, blogs and Whatsapp). As observed from the report participants gained advanced knowledge through the participatory and learning aspect of the ebackcasting approach . A total of 17 assessment questions were administered to draw information on the extent of learning by participants via the varying social media technologies applied for this study. 110 out of the 239 participants indicated that the process impacted their understanding of how to achieve their daily goals while 111 participants were of the view that the problem deliberation process of the exercise not only enhanced their ability to think critically but they were also able to synthesises fundamental knowledge and skills on sustainable city concepts. With regard to impact on participants' skills, a subset of 111, 106 and 104 participants indicated that their abilities to think critically, present ideas as simply as possible and interact with diverse groups of people was respectively enhanced. In summary, the online approach facilitates diverse knowledge that the 239 different participants acquired from the exercise in an applicable format while resolving city planning problems interactively. It is hoped that this process of learning will not only depend on the willingness among-st administrators, stakeholders participants and those in authority to embrace but to collaborate with the radical reconceptualisation that ebackcasting brings into city planning. If this approach is well articulated in city planning and administration, it will go a long way towards achieving sustainable city development in Nigeria.

Keywords: e-backcasting, social learning, Prototype Participatory valuation approach, sustainable city development

INTRODUCTION

Sustaining the pursuit of city visions and development in Nigeria can be challenging in the sense that Nigerian cities are faced with on-going complexity and uncertainty, resulting in the urgent need for critical thinking in decision-making processes. The traditional master planning approach alone cannot solve Nigerian city problems because of the many uncertainties surrounding their development pathway. Likewise, the top-bottom modernist planning and governance approach is not able to satisfactorily legitimise the major steps that may be required to deal with sudden emergent city-changes. As long as the city future visioning and plans are full of uncertainties, choice risks are high; the goal of discovering the way out is unachievable in principle. It requires therefore an adaptive and strategic planning approach/tool that also entails the inclusion of participant's knowledge, opinions and impacts as motivated from both the practical and policy point of view.

This led to the recruitment of diverse persons from within Nigeria and the diapora to participate in the ebackcasting exercise to assess the level of enhanced social learning amongst participants. The research processes was designed to explore the Abuja city vision as a case study. The research design made provision for how participants are to interact with the task, with each other and engage in recruiting others, interact and think through the step by step iterative prototyped re-visioning process. Different resolutions, stakeholder opinions, number of participants in each platform and their modes of interaction gave rise to different forms of deliberations leading to different social learning out-comes in the most effective manner in the following 4 ways: attention, retention, reproduction and motivation (Niemeyer et. al., 2024). Second, it was discovered that much of the social engagement and learning seemed to occur as participants are mixed bottom-up; consisting professional and lay-persons contributing in the implementation and proposed action stages (Mulford 2007; Singh and Thurman 2019; Rumjaun and Narod 2020; Van Mierlo and Beers 2020). The interests of professional planners, for example, can be quite different from those of the lay-persons within a business community. In this sense the e-

backcasting exercise serve as the stimulus for processes of social interaction and learning that go well beyond the scenarios created (Singh and Thurman (2019). It is useful to see social learning process as a series of concentric circles of decreasing "learning density" centred on the project team, with the community partners located in the innermost circle, as co-designers of the community engagement components of the project (Adam, et.al., 2017).

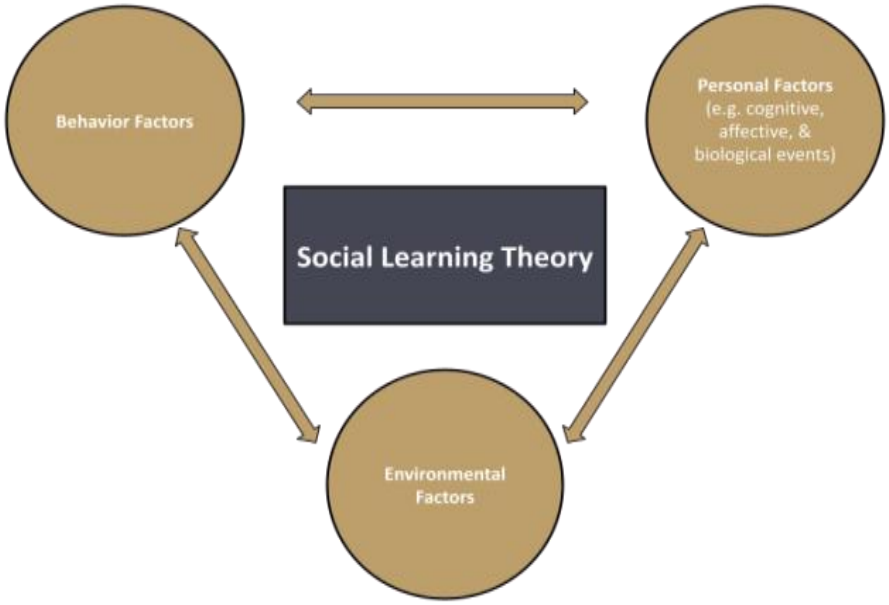
LITERATURE REVIEW

Social learning is often conflated with other concepts such as participation and pro-environmental behavior, and there is often little distinction made between individual and wider social learning (Hackel, Kalkstein, & Mende-Siedlecki (2024). Many unsubstantiated claims for social learning exist, and there is frequently confusion between the concept itself and its potential outcomes. This lack of conceptual clarity has limited our capacity to assess whether social learning has occurred, and if so, what kind of learning has taken place, to what extent, between whom, when, and how. This response attempts to provide greater clarity on the conceptual basis for social learning. We argue that to be considered social learning, a process must: (1) demonstrate that a change in understanding has taken place in the individuals involved; (2) demonstrate that this change goes beyond the individual and becomes situated within wider social units or communities of practice; and (3) occur through social interactions and processes between actors within a social network. A clearer picture of what we mean by social learning could enhance our ability to critically evaluate outcomes and better understand the processes through which social learning occurs (Reed et. al., 2010). In this way, it may be possible to better facilitate the desired outcomes of social learning processes (Kumar & Nanda (2024).

Albert Bandura's (1965) social learning theory (SLT) suggests that we learn social behavior by observing and imitating the behavior of others. Bandura realized that direct reinforcement alone could not account for all types of learning, so he added a social element to his theory, arguing that people learn by observing others (Nabavi, 2012, Rumjaun and Narod, 2020, Nariman, 2021). His theory is regarded as the bridge between behaviorist and cognitive learning theories, encompassing attention, memory, and motivational processes (Muro and Jeffrey, 2008). Through SLT, we learn from one another in response to observing others and their behaviours, imitation the observed behavior, and modeling after people we see as alike. (Bandura, 1965). Learning is about interacting with the environment and making a permanent change in knowledge or behavior that improves human performance (Driscoll, 1994, De Felice, et.al., 2023).

According to Bandura's SLT comprises of environmental, personal, and behavioral factors which indicates that learning is a life time affair (see Fig 1). SLT learning boasts interaction with others in a social context through motivations and reaction or learning through observation of the environment. Bandura's social learning theory provides a helpful framework for understanding how an individual learns via observation and modelling (Horsburgh and Ippolito, 2018, Spadaro, et.al.(2023).

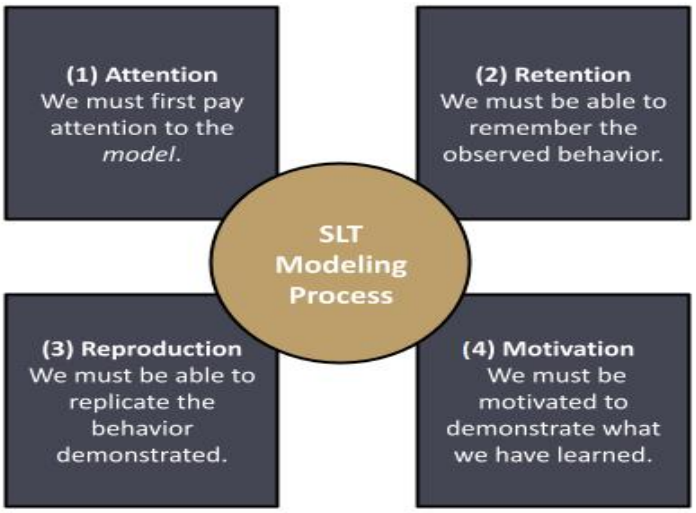
Figure 1: SLT process comprises of environmental, personal, and behavioral factors



Source: (modified from Bandura, 1977b)

Modelling and learning consist of four conditions that are needed to be met (Horsburgh & Ippolito, 2018; Nabavi, 2012): i) Attention increases when behavior is more outstanding, poles apart, or admired. ii) Retention deals with remembering to observe behavior; iii) Reproduction comes with been able to replicate observed behaviour. iv) Motivation: has to do with been able to demonstrate what was learnt.

Figure 2: Stages involved in the modelling process



Source:modified from Nabavi, (2012)

Backcasting approaches on the other hand have evolved significantly since it began in the 1970s. Originally focused on evaluating the technical and economic potential for energy efficiency and alternative energy systems, backcasting methods have grown to encompass a much wider set of considerations by gradually incorporating social learning processes (Lovins, 1976). In so doing its growth has given rise to a set of important methodological questions about modeling, participation, user engagement and the role and status of futures analysis (Becker, 2010; Svenfelt et.al. 2011; Wangel, 2011; Wehrmeyer et.al. 2012, Olsson et.al. 2015; Achuenu and Irurah 2016; Achuenu, (2019).. Desired futures, like conceptions of sustainability are thus the product of a social learning process that provide legitimacy through inclusion rather than exclusion, through participation rather than mystification, and through transparency rather than black boxing.

METHODS AND MATERIALS

A total of 17 sets of selected questions act as a form of backcasting process debriefing. From this assessment concept it is expected that participants will leverage on the results of the e-backcasting sessions. The assessment questions are further broken into two main parts. The first set of questions relates to the level of impact and learning on participants as a whole, while the second assessment questions addressed the participants' opinions towards the adaptability of the e-backcasting as a technique. The first set of assessment questions comprised 11 questions and the second set comprised 6 main questions with sub-questions. Questions on what aspect participants would want to be improved were asked. Questions on the strengths and weaknesses of the moderator (in this case the researcher) were asked, as an indication of how appropriate, organized and clear the tasks were. In addition to engaging participants and finally, participants suggestions as to the next steps that will be useful in guiding potential users from the results of the approach (see Table 1). The procedure required that participants give response to all the assessment questions asked directly.

Likert scale was applied to facilitate the assessment of participation experience and how likely participants would recommend the process to others. On most questions, a score of 1 to 5 was given, with one being the worst score and five the best. The questions were designed to elicit participants' assessment of the e-backcasting itself, of e-backcasting as a procedure, and of the potential applicability of the findings to management and decision-making. The evaluation also included five open-ended questions asking what participants liked about the

RESULTS AND FINDING

Feedback from the 293 participants self-report indicates that the level of influence and knowledge was inspired more by their participation in the scoping and re-visioning stages, while a few were inspired by the backcasting session. Responses showed evidence of openly reflecting upon their own thought process (before and after their participation). Several participants reported that the e-backcasting approach had stimulated them to "reconsider previous views on certain topics," and that the process "challenges pre-conceived ideas" and generates "new ways of looking at old problems." An in-depth reading of responses led to the identification of four processes in participatory e-backcasting that were strongly valued by participants; Participants reported that it reinforced the requirement for interdisciplinary collaboration and the combining of stringent policy/legislation with changing social norms and values around city planning. In this way, participants reported that they were stimulated to think of a broader range of options to leverage change outside the traditional boundaries of city administration and management, especially within areas such as urban planning, infrastructure provision, environmental management and socio-economic change for city residents. Despite the widespread support for the on-line approach, some participants found it practically challenging.

The comprehensive findings from participants in this section stem from responses to the assessment questions posed after each iterations (Table 1). Table 1 and 2 show the reported impacts of participation on participants' decision-making and change in skills. 110 out of the 239 participants indicated that the process impacted their understanding of how to achieve their daily goals while 111 participants suggested that the problem deliberation process also enhanced their ability to think critically and to synthesise fundamental knowledge and skills on sustainable city concepts.

99 participants expressed satisfaction with the opportunity to practice and develop their ability to apply a backcasting approach while 29 participants were not sure if they understood what the backcasting approach means and thus might not be able to use its methodology in their future endeavours.

Table 1: Impacts on participants' decision-making and change in skills

Impact category	WhatsApp		Facebook		Email		Blog		Yes	No
	Yes	No	Yes	No	Yes	No	Yes	No		
It impacted on my understanding of how to achieve my goals	71		28		07		04		110	
		17		08		03		01		29
It impacted on my ability to identify resources needed to carry out my daily decision-making.	67		23		04		03		97	
		11		06		09		01		27
It impacted on my knowledge on how to overcome the difficulty in making complex decisions.	67		25		06		05		103	22
		09		07		06		00		22
It impact my family life, office work, academics and the use of social media	62		20		06		00		88	
		13		07		08		00		28
It enhanced my problem-solving skill	65		23		05		00		93	19
		05		07		07		00		19
Enhanced my ability to think critically	68		27		12		04		111	
		04		06		03		01		14
It allowed me to synthesise fundamental knowledge and skills on sustainable city concepts	68		30		08		05		111	
		05		04		05		00		14
It provided the opportunity to practice my ability to apply backcasting	62		25		09		03		99	21
		09		06		03		03		21

With regard to impact on participants' skills, 111, 106 and 104 participants indicated that their abilities to think critically, present ideas as simply as possible and interact with diverse groups of people was respectively enhanced. Samples of excerpts from participants' responses are presented below:

- **Response-** It has not only helped to develop my critical mind further to think outside the box but to see issues from different perspectives from other participants practical views on issues raised.'
- **Response-**It has helped me realise my ability to be persuasive
- **Response**-It has helped me understand my ability to participate in a group discussion and to see the ease with which diverse groups of persons can be brought together to achieve a particular goal.
- **Response:** It has inspired and given me a broader perspective on research especially the formulation of questions and tools for generating data required for solving problems.
- **Response**: It has made me understand more about sustainable development mainly from the Abuja context
- **Response**: Innovative method.
- **Response:** Interesting new points of view. In addition, in spite of having indicated to prospective participants that the study was an academically driven research towards a prototyped evaluation, criticisms were still voiced on the evaluation process especially on certain aspects such as:
- **Response**: We had shortage of expertise in some of the platforms for meaningfully discussion on some topics (on e-backcasting)
- **Response**: Some of the outcomes were too wide-ranging and also unclear (e-backcasting)
- **Response**: Additional time is required (general process)

- **Response**: The outcome of the entire process needs to be finalised and circulated before I can evaluate their practicality (general process).

Generally, there was widespread satisfaction among participants on the impact of the entire e-backcasting prototyping process of which 29 attest to applying similar research methods in the future. 22 agreed to having gained awareness that the opinions of other people matter.

Table 2 gives an overall view of awareness gained by participants from the exercise.

Table 2: Impact and change of participants' awareness

Ways participants anticipates using awareness gained	WhatsApp	Facebook	Email	Blog	Total
Apply same approach or similar method in research	19	06	03	01	29
Learned to listen to peoples' opinion before any decision on any issue	15	04	02	01	22
Apply knowledge/skills gained in job, workplace, office, governance	11	03	01	00	15
Knowledge benefited will be useful in the future and make me more critically minded in my thinking	06	06	02	01	15
Commence city planning forums similar to this	03	00	00	00	03
Enhanced my understanding on the need for sustainable development	09	03	02	00	14
Learned to prioritise in order of urgency	01	00	00	00	01
Enhanced my future decision-making process	03	01	01	00	05
Broadened knowledge on backcasting	7	02	01	00	10
Gained knowledge and so equipped for leadership and read to pass the idea to those in authority	02	01	01	01	05
Total					119

15 participants were also very optimistic on the practical implication of the process for their individual work in the future.

Participants' opinions about the e-backcasting as a technique

Another set of the evaluation process required participants to make an overall evaluation of the appropriateness, organisation and clarity of the tasks as presented by the moderator during the e-backcasting process (see Table 3).

Table 3: The appropriateness, organisation, and clarity of task

Criteria	WhatsApp		Facebook		Email		Blog		Yes	%	No	%
	Yes	No	Yes	No	Yes	No	Yes	No				
I got deeper insight into the focus of the study.	42	03	30	06	05	06	02	01	111	46	26	11
Skills were presented in a helpful sequence.	33	06	25	06	06	09	01	01	106	44	26	11
It provided an appropriate balance between instruction and practice.	38	08	20	07	06	09	02	00	98	41	26	11
Guiding instructions were helpful when I had difficulties understanding the concept used.	38	05	13	07	08	06	00	00	91	38	28	8
Organised in a way that helped me learn.	37	07	22	07	07	05	00	00	96	40	18	8
It provided a mixture of explanation and practice.	42	05	27	06	03	08	02	01	104	44	21	8
Approach is appropriate for the level of exercise carried out.	34	02	30	04	05	08	03	00	100	42	22	9
Instructions included for every post were clear.	74	06	30	06	05	06	02	01	111	46	26	11

Most of the tasks related to the envisioned findings, the focus of the study, balance between instruction and practice, the appropriateness of the various tasks, and clarity of instructions for every stage. In this assessment, the one and only primary key objectives was to deliberate on if the moderation/facilitation could have been done better or more effectively. Participants' assessment indicated that the facilitation process worked sufficiently well. As shown in Table 3, 111 responses from 239 participants indicate that the instructions for every stage were clear and thus effective in providing participants with guidance on how to participate and what their expected role contribution was.

Table 4 shows participants response on rating the approach in terms of the exercise deemed most valuable to least valuable. Participants were to some extent extra critical on the practicality of the backcasting results for city planning and other applications. This may have contributed to the moderately lower rankings of 59 assigned by participants to the e-backcasting stages. The deliberation of the present state of Abuja city planning and the re-visioning/scenario and key/mid-timelines were identified as the sessions with higher responses of 102, 132 and 132 respectively.

Table 4: Aspect of the e-backcasting found valuable or least valuable by participants

Valuable or least valuable aspects	WhatsApp		Facebook		Email		Blog		Yes	No
	Yes	No	Yes	No	Yes	No	Yes	No		
Deliberation on the present state of Abuja city	75	15	16	08	13	09	01	00	105	32
Re-visioning sessions.	67	17	12	04	22	03	01	00	102	24
Platform used in recruitment/interaction	61	05	08	18	05	11	00	00	74	34
Scenario/vision process	82	10	36	16	13	09	01	00	132	35
Key/mid timelines identified	82	12	36	06	13	04	00	00	132	22
E-backcasting strategy	40	10	06	12	13	09	00	00	59	31
Can the approach be used in the future for subsequent city planning in Nigeria	98	10	28	05	11	03	00	00	137	18
Total response									735	196

Grading of platforms in order of performance	Likert scale	WhatsApp	Facebook	Email	Blog	Total
	1(poor)	12	03	01	01	17
	2(weak)	18	05	00	00	23
	3(good)	09	06	03	00	18
	4(very good)	71	22	08	01	102
	5(excellent)	30	12	03	00	45
Total participants		140	48	15	02	205

The higher responses 132 and 137 'yes' shows the degree to which participants found the overall e-backcasting process, as well as the outcomes valuable, as they were able to voice out their opinions irrespective of what it was. Participants took note of each others' ideas during the whole process. Most of them found the process more interactive, inspiring and informative across all platforms. The 'No' response indicated disagreement with the methodological process participants experienced as least valuable. For Facebook and email, the 'No' response of 18 and 11 scores respectively indicate a disagreement. The extent to which the deliberation of the present state of Abuja city and the re-visioning/scenario creation was regarded as inspiring was 75 (Yes) and 67 (Yes) for Whats-app. Participants believed that the time assigned to each platform was appropriate but that of the whats-app with a score of 30 at a like-rt scale of 5 indicating (excellent) was a much valuable/easier platform on which to engage for this exercise.

31 participants indicated that the e-backcasting strategy was the least valuable because they could not easily follow the trend of activities. Generally, participants were pleased with the hindrances (obstacles) and prospects (opportunities) that were recognised during the exploratory re-visioning/scenarios process. Participants could therefore claim ownership to the scenarios created and thus positioned themselves in the mind-sets of the scenarios before getting into the vision prototyping.

The effectiveness of combining the final future scenario and backcasting was high since it is basic to also determine the features that can lead to strategy in pursuit of the desirable future. But even with that, only 59 participants reported being satisfied with the resulting e-backasting strategies, including its process and content. This was the least positive response across the related 11 questions, which possibly suggests that they were sceptical of the adaptability of the backcasting in the Abuja city planning approach. This explains why the process records low level of participation (even though the study did not intend to go into implementation). 22 participants were not clear on the relationship that the e-backcasting made between the target scenario/vision created and short-term decisions made in line with the 10 year mid-timelines and the policy actions needed (see Table 6). Finally, 132 participants were comfortable with the use of the 50-year as the key time horizon and the combination of the assessment process and backcasting.

Participants also made an overall evaluation on how the e-backcasting approach performed and the challenges it poses for participants. Generally, participants were excited about the e-backcasting process and active and passive participants who responded to the assessment task acknowledged the significance of e-backcasting, they believed it helped to fashion a strong link between the exploratory scenario process and the current decision-making needs.

The most positive findings were for the question about the extent to which the online approach unlocked new viewpoints on how one can think about the future. In response, 137 reported that the approach would be useful in future for subsequent city planning in Nigeria and would help acquire an enhanced understanding of the strategies needed. Though, 18 participants found the process not useful for city management and planning. A total of 102 and 45 out of 205 participants scored the process 4 and 5 on the Likert scale (see Table 4). However, differing from the exploratory re-visioning/scenarios process, there were more disapproval on the e-backcasting procedure and outcomes. There were some critical notes, some of which were similar to those commonly encountered in face-to-face backcasting strategy (as evident from other empirical studies). This possibly arises from the fact that thinking backwards from ones future can be demanding. Others remained more directly related to the integrated e-backcasting approach (some shied away while others lacked interest thus leading to consistent exits and sometimes violation of the guiding principles, failure to limit contributions within subject matter, not mindful of time available for each task and failure to respond on time).

Table 5 gives a summary of what participants further identified as challenging issues that would be particularly relevant for the study. Most of the 24 responses under this category came from participants in the WhatsApp and Facebook platforms, where some instructions included for most posts were deemed to be clear, but a majority of participants could not read and stick to guidelines, hence creating distractions through inappropriate posts and unnecessary comments. The primary moderation/facilitation challenge was to do with making sure that participants are on track, as well as having to remind them of the rules and ensuring they do not stray from the topic of discussion. This role/task consumes a lot of time.

24 of the participants expressed difficulty in following the thread of the posts in order to marry the different planning ideas due to a limited knowledge of city planning, particularly with regard to Abuja. As a result, such participants found it more difficult to make sense of most of the (sub) topics discussed. 43 participants felt that there were no specific actionable plans on how to remedy the current situation of the city. Although good suggestions had been made, they expected a more detailed logical framework of actions. However, that was an aspect that was outside the scope of this study. 2 participants from the WhatsApp platform found the lack of scheduled time for each task challenging.

Their dissatisfaction focused on the fact that there was no agreed schedule by both participants and the moderator on when to cross-fertilise ideas and this was evident in the pools of messages coming during Sunday's worship/morning prayer times and midnight, thus making late-night messages very challenging to accept.

Responses from 67 participants specifically point towards the deficiency in timing as a key constraint towards realising their aim of fully participating at both the exploratory scenario and e-backcasting tasks.

Table 5: Challenges experienced through the prototyping stages

Challenges observed	WhatsApp	Facebook	Email	Blog	Total
Participants lacked understanding of the purpose of exercise, reflected in the disjointed expression of ideas	29	06	03	00	39
Participants did not visit the blog (passive participation)	05	01	00	00	06
Instructions for every post were clear, yet participants failed to read and stick to instructions hence creating distractions from the focus through irrelevant posts/comments	18	05	01	00	24
Some participants found it difficult in following the thread of posts and to marry the different planning ideas, found it difficult to make sense of most topics	25	16	02	00	43
The art of reasoning backward was not easy to master	03	00	00	00	03
Participants blame their lack of participation on time constraint	39	20	08	00	67
Posting questions concurrently without waiting on others before concluding on the subject question	21	10	00	00	31
Poor service/network provided, unstable power supply and difficulty in accessing internet facilities for prompt response to issues being discussed	22	11	04	00	35
Overwhelming lengthy write-ups and the traffic of information at their disposal to read making it difficult to fit into the flow of the cascading opinions/views of the crowd of participants with different backgrounds and expertise and exposure.	14	07	03	00	34
Failure to limit contributions to the subject matter	11	05	02	00	18

Earlier participation lacked proper grasp of the concept of the study, as some ideas lacked cognisance of the existing situation and precision	04	03	01	00	08
No challenge, everything was perfect	18	02	01	00	21
Some shy away because they lacked self-confidence or could not express themselves clearly in English	03	02	00	00	05

Participants also blamed their inability to keep track of activities on the fact that writing via handsets can be time consuming. This perhaps implies that implementing the e-backcasting process via online/social media platforms should be given more time. The process should be concentrated in one platform at a time rather than across multiple platforms like Facebook, whats-app, Instagram and so on in order to enhance effectiveness in the participation process. When more time is available, it improves the chances of coherently working on the key strategy. This might also help in responding to the worries expressed by 60 participants who pointed out the fact that backcasting is a very demanding process to implement (see Table 5.23). In particular, it relates to the understanding/insight that the art of reasoning backwards (from present-to-future than back-to-present) is not an easy one to master.

8 participants attribute tight schedules as a critical hindrance to their effective response to some of the issues on the topics of discussion. The number of posed questions were a significant challenge, and especially so for 31 participants who stated that the questions were too many. Others felt that the questions were concurrently posted without concluding the subject matter while others responded that the post was adequate for the task. About 30 participants blamed the weakness of the outcome on poor service provided by network providers, unstable power supply and difficulty of accessing internet facilities for prompt response to issues under discussion. 35 participants were overwhelmed by the lengthy readings and writing thus making it challenging to fit into the flow of the cascading opinions and views of the crowd of participants with different backgrounds, expertise and exposure.

Most participants could not follow the thread of posts such that 14 and 11 participants from the email and Facebook platforms respectively expressed concerns over participants' inability to limit their contributions within the subject matter, due to inadequate grasp of the concepts. 21 participants reported no challenges and noted that they were impressed by the new idea of engaging participants on a virtual platform to obtain information with ease. They were confident that the knowledge acquired would contribute towards personal development. On the average, 55% (132 persons out of 239) of the participants were satisfied with the prioritised desirable future identified (see Table 6). It is worth noting that in the course of the task, participants were quite positive about the rule that no argument was allowed during the idea generation stage of the process. Participants' adherence to this position was crucial towards promoting an atmosphere for creating as one of the key ingredients of envisioning the desirable future.

Table 6 shows some of the challenges observed, several adaptations on how to make the e-backcasting approach better and stronger as suggested by participants. 48 participants were of the opinion that more people (particularly experts) be enlisted into the forum for more harvesting of ideas. 21 participants suggested that a more stringent disciplinary approach be included. 46 participants also suggested that ample and adequate time for participation be provided by increasing the daily time scheduled.

Table 6: Some commendations and suggested ways on how to improve on the on-line approach to fostering a much better bottom-up inclusive approach

Selected ideas	WhatsApp	Facebook	Email	Blog	Total
Reserve some sections exclusively for experts like planners who understand certain subject areas better	39	06	03	00	48
Widen the scope of research to accommodate other academic areas for other professions in the future to enlist more people in the forums for more harvest of ideas	38	15	6	00	59
It is commendable for the admin to have kept this forum going for this length of time	35	16	02	00	53
Some participants joined without sufficient idea of the subject matter; hence for good understanding of any area, it is advisable to put up a notice about next topic beforehand for effective contribution and quality inputs.	33	20	10	00	63
Pin interaction to a fixed time rather than the open timing system applied to avoid overwhelming other participants who may not be willing to participate at the time.	26	12	08	00	46
It should be made more formal for continuity through conferences/workshop/focus groups for better impact beyond academic postulation and grammar	40	20	00	00	60
Include more stringent disciplinary approach	12	07	02	00	21

They also urged that interaction time should be fixed rather than the open-time system applied to avoid overwhelming other participants who may not be willing to participate at certain times. However, several other suggestions did not closely align with the problems identified by participants. Towards the end a strong meaning arose from participation-response with an entreaty for action on important areas, such as;

- make the approach more interactive by engaging more with visual interaction, such that the use of text messages and main points should be in a summarised format
- put up a notice about next topic before the discussion proper so that everyone gets prior preparation in order to bring quality inputs during the discussion
- allow quality time for informing participants adequately before kickoff
- information's on what the basics is particularly when action needed to be taken can be obtained from individual backcasts
- discussions need to be well guided, and concepts need to be systematically identified and highlighted
- explain as to how well the concept can be applied practically in a developing- country city such as Abuja.

The next assessment question applied a Likert scale (from 1-not at all likely to 5-extreemely likely), to display the likelihood of the approach being recommended by a participant to other prospective participants. This was intended to facilitate the assessment of the level of satisfaction with the method as a whole (see Table 7). A total of 224 participants responded to this evaluations. Their responses indicates high likelihood for 74 participants who chose 'extremely likely' of these 45, 25 and 4 responses come from WhatsApp, Facebook and email respectively with none from the blog.

Table 7: Likelihood of the approach being recommended by a participant to other prospective participants

Likert scale	WhatsApp	Facebook	Email	Blog	Total	100%
Not at all likely	06	02	02	00	10	2
Fairly not likely	10	05	02	00	17	8
Likely	67	16	04	00	87	39
Fairly likely	23	10	03	00	36	16
Extremely likely	45	25	04	00	74	33
Total	151	58	15	00	224	100

36 responded 'Fairly likely with 23, 10 and 3 responses respectively coming from WhatsApp, Facebook and email. No responses were received for the blog. One hundred and ten responses (88%) for the email, WhatsApp, and Facebook platforms strongly agree that the e-backcasting approach was good. Overall, participants responded that this was a good approach and they would be willing to recruit more participants if given the opportunity next time.

The most common complements and responses on the overall method as well as participants' willingness to repeat the process if called upon are presented in Table 8. Participants' willingness to be involved in a similar repeat process was strengthened by their positive state of mind regarding the influence the collective group discussion had on them and the open-minded and courteous interactions among the participants. The less favourable responses from participants reflects more on paucity/lack of time, limited access to persons with knowledge or awareness of sustainable development and Abuja design. It also seemed to imply a lack of knowledge on existing policy options, compared to the policy knowledge of experts.

The exercise was thus viewed as being tedious and requiring intensive thinking and not many participants would be willing to do that. Given that linking future visions to current decision-making and prioritising of policy solutions are both essential components of planning and management, it is somewhat not surprising that a few participants remained unconvinced of the value of conducting the process independent of the city's decision-making mechanism. In addition, the result may relate to the fact that the online approach did not limit participation to professionals or experts based on a broader planning or decision-making process. This might explain why a total of 10 out of 224 participants would see the approach as less impactful and thus 'not at all likely' to be recommended to other prospective participants (see Tables 6 and 7).

Through this process, participants were encouraged towards the insight that thinking about the future is a safe and effective way to open up and clarify controversial topics and also give value to their desires. Speaking out also agitates for a sustainable city future based on the mind-set that the thinking about the future helps puts things in the right context for smarter decision-making. The commonly reported benefits gained by participants include change in views and knowledge-types on the situations, generating unanimity or charting conflicts, creating collective empowerment, shared knowledge and capacity-building, increasing legitimacy and participants support on decisions made on the resulting scenarios. The approach of navigating between platforms and their iterative modifications amid the stories created was a unique experiment, and the insights gained over the course of the whole on-line approach contributed to participants' understanding of strategy and priorities in the planning for Abuja's desirable future vision. This study therefore constitutes the first time that a set of scenarios were created via an on-line backcasting approach in Nigeria. .

Table 8: Summary of participants' perceived quality of the deliberative process (dialogue and knowledge/understanding)

Dialogue	
Respect	•The discussion was prejudice free •None of the concepts/opinions raised put forward were seen as wrong or impractical
Trust	•When I spoke, others participants gave consideration to what I was saying •In the course of the exchange of ideas, I felt uncomfortable because of the behaviour of some participants •It is intellectually stimulating because the platform is for serious minded people with a strong knowledge base of the subject matter. •In spite of the fact that participants believed in different standpoints, everyone was treated with respect
Disagreement	•I think the information flow was outstanding because it expanded my knowledge on the subject matter, because of different opinions •Regardless of the fact that there were different ideas/opinion, participants found points of agreement on the elementary points •Some participants' outlooks on some topics were so diverse that disagreement arose within the group •Throughout the discussion, some certain participants emphasised the differences among themselves and the other participants much more than the platform's collective goal
Equality	•Everyone had equal opening to speak out and to make himself or herself heard •Some participants did not direct their opinions in the way they would have loved to •As a matter of fact, some participants dominated the discussion
Common good	•We all need some form of awareness on what way the physical environment works •Participating increases our information base, expertise and specialty in general •Participating empowers us to procure more knowledge about Nigeria and also help in the research •Participants strived to offer proposals that benefit the wider community •It's a welcome idea, as it is an easy way of data collection using ICT technology •The reason is to create more awareness and increase participation and understanding of the perceptions of others on the subject issue particularly on sustainable city planning •I am in support of the work and would encourage it in any way possible because sustaining the urbanisation of Abuja has always been a subject matter that needs urgent attention •Participants were interested in spreading and separating their own ideas thereby making the chat cumbersome and lengthy • Some participants particularly those working with NGOs, CBOs and other oganisations wanted to advance their own interests
Reciprocity	•Participants were truly involved in the discussion •For many participants, articulating their ideas was more important than engaging in an argument with other participants
Knowledge/understanding	
Collective learning	•I think that the dialogue made me reflects on new outlook on the issues at stake •The exercise is educative, informative and impactful; a lot was learned on the platform daily hence worth sharing with all other city dwellers •Am willing to repeat the exercise because it is knowledge-driven and interactive. •Interacting with the other participants gave me new insights on the topic •Though my opinion is different, the discussion led me to consider the views of others in a more favourable light

Reflexivity	•Through the discussion, I increased my knowledge of the problem •I considered the suggestions from the other participants even though they did not match my opinions •The discussion did not convey to the forefront new opinion on the problem •I will recommend this exercise because; because it added value to participants way of thinking. I think everyone should have some elementary knowledge of what a standard city should be. Just in case they are opportune to be involved in planning one someday
Understanding	•Some participants used complex language •Some participants appeared confused •Participants sought after explanations of some of the opinions expressed •Participating in this exercise has helped me to figure out the policy strategies required
Argument	•During the discussion the standpoints on most topics were sufficiently reasoned •I read all the chats, and I think it's something to benefit from as most of the participants seem to be older and wiser too, they give significant responses that I have never imagined •Some participants made statements without enlightening us on the reasons for their position
Topic	•Participants' discourses kept to the subject at hand •Some issues raised by participants were not relevant to some topics under discussion •Participants' discourse gradually deviated from the initial topic •It will help in developing our cities because it is an insightful exercise that provides a medium for the exchange of ideas for inclusive decision-making and it's hoped that lessons learned will improve the efficacy of outcome of participation in decision-making process for Abuja •No knowledge is wasted as whatever one learns on this platform could come in handy in future. Learning is a lifelong process, and anyone who ceases to learn ceases to grow

Overall, the findings of this assessment process suggest that participants view e-backcasting as a novel and attractive idea which is also adaptable. From the related analysis, participants pointed out that they learned most from the procedures that were used to create the scenarios using statements such as "acquiring knowledge around this new method was motivating". In general, participants were contented with the general method as well as with the detailed process of the e-backcasting approach. They seem to have understood and valued the approach, and they reported an understanding of the value in most of the results that were co-created/generated.

What was immediately valuable to participants seems to be the overall understanding of the needs for the approach to be included in the planning system and applied even more broadly in strategy and decision-making at multiple scales. Based on these findings, the most apparent strength of adapting e-backcasting as a technique is its ability to link future scenarios to present decision-making based on a more inclusive participatory process. The responses of the participants suggest that for e-backcasting to be most useful, it should take place within the context of a more extensive and actual/real planning or visioning process by the responsible/relevant political authority/institution managing a city such as Abuja.

CONCLUSION

In summary, the final product of social learning from the ebackcasting prototyped visioning for Abuja city is that it was instrumental towards working in the direction of behavioural transformation through learning on social media as observed from the reports obtained from participants. A good number of participants were excited by the new concept of engaging participants on a virtual platform in order to solicit information with ease, and are hopeful it would impact personal development in the future if adopted. Following each stage of the e-backcasting prototyping, learning occurred in various ways either through opinions and direct, hands-on experiences; skills and knowledge acquisition. In conclusion, the following activities define the essence of this paper:

- The major objective is to assess the exposure stakeholders would have encountered while participating in the exercise by thinking behind the method and how it can be used to carry out future planning for any city or any other situation
- This is to ascertain whether the basics of the method applied have been well understood such that the process can easily be explored on a personal ground.

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