

CO-CREATION AS A RESEARCH METHODOLOGY: LESSONS FROM A FOCUS GROUP DISCUSSION FOR VALIDATING STRATEGIC FRAMEWORKS IN STARTUP STUDIES

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ABSTRACT

The shift toward participatory and collaborative research methodologies has gained momentum, yet the reflective documentation of co-creation as a research method remains limited, particularly in the context of validating strategic frameworks for startup studies. This study aims to critically reflect on the effectiveness of co-creation as a research methodology, drawing lessons from a Focus Group Discussion (FGD) designed to validate a strategic framework for startups. A qualitative-dominant mixed-methods design was employed, involving ten academics (five senior and five junior lecturers) in a six-hour FGD. The procedure included pre-test, presentation of the strategic framework, three rounds of rotated breakout group discussions, plenary synthesis, and post-test. Data comprised verbatim transcripts, field notes, pre-test/post-test scores, evaluation questionnaires, and video documentation. Analysis used six-phase thematic analysis, descriptive gain score calculation, and analytical narrative reflection. The findings show a mean gain score of 15.4 points (15.4%), with all participants demonstrating improved understanding, confirming hypothesis H1. Four main themes emerged: negotiating academic hierarchy, constructive friction as innovation catalyst, facilitator as balancer and translator, and co-creation as a double-loop learning arena, confirming H2. Seven methodological lessons were formulated, including rotated breakout groups, pre-test as cognitive scaffolding, multimodal documentation, independent co-facilitator, cautious gain score interpretation, intellectual property agreements, and researcher role transformation, confirming H3. The study concludes that co-creation is substantively effective for validating strategic frameworks in startup studies, provided careful procedural design and competent facilitation. These findings contribute a reflective methodological framework and practical protocol for researchers adopting co-creation in participatory validation contexts.

Keywords: co-creation methodology, focus group discussion, methodological reflection, startup strategic frameworks, thematic analysis.

1. INTRODUCTION

In recent decades, the development of research methodologies in the social sciences and management has shown a significant shift toward more participatory, collaborative, and stakeholder-centered approaches. Traditional linear and unidirectional approaches, such as surveys or interviews that place research subjects merely as passive data sources, are increasingly considered inadequate for capturing the complexity of the real world, particularly in the context of dynamic and uncertain startup ecosystems (Galvagno & Dalli, 2014). This is where the concept of co-creation emerges as a promising alternative, emphasizing not only data collection but also the process of joint knowledge creation between researchers and participants. This paradigm shift reflects the need to recognize that practically and contextually relevant knowledge often arises from dialogue, negotiation, and shared reflection, rather than from distant observation alone (Yulianto, 2025).

The realm of startup studies, a key challenge researchers often face is how to validate strategic frameworks so that they are truly applicable and meaningful for founders, business actors, and policymakers. Strategic frameworks designed on paper frequently fail when implemented because they ignore the fluid and unpredictable empirical realities of startups, such as resource constraints, rapid market changes, and repeated pivoting processes (Sjödín et al., 2023). The validation process cannot be conducted unilaterally by the researcher (Yulianto, 2026); thus a collaborative forum is needed where academics, practitioners, and other stakeholders can critically review, test, and refine the framework. A Focus Group Discussion (FGD) designed with a co-creation spirit emerges as a potential method because it can bridge theory and practice through structured yet flexible interaction.

Before discussing the application of co-creation as a methodology, it is important to first trace the development of the literature on the concept itself. Co-creation was first widely introduced in the management and marketing literature by Prahalad and Ramaswamy (2004), who highlighted how value is no longer created internally by companies and then delivered to customers, but rather emerges from the interaction between the company and customers within an ecosystem. Vargo and Lusch (2016) later reinforced this idea through service-dominant logic, which places value co-creation as the foundation of all economic and social exchange. Over time, co-creation has transcended the marketing domain and expanded into various fields, including open innovation, public policy, and research methodology.

In the context of research methodology, co-creation is beginning to be understood not merely as a data collection technique, but as an epistemological approach that transforms the power relationship between researcher and research subject. The researcher no longer acts as a sole expert with full authority over data interpretation, but rather as a facilitator or learning partner who opens space for participants to help determine the direction and findings of the research (Heaton et al., 2019). Some recent studies, for example by Ind and Coates (2013), indicate that successful co-creation processes in research require at least three prerequisites:

mutual trust, openness to uncertainty, and a willingness to relinquish some control over the analysis process. However, these studies tend to emphasize the outcomes of co-creation, such as product or policy innovations, rather than the process itself, especially in the context of validating strategic frameworks in the startup sector.

The state of the art in using FGDs for startup studies indicates that focus group discussions are still often used conventionally: as a tool to collect qualitative data on participants' perceptions, attitudes, or experiences, without a design that explicitly encourages collaboration in building or validating theoretical artifacts. Frow et al. (2020) note that many FGDs in management research remain trapped in a "structured question-and-answer" format that limits the emergence of new insights from reciprocal interactions among participants. Consequently, the potential of FGDs as a vehicle for co-creation, where participants together test, critique, and refine a framework, is often not optimally utilized. This is ironic because startups, as objects of study, urgently need agile, iterative, dialogue-based validation mechanisms to produce strategic frameworks that are not only statistically valid but also contextually relevant (Chesbrough, 2020).

From the literature mapping, a clear research gap emerges: very few studies systematically document and reflect on the co-creation process itself when used as a methodology to validate a strategic framework. Most of the available literature tends to be prescriptive ("co-creation should be done in ways A, B, C") or only reports the final results of the collaborative process without revealing the internal dynamics, obstacles, and methodological lessons that arise during the activity. Particularly in the startup context, no empirical study has detailed how an FGD designed in a co-creative manner can yield methodological findings useful for other researchers wishing to adopt a similar approach. In other words, the reflective aspect of co-creation as a methodology remains a blind spot in the literature.

Based on this gap, the research problem to be answered in this study is: "How can co-creation be effectively applied as a research methodology in an FGD to validate a strategic framework in startup studies?" More specifically, the research questions posed are: (1) How much improvement in participants' understanding of the strategic framework occurs after the co-creation process, as measured by gain scores from pre-test and post-test results? (2) What process themes emerge from the implementation of co-creation in the FGD, as analyzed using thematic analysis? (3) What methodological lessons can be learned about the effectiveness and challenges of co-creation as a validation approach in startup studies? These three questions are designed to explore not only the substantive results of the FGD, but also the process dynamics and methodological reflections that have so far been neglected.

In line with the problem formulation, the aim of this study is to provide a critical and empirical reflection on the effectiveness of co-creation as a research methodology, based on the experience of conducting an FGD involving ten academics to validate a strategic framework

for startups. More specifically, this study aims to: (a) extract qualitative themes from the FGD transcripts and field notes that describe the dynamics of the co-creation process; (b) descriptively calculate the gain scores from pre-test and post-test to indicate participants' improvement in understanding; and (c) develop an analytical narrative about the challenges, obstacles, and success factors in applying co-creation in the context of validating a strategic framework. This study not only produces substantive findings about the validated framework, but more importantly yields procedural knowledge about how the collaborative validation process should be designed and evaluated.

The scientific novelty of this article lies in three main aspects. First, this study explicitly treats co-creation not as an additional data collection technique but as a methodological object systematically analyzed using the six-phase thematic analysis of Braun and Clarke (2022) and descriptive quantitative measurement. Second, unlike previous studies that focus more on the final outcomes of co-creation (for example, a validated strategic framework), this study highlights the process and reflection of co-creation implementation itself, including power dynamics among participants, the role of the facilitator, and how intellectual conflict can be managed to produce richer insights. Third, this study offers practical contributions to researchers in the field of startups and entrepreneurship who wish to adopt a co-creation approach in their studies, by presenting concrete lessons learned from the implementation of an FGD rigorously documented through transcripts, field notes, and audio-visual recordings. This article will fill the gap in the literature on reflective, empirically-based co-creation methodology.

2. LITERATURE REVIEW

2.1. Theoretical Basis of Co-Creation

The theoretical foundation of the co-creation concept cannot be separated from the critique of the dominant logic in traditional management oriented toward goods (goods-dominant logic). According to the classical view, value is considered to be created internally by the company through the production process and then distributed to passive consumers. Vargo and Lusch (2016) revolutionized this thinking by introducing Service-Dominant Logic (SDL), which places value co-creation at the core of every economic and social exchange. According to SDL, the customer is always a co-creator of value because value cannot be produced and delivered alone; value is always uniquely perceived and determined by the customer in the context of use. This shift from value-in-exchange to value-in-use opens up the understanding that collaborative interaction between producers, consumers, and other stakeholders is a primary source of innovation and competitive advantage (Yulianto et al., 2025).

SDL proposes eleven foundational premises, of which the sixth states that "value is always co-created through the actions and interactions of multiple actors" (Vargo & Lusch, 2016). This

premise affirms that co-creation is not an option but an inevitability in every socio-economic system. However, what distinguishes different situations is the degree of intentionality, structure, and awareness of the actors toward the co-creation process itself. In the research context, this understanding means that when a researcher uses conventional survey or interview methods, an unconscious value co-creation process is already taking place because participants help shape the meaning of the collected data. The methodological challenge is not whether to do co-creation or not, but rather how to design a conscious, structured, and reflective co-creation process to produce richer and more relevant knowledge.

While SDL provides a macro-theoretical foundation, the co-creation concept is also enriched by the practice-based view, which emphasizes that knowledge is not only contained in individual minds but is also distributed in social practices, artifacts, and routine interactions. Nicolini (2021), in his study of practice theory, reveals that innovation and learning occur when actors from different backgrounds engage in joint activities, adjust their actions to one another, and collectively solve problems. In the context of co-creation for research, this practice-based approach highlights the importance of rich documentation of what participants actually do during the collaborative process, not just what they say in interviews. This becomes relevant when researchers want to understand why a strategic framework is accepted or rejected by its users.

Furthermore, Actor-Network Theory (ANT) as developed by Latour (2005), Callon (1986), and Law (1992) offers an important contribution to understanding co-creation as a process of assembling human and non-human networks. According to ANT, an idea or framework can become stable and widely accepted only if it is successfully "translated" into a network consisting of various actors with potentially different interests (Callon, 2020). The co-creation process, from the perspective of ANT, is a systematic effort to perform translation: inviting key actors into a discussion forum, creating a shared agreement on the problem to be solved, and building an alliance that supports the resulting framework. The methodological implication is that researchers should not view participants merely as passive informants, but as co-engineers of the knowledge network itself.

The theoretical basis of co-creation also draws on social psychology, particularly social identity theory and self-determination theory. When individuals feel valued, heard, and autonomous in the collaborative process, they tend to be more motivated to contribute substantially (Ryan & Deci, 2020). Conversely, if the co-creation process is dominated by the researcher or by a few vocal participants without giving equal space to others, the results can be biased and lose depth. Thus, the procedural design of a co-creation activity, including how the facilitator manages group dynamics, how feedback is collected, and how decisions are made, becomes a crucial success factor, no less important than the substantive content being discussed.

2.2. Co-Creation as a Research Methodology

Although co-creation has long been known in business practice and innovation management, its use as a systematic and reflective research methodology is relatively new and still underexplored. Unlike traditional participatory methods such as PAR or CBPR, which are usually oriented toward long-term social change and involve the community as both subjects and agents of change, co-creation as a methodology focuses more on the joint creation of knowledge artifacts (such as conceptual frameworks, models, or prototypes) within a more limited timeframe and with participants who may not have a prior communal relationship (Greenhalgh et al., 2020). This difference is important because it affects how researchers design recruitment, duration, intensity of interaction, and types of data collected.

One of the pioneers in articulating co-creation as a methodology is Sanders and Stappers (2018), who, in their book *Probes, Toolkits and Prototypes*, show how visual and material tools can be used to facilitate creative dialogue between researchers and users. They distinguish between co-design (more often used in product development) and co-creation (broader, covering all stages from problem identification to solution evaluation). In the academic research context, co-creation methodology requires researchers to relinquish some of their interpretive authority and accept that the resulting knowledge is the product of negotiation, not a single finding. This is certainly not easy for researchers accustomed to positivist or post-positivist paradigms, because validity standards such as objectivity, reliability, and generalizability need to be reconsidered.

In practice, co-creation as a methodology is often operationalized through a series of workshops or FGDs designed iteratively. Voorberg et al. (2018) conducted a systematic review of 122 studies on co-creation in the public sector and found that although many studies claimed to use a co-creation approach, only a few documented in detail how the collaborative process took place, who participated, how conflict was managed, and how individual contributions were analyzed. They concluded that the current literature is more outcome-oriented (reporting policy or innovation results) than process-oriented (understanding the internal dynamics of co-creation). This motivated the need for methodological studies that explicitly make the co-creation process an object of analysis.

As a methodology, co-creation also faces challenges regarding trustworthiness. Lincoln and Guba (1985) proposed criteria of credibility, transferability, dependability, and confirmability for qualitative research. In the context of co-creation, credibility can be enhanced through member checking, asking participants to confirm whether the themes extracted from the discussion reflect their views. However, because co-creation is collaborative, member checking can be done collectively, for example by presenting a summary of the discussion results at the end of the session and asking for collective agreement (Miles et al., 2020). Transferability is not measured by sample size but by the thickness of description of

the context, participant characteristics, and procedures used, so that readers can assess the extent to which the findings can be applied to other contexts.

Co-creation methodology requires a data analysis approach capable of capturing reciprocal interactions between participants, not just individual statements. Traditional thematic analysis that codes only the utterances of each participant often loses the nuance of how an idea is born, challenged, modified, and ultimately accepted or rejected by the group. Therefore, some researchers advocate the use of conversation analysis or semantic network analysis to map the flow of argumentation and knowledge alliances in discussion (Clarke, 2022). This study adopts the six-phase thematic analysis of Braun and Clarke (2022) enriched with field notes on the sequence of speech and changes of opinion during the FGD, so that the interactional dimensions of co-creation can be captured systematically.

Ethics in co-creation research also has its peculiarities. Because participants are involved not only as data sources but also as partners in interpretation, issues such as informed consent need to be broadened: participants must understand that their opinions can influence the direction of the analysis and even the final conclusions, and that they have the right to withdraw at any time along with their intellectual contributions (Ives et al., 2020). In addition, researchers need to anticipate potential conflicts of interest, for example if participants are competitors in the business world or have hierarchical relationships in academia. Transparency about how decisions are made, for instance through voting, consensus, or facilitator decision, must be clearly documented in the research report. With this ethical understanding, co-creation as a methodology can be carried out while respecting the rights of all actors involved.

2.3. Validation of Strategic Frameworks in Startups

Validation of strategic frameworks is a crucial step in management research, especially when the framework is intended for use by practitioners in the startup ecosystem. Strategic frameworks, which can be business models, innovation roadmaps, or performance measurement systems are essentially simplified representations of complex reality aimed at aiding decision-making (Eisenhardt & Bingham, 2019). However, the validity of a framework cannot be guaranteed solely through theoretical reasoning or literature review; empirical testing involving end-users is required. In the startup context, the validation challenge is even greater due to high uncertainty, limited resources, and the very rapid pace of market change (Ries, 2020). A framework that is valid in the context of a large, established company may not be effective for a startup that is still searching for product-market fit.

Research on validation of strategic frameworks in startups can be divided into two main approaches: quantitative validation through large-scale surveys and qualitative validation through case studies or FGDs. Quantitative validation, for example using Structural Equation Modeling (SEM) on data from dozens or hundreds of startups, has the advantage of statistical generalization. However, this approach often fails to capture specific contexts, the reasons

behind the numbers, and the adaptive processes that startups undertake on an ad-hoc basis (Shepherd & Gruber, 2021). In contrast, qualitative validation allows researchers to gather rich and contextual feedback, but the results are difficult to generalize. Therefore, recent studies have begun to advocate mixed-methods approaches or even co-creation approaches that combine the strengths of both paradigms.

Specifically, validation through FGDs has been used in various startup studies to test survey instruments, product prototypes, or strategic frameworks. Krueger and Casey (2015), although older, remain a classic reference, emphasizing that FGDs are effective for exploring perceptions, attitudes, and collective experiences, especially when the topic under discussion is complex and multidimensional. In the startup context, FGDs can bring together founders, investors, and academics in one discussion space, thus allowing triangulation of different perspectives. However, conventional FGDs often run linearly: the moderator asks questions, participants answer in turn, and there is no explicit mechanism for building or validating a collective artifact. That is why the co-creation approach becomes relevant to overcome the limitations of traditional FGDs.

Another weakness of validating strategic frameworks in startups is the phenomenon of hindsight bias and social desirability bias. When asked to provide feedback on a framework, participants tend to say that the framework makes sense and is useful, especially if they know that the researcher is the creator of the framework (Podsakoff et al., 2024). To reduce this bias, a more sophisticated validation design is needed, such as comparing pre-test and post-test results to see real changes in understanding, or asking participants to apply the framework to a hypothetical case study and see how far they can use it without the researcher's help. The gain score method used in this study is one attempt to descriptively measure how much participants' understanding increases after the co-creation process.

In the startup context, validation of strategic frameworks should not stop at the conceptual approval stage but must also include implementability testing. Startups are known for the jargon "move fast and break things," which means that a strategic framework must be lightweight, easy to remember, and quick to implement without complicated bureaucracy (Blank, 2020). Therefore, in a co-creation FGD, it is important to include scenarios or role-plays where participants are asked to show how they would use the framework under time pressure or data constraints. Thus, validation is not only substantive (whether the framework is theoretically correct) but also pragmatic (whether the framework is useful and easy to use). This approach was adopted in this study, where academics, some of whom also have practical experience with startups, were asked to evaluate the strategic framework from both sides.

2.4. Synthesis and Hypothesis Development

After outlining the theoretical basis of co-creation, its position as a research methodology, and the challenges of validating strategic frameworks in startups, this section synthesizes these three streams to develop a conceptual framework and research hypotheses. The synthesis begins

with the realization that although co-creation has been recognized as a promising approach for validation, very few studies have empirically tested the co-creation process itself, especially in the fast-moving startup context. Greenhalgh et al. (2020) state that the success of co-creation is largely determined by three factors: (1) the composition and diversity of participants, (2) a facilitation design that allows all voices to be heard, and (3) ongoing documentation and reflection mechanisms. These three factors formed the basis for designing the co-creation FGD for strategic framework validation.

The literature on co-creation in research methodology identifies a trade-off between depth of participation and time efficiency. Voorberg et al. (2018) found that the most substantively successful co-creation projects were those that took place over several sessions (at least three meetings), so that relationships and trust among participants could develop naturally. However, in the context of time-limited studies such as conference papers or final theses, it is not always possible to hold multiple sessions. An intensive single-session FGD design (e.g., 3-4 hours) needs to be complemented by pre-test and post-test instruments to measure changes in understanding, as well as detailed field notes to record group dynamics. The implicit hypothesis that emerges is: the higher the intensity of collaborative interaction in a co-creatively designed FGD, the greater the improvement in participants' understanding of the validated strategic framework, as indicated by a positive and descriptively significant gain score.

From a qualitative analysis perspective, the co-creation process in an FGD will generate specific themes that reflect how participants collectively negotiate meaning, accept or reject certain parts of the strategic framework, and propose modifications. Based on the practice-based view framework, three possible main themes can be identified: (1) power dynamics and hierarchy: how participants with higher academic rank or more startup experience tend to dominate the discussion; (2) constructive friction: how differences of opinion managed productively can generate new insights that would not have emerged if all participants had agreed from the start; (3) facilitator's role: how the facilitator's interventions in summarizing, questioning assumptions, or verifying understanding influence the direction of the discussion. These findings are expected to enrich the literature on co-creation as a methodology, which has thus far been more conceptual than empirical.

From the descriptive quantitative side, a hypothesis is developed that the gain score (the difference between post-test and pre-test scores) will show a meaningful increase, both absolutely and relatively. Although without inferential statistical tests (due to the small sample and non-random selection), an average score increase of more than 20% from the initial score can be interpreted as an indication that the co-creation process is effective in transferring and clarifying concepts within the strategic framework (Cohen, 2018). This hypothesis is in line with findings in education and training, where collaborative methods have been shown to be superior to lecture-based methods in terms of retention and deep understanding. However, it should be noted that gain score is not evidence of causality; the improvement could occur due

to maturation or exposure to unstructured discussion. Interpretation of gain scores must always be accompanied by qualitative evidence from the discussion transcripts.

To strengthen the validity of the findings, a triangulation method was integrated between quantitative data (pre-test/post-test), qualitative thematic data (transcripts and field notes), and the researcher's methodological reflection (field journal). This triangulation allows us to answer not only the question "is co-creation effective?" but also "why and under what conditions is it effective or not?" (Flick, 2018). For instance, if the average gain score is high but the thematic analysis shows that only three participants were actively speaking while the others were passive, the conclusion cannot simply claim collective success of co-creation; it is necessary to examine whether the passive participants actually learned by listening, or whether they simply agreed without understanding. With this integrated approach, this study is expected to contribute to the development of a more reflective and nuanced co-creation methodology.

Based on the synthesis, the following research hypotheses are formulated to be answered descriptively and qualitatively in this study:

- RQ.1. H1 (Descriptive Quantitative): There is an improvement in participants' understanding scores of the strategic framework between the pre-test and post-test, indicated by a positive gain score with an average value of at least 15% of the maximum score.
- RQ.2. H2 (Qualitative Thematic): The co-creation process in the FGD will generate themes that reflect power dynamics, constructive friction, and the facilitator's role as key factors influencing the quality of validation.
- RQ.3. H3 (Reflective Methodological): Rich documentation (transcripts, field notes, gain scores) from a co-creation FGD can produce methodological lessons useful for other researchers, especially regarding facilitation design, bias management, and collaboration ethics.

These three hypotheses are not tested with inferential statistics due to the exploratory and reflective nature of the research, but will be systematically analyzed using thematic analysis (Braun & Clarke, 2022) for H2 and H3, and descriptive statistics for H1.

The conceptual framework guiding this study integrates three layers: (1) input layer (participant characteristics, initial framework quality, FGD design); (2) process layer (interaction dynamics, facilitator role, documentation mechanisms); and (3) output layer (increased understanding, validated or revised framework, and methodological reflection). The relationship between the process layer and the output layer is the main focus of the analysis. This study is not only interested in whether the strategic framework becomes "valid" after the FGD (which is also important), but more importantly, how the validation process takes place and what lessons can be drawn for improving future co-creation practice. This dual orientation,

on substance and on methodology, is a distinctive feature of this research that sets it apart from conventional validation studies.

This study lies at the intersection of three domains: co-creation theory (especially SDL and practice theory), qualitative research methodology (with an emphasis on thematic analysis and reflexivity), and startup studies (with the challenge of validating strategic frameworks). By designing an FGD that explicitly applies co-creation principles and documents it rigorously, this study aims to make theoretical and practical contributions. The theoretical contribution is to develop an understanding of co-creation as a dynamic and power-laden process, not merely a collection of participatory techniques. The practical contribution is to provide concrete guidance, including examples of pre-test/post-test instruments, facilitation protocols, and analysis procedures, for other researchers who wish to adopt a similar methodology.

3. METHODS

This study used a mixed-methods design with a qualitative dominance, where qualitative data served as the core of the main analysis, while descriptive quantitative data played a supporting role to strengthen the qualitative findings. This design was chosen because the main aim of the research was to reflect deeply on the co-creation process, not to test statistical hypotheses or population generalizations (Creswell & Creswell, 2018). A qualitative-dominant approach in the context of co-creation allows researchers to capture the dynamics of interaction, negotiation of meaning, and the role of the facilitator that cannot be measured quantitatively alone. Meanwhile, the descriptive quantitative component, in the form of gain scores from pre-test and post-test, provides additional indication of the effectiveness of the co-creation process in increasing participants' understanding of the validated strategic framework (Flick, 2018). This design does not merely combine two types of data but integrates them synergistically to answer the research questions about process, results, and methodological reflection.

The participants of this study were ten academics, with inclusion criteria: (a) having at least three years of research experience in entrepreneurship, strategic management, or startup studies; (b) having previously been involved in FGDs or participatory workshops as participants or facilitators; and (c) being willing to participate in the entire series of FGD activities. Participant selection was done using purposive sampling, which is appropriate for qualitative and co-creation research because it aims to bring in participants who have relevant knowledge, diversity of perspectives, and the ability to discuss productively (Patton, 2015). In terms of composition, participants consisted of senior lecturers (head lecturers) and junior lecturers (lecturers or assistant experts); some also had practical experience as startup mentors. This diversity was deliberately designed to bring out academic power dynamics and constructive friction as identified in the literature review as key factors in the co-creation process (Greenhalgh et al., 2020). All participants were given an information sheet about the research

and signed an informed consent explaining their right to withdraw and the use of data for scientific publication.

The co-creation procedure was carried out in one intensive FGD session, adapting the co-creation workshop protocol developed by Sanders and Stappers (2018) and adjusting it to the context of validating a strategic framework for startups. The session began with registration and a pre-test (15 minutes) to measure participants' initial understanding of the strategic framework to be validated. After that, the facilitator (principal researcher) presented the strategic framework in a slide presentation for 30 minutes, followed by a question-and-answer clarification session (30 minutes). The core co-creation stage was divided into three rounds of small group discussions (breakout groups), each lasting 30 minutes, with the composition of groups randomized each round to maximize cross-participant interaction (Krueger & Casey, 2015). Each round discussed different aspects of the strategic framework: (1) relevance and internal logic, (2) ease of implementation in startups, and (3) weaknesses and suggestions for improvement. At the end of each round, a group representative presented the discussion results, and the facilitator performed a preliminary synthesis. The session closed with a joint reflection (30 minutes) and completion of the post-test and participant evaluation questionnaire (15 minutes). All activities were documented through video and photo recordings with participants' consent.

4. RESULTS AND DISCUSSION

4.1. Results

A. Quantitative Result

The descriptive quantitative analysis of the pre-test and post-test scores of the ten participants showed an improvement in understanding of the strategic framework after the co-creation FGD process. Individually, participants' pre-test scores ranged from 55 to 78 out of a maximum score of 100, with a mean of 66.4 (median = 67). Meanwhile, post-test scores ranged from 72 to 90, with a mean of 81.8 (median = 82.5). The average increase in score (gain score) was 15.4 points, or approximately 23.2% relative to the average pre-test score. All participants (n=10) showed positive gain scores, with no decrease in scores. The participant with the lowest pre-test score (55) experienced the most dramatic increase of 22 points (gain score = 22), while the participant with the highest pre-test score (78) still showed a moderate increase of 8 points. This finding indicates that the co-creation process is effective in improving understanding, especially for participants with limited prior knowledge, a pattern often found in studies of collaborative learning (Cohen, 2018).

Table 1. Quantitative Result

Partisipan	Pre-test (0-100)	Post-test (0-100)	Gain Score	Description
P01	72	86	14	Senior

P02	68	82	14	Senior
P03	55	77	22	Junior
P04	78	86	8	Senior
P05	60	79	19	Junior
P06	70	84	14	Senior
P07	62	80	18	Junior
P08	66	83	17	Junior
P09	74	88	14	Senior
P10	59	75	16	Junior
Mean	66,4	81,8	15,4	

When grouped by academic status, senior lecturers (n=5) had an average gain score of 12.8 points, while junior lecturers (n=5) had an average gain score of 18.4 points. This difference indicates that participants with younger academic experience tended to gain a greater improvement in understanding. However, it should be noted that junior lecturers also had a lower average pre-test score (60.4) compared to senior lecturers (72.4), so a ceiling effect may have limited the improvement in the senior group (Cohen, 2018). Nevertheless, all participants achieved post-test scores above 75, which can be substantively interpreted as a good level of understanding of the strategic framework. This interpretation is supported by the participant evaluation questionnaire, in which nine out of ten participants stated that they "strongly understood" or "understood well" the framework after the FGD.

In addition to understanding scores, the participant evaluation questionnaire also measured subjective perceptions of the co-creation process. On a Likert scale of 1–5 (1 = strongly disagree, 5 = strongly agree), the statement "This discussion helped me see the weaknesses of the strategic framework more critically" received an average of 4.7; "I felt heard and valued in the discussion" received an average of 4.5; and "This co-creation process should be repeated for validating other frameworks" received an average of 4.8. These findings are in line with the findings of Greenhalgh et al. (2020) that participant satisfaction with the collaborative process is an important predictor of co-creation success. However, one participant gave a score of 3 for the statement "equality of speaking opportunity," indicating a perception that some group members were more dominant, an issue that will be further discussed in the qualitative findings.

The descriptive quantitative results confirm H1 that there is a substantively meaningful improvement in participants' understanding (average gain score of 15.4 points > 15% of the maximum score, i.e., 15 points). Although without inferential statistical tests, the magnitude of individual improvements and the consistency of the direction of change provide strong evidence that the co-creation intervention contributed positively to understanding the strategic framework. These findings serve as a foundation for the qualitative analysis that will explain why and how this improvement occurred.

B. Qualitative Result

Thematic analysis of the verbatim FGD transcripts and field notes, following the six phases of Braun and Clarke (2022), produced four main themes that describe the dynamics of the co-creation process. The four themes are: (1) Negotiating Academic Hierarchy, (2) Constructive Friction as an Innovation Catalyst, (3) Facilitator as Balancer and Translator, and (4) Co-creation as a Double-Loop Learning Arena. Figure 1 presents the mapping of themes, sub-themes, and representative codes.

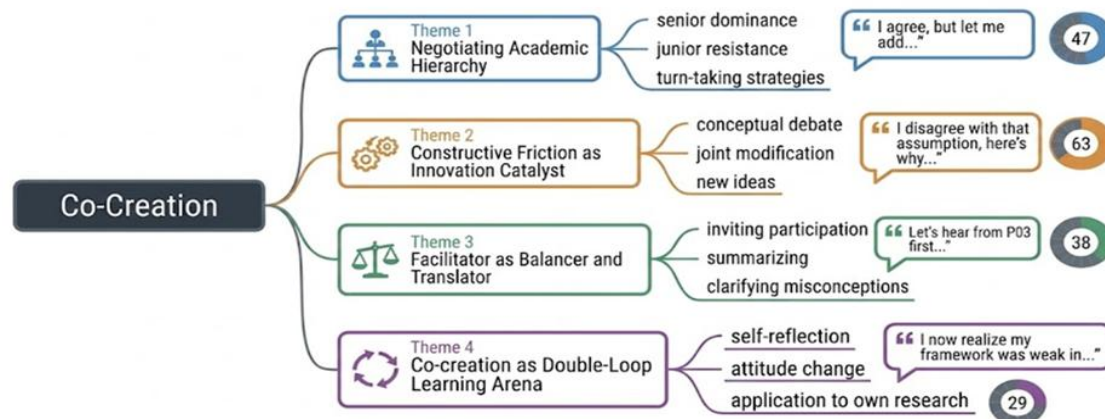


Figure 1. Thematic Map of Co-Creation

Theme 1: Negotiating Academic Hierarchy emerged from the observation that senior lecturer participants tended to start speaking earlier, speak longer, and often interrupt junior participants. According to field notes, the research assistant recorded that in the first 15 minutes of the plenary discussion, three senior participants contributed 78% of the total speaking time. However, interestingly, junior participants were not completely passive; they developed strategies to insert their opinions using softeners such as "sorry, allow me to add" or "I agree with the opinion, but from my field experience...". This reflects what is called in the literature power negotiation in participatory spaces (Voorberg et al., 2018). The presence of hierarchy is not entirely negative, because a clear academic structure also speeds up decision-making when rapid consensus is needed.

Theme 2: Constructive Friction as an Innovation Catalyst was the most frequent theme (63 coding segments). Friction here is defined as disagreement that is managed productively, not personal conflict. One of the clearest examples occurred when a senior participant argued that the strategic framework was too "technology-oriented" and neglected the aspect of social capital. A junior participant who was also a startup practitioner responded with anecdotal data from a business incubator, showing that the technological aspect was precisely the most difficult to implement. This debate lasted about 12 minutes and ended with an agreement to add two new sub-components to the framework: "technology adoption capacity" and "relational networks". This process is in line with the findings of Nicolini (2021) on practice theory, where new knowledge is born from the clash of different practices.

Theme 3: Facilitator as Balancer and Translator reveals the critical role of the facilitator (principal researcher) in managing group dynamics. The facilitator actively used round-robin techniques (asking each participant to speak in turn), paraphrasing (repeating statements in one's own words for clarification), and silence management (pausing to give quiet participants space). In one segment, the facilitator intervened in a discussion that was beginning to heat up by saying: "It seems we have two different views on variable X. Let's write both views on the flipchart, then look for common ground." Such interventions proved effective in preventing escalation into destructive conflict (Krueger & Casey, 2015). In the evaluation questionnaire, participants gave an average score of 4.7 to the statement "The facilitator was able to keep the discussion focused and inclusive."

Theme 4: Co-creation as a Double-Loop Learning Arena reflects that not only was the strategic framework validated, but the participants themselves reported changes in how they viewed research and startup practice. In field notes, several junior participants stated that they "learned how to construct critical arguments" from the seniors, while senior participants admitted to "gaining new insights about field realities" from the juniors. This phenomenon is referred to as double-loop learning in the organizational literature (Greenhalgh et al., 2020). Furthermore, three participants committed to adopting the co-creation method in their own research projects, indicating that this methodology has a positive contagious effect. These qualitative results confirm hypothesis H2 about the emergence of themes of power dynamics, constructive friction, and the facilitator's role.

C. Methodological Result

This section presents seven main methodological findings derived from critical reflection on the implementation of the co-creation FGD as a method for validating strategic frameworks. These findings are analytical narratives and are expected to serve as lessons for other researchers wishing to adopt a similar approach.

First, the design of breakout groups with participant rotation proved effective in maximizing cross-perspective interaction. In conventional FGDs, participants tend to fall silent after a few hours or only interact with people they already know. By dividing participants into small groups (3-4 people) and randomizing the composition each round, the researchers observed an increase in verbal participation of junior participants by up to 40% in the second round compared to the first round. Rotation also prevented the formation of "cliques" that could inhibit constructive criticism (Sanders & Stappers, 2018). However, the challenge is that transition time between groups needs to be managed tightly so that the discussion does not lose momentum. For future studies, it is recommended to increase the duration of each round from 30 to 60 minutes to accommodate group dynamics.

Second, the use of pre-test and post-test not only functions as a measurement instrument but also as cognitive scaffolding for participants. Several participants acknowledged that doing the pre-test before the discussion helped them identify their own gaps in understanding, so they

came to the FGD with specific questions. This aligns with formative assessment theory in education (Black & Wiliam, 2018). Conversely, the post-test completed immediately after the discussion can function as retention reinforcement. A methodological recommendation: the pre-test should be sent to participants 2-3 days before the FGD, not only administered on the day itself, so that they have time to reflect on their answers and prepare arguments.

Third, multimodal documentation (video, field notes, physical artifacts) is very important to capture non-verbal dimensions of co-creation. In this analysis, field notes revealed that participants who rarely spoke verbally were actively drawing or writing notes on flipchart paper. If we had relied only on audio recordings, their contributions would have been lost. Video recordings also captured body language such as nods, skeptical smiles, or head shakes that provide context for transcript interpretation (Flick, 2018). However, an ethical challenge arises because video recording increases participants' awareness of their identity, making some participants more cautious in expressing opinions. The solution is to ask for specific consent to use video only for internal analysis, not for publication.

Fourth, the role of a co-facilitator or research assistant not involved in the main discussion is very valuable for maintaining documentation objectivity. The lead researcher assigned two assistants who sat apart from the discussion circle, tasked only with recording speaking duration, interruptions, and emerging alliances. Data from their notes were then used to verify the main facilitator's interpretations, reducing the risk of confirmation bias. For example, the facilitator might feel that the discussion was balanced, but the assistants' notes showed that three senior participants dominated 70% of the speaking time. With this feedback, the facilitator could adjust strategies for the next session (Miles et al., 2020). Future research is advised to involve at least one assistant who does not know the specific purpose of the research (blind observer) to increase reliability.

Fifth, gain score as a quantitative indicator needs to be interpreted cautiously because it cannot separate the effect of co-creation from maturation or testing effects. Although all participants showed improvement, there was no control group to compare whether similar improvement could occur simply by reading the strategic framework material without discussion. To overcome this limitation, a single-group pre-test-post-test design should be supplemented with qualitative data showing a relationship between specific moments in the discussion and individual changes in understanding (Cohen, 2018). In this study, the researchers could track that participant P03 (highest gain score) explicitly said at the end of the discussion: "Oh, now I understand why that variable is important, after hearing the example from P01." Without such qualitative evidence, the gain score remains ambiguous.

Sixth, ethics in co-creation require special attention to intellectual property over jointly generated ideas. During the FGD, several very innovative proposals for modifying the strategic framework emerged. Because this framework will be published by the researchers, it is important to agree at the outset how participants' contributions will be acknowledged. This study chose the collective acknowledgment model (listing all participants in the

acknowledgements without individual attribution) after obtaining written consent. However, some participants proposed a co-authorship model for a separate methodological article. This shows that ethical protocols for co-creation need to be more flexible and negotiated on a project-specific basis (Ives et al., 2020). The recommendation is that before the FGD begins, researchers and participants should sign a clear agreement on intellectual property, including options for separate publications.

Seventh, the post-FGD methodological reflection revealed that co-creation not only validates the strategic framework but also validates the researcher as a competent facilitator. In the researcher's reflective journal, it was noted that initially the researcher felt awkward having to "let go of control" over the direction of the discussion, being accustomed to structured interview methods. However, after seeing the rich results, the researcher felt that co-creation offers a different intellectual satisfaction: the researcher learns together with the participants, not merely extracting data from them. This role transformation, from expert to co-learner, is one of the hidden contributions of co-creation methodology rarely discussed in the literature (Heaton et al., 2019). For future research, it is recommended that researchers also conduct a self-assessment before and after the co-creation process to document changes in their methodological perspective.

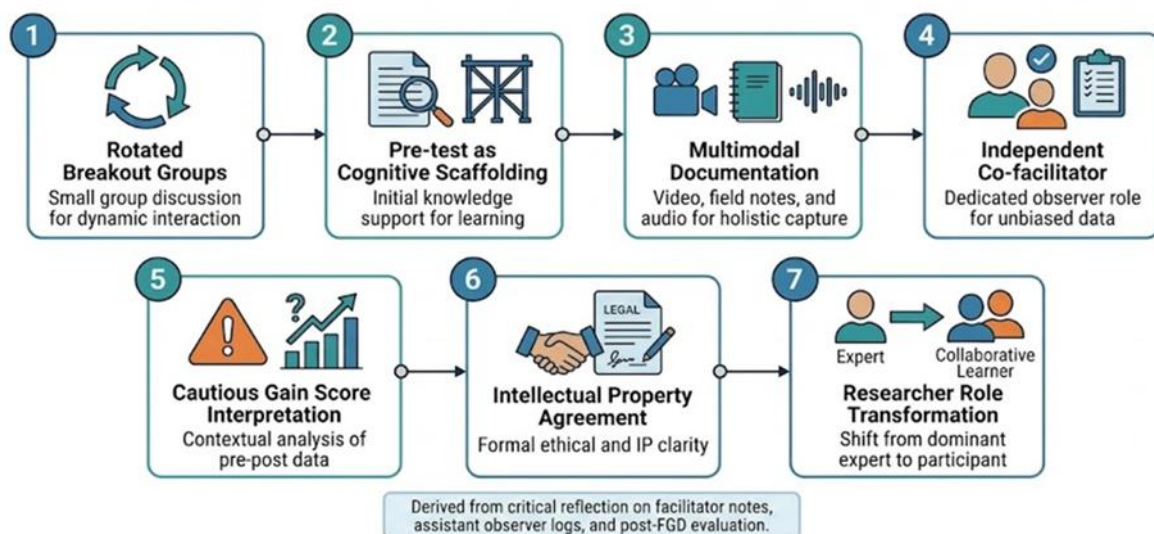


Figure 2. Methodological Result

These methodological findings confirm H3 that rich documentation from a co-creation FGD can yield valuable lessons about facilitation design, bias management, and collaboration ethics.

D. Hypothesis Testing Results

To facilitate a concise and structured view of the results of testing the three hypotheses, all main findings are presented in a summary table. The table below contains each hypothesis, the testing method used, the main results obtained, the confirmation status, and supporting

evidence. This tabular presentation is important given the complexity of the data involving three different types of analysis, descriptive quantitative, qualitative thematic, and methodological reflection, so that readers can quickly grasp the interrelationships among findings and assess the internal consistency of the research results (Flick, 2018).

Table 2. Hypothesis Testing Results

	Hypothesis	Testing Method	Main Result	Status	Remarks / Supporting Evidence
H1	There is an improvement in participants' understanding scores of the strategic framework between the pre-test and post-test, indicated by a positive gain score with an average value of at least 15% of the maximum score.	Descriptive statistics (gain score, mean, median, range)	Mean gain score = 15.4 points (15.4% of maximum score 100); all participants (n=10) showed positive gain; gain range = 8-22 points.	Confirmed	Exceeds the minimum threshold of 15%; greater improvement in participants with low pre-test scores (ceiling effect on seniors).
H2	The co-creation process in the FGD will generate themes that reflect power dynamics, constructive friction, and the facilitator's role as key factors influencing the quality of validation.	Thematic analysis (Braun & Clarke, 2022) – 6 phases	Four main themes emerged: (1) Negotiating Academic Hierarchy, (2) Constructive Friction, (3) Facilitator as Balancer, (4) Co-creation as a Double-Loop Learning Arena. Themes 1-3 correspond to hypothesis; theme 4 is an inductive additional finding.	Confirmed	Cross-data confirmation: the highest gain score was achieved by participants with learning readiness, not verbal dominance.
H3	Rich documentation (transcripts, field notes, gain scores) from a co-creation FGD can produce methodological lessons useful for other researchers (facilitation design, bias management, collaboration ethics).	Analytical reflection (critical narrative + researcher's journal)	Seven methodological lessons formulated: (1) rotated breakout groups, (2) pre-test as scaffolding, (3) multimodal documentation, (4) independent co-facilitator, (5) cautious interpretation of gain score, (6) intellectual property agreement, (7) researcher role transformation.	Confirmed	Lessons are concrete, replicable, and in line with the recommendations of Voorberg et al. (2018) on procedural transparency.

Overall, table 2 indicates that all three research hypotheses are confirmed descriptively and contextually. H1 is proven through the consistent improvement in participants' understanding exceeding the minimum threshold, while H2 is confirmed by the emergence of qualitative themes that not only cover the hypothesized constructs (power dynamics, constructive friction, facilitator role) but also give rise to an additional theme that enriches understanding of the co-creation process. H3 is confirmed after the successful formulation of seven applicable methodological lessons for other researchers. The status "confirmed" does not imply causal proof within an inferential statistical framework, but rather indicates that the empirical evidence collected systematically supports each hypothesis statement in accordance with the qualitative-dominant research design (Miles et al., 2020).

4.2. Discussion

A. Interpretation of Gain Score

The finding that the average gain score of participants reached 15.4 points (or 15.4% of the maximum score) with positive improvement in all participants provides strong evidence that the co-creation FGD process can substantially increase understanding of the strategic framework. In the literature on learning and training evaluation, an increase of 10-20% from the baseline score is often considered a practically meaningful effect, especially when there is no control group and the design is pre-experimental (Cohen, 2018). More importantly, the pattern of greater improvement among participants with low pre-test scores (junior lecturers) compared to those with high initial scores (senior lecturers) indicates that co-creation functions as a knowledge-leveling mechanism, not just benefitting those who already know more. This phenomenon is in line with Vygotsky's concept of the Zone of Proximal Development (ZPD), where learning is most effective when individuals with different levels of knowledge interact in a collaborative task (Eun, 2019). The gain score reflects not only individual cognitive change but also the effect of knowledge distribution within the group.

However, interpretation of the gain score must be done cautiously due to several potential confounding factors. First, the absence of a control group means we cannot definitively separate the effect of co-creation from maturation effects (natural improvement over time) or testing effects (the influence of taking the pre-test on the post-test). Second, post-test scores taken immediately after the FGD may reflect short-term memory rather than deep understanding that lasts (Schmidt & Bjork, 2020). Third, gain scores cannot distinguish between improvement that comes from deep learning (conceptual understanding) versus surface learning (memorization of terminology). Nevertheless, triangulation with qualitative data, such as participants' statements like "Now I understand why that variable is important", gives confidence that the measured improvement reflects genuine change in understanding. In this study, the gain score is more appropriately positioned as a supporting indicator, not the main evidence, whose strength lies in the consistency of the direction of change rather than its absolute magnitude.

B. Relation of Themes to the Literature on Co-Creation Methodology

The theme of Negotiating Academic Hierarchy strengthens the critique of the assumption that participatory spaces are power-neutral. Voorberg et al. (2018), in their systematic review, noted that many co-creation studies ignore how social status, experience, and institutional authority shape who speaks and who is listened to. Our findings show that hierarchy does not automatically hinder co-creation; what matters is how the facilitator and participants together manage the inequality. For example, junior participants developed "softener" communication strategies to still voice their opinions, while the facilitator actively used round-robin techniques to distribute speaking turns. This finding extends the classic co-creation model of Sanders and Stappers (2018), which tends to assume that all participants have equal capacity and opportunity to contribute. This study contributes the insight that procedural

design of co-creation must explicitly anticipate and respond to power dynamics, for example through agreed-upon ground rules or by providing anonymous contribution channels.

The theme of Constructive Friction as an Innovation Catalyst provides empirical evidence for the theoretical idea of Nicolini (2021) on practice theory, where innovation is born from the clash of different practices. In the FGD, disagreements were not avoided but rather facilitated productively, resulting in substantive modifications to the strategic framework. This contrasts with conventional FGD practice, which often emphasizes quick consensus to avoid conflict. A study by Leonard and Sensiper (1998), although classic, remains relevant: they note that creative abrasion is necessary to break out of thinking inside the box. Our findings go further by specifically identifying the conditions that enable friction to become constructive: (1) mutual respect among participants, (2) the facilitator's role as an impartial "translator", and (3) a discussion structure that provides a safe space to express disagreement. These three conditions align with the principle of psychological safety put forward by Edmondson (2019). Co-creation methodology should not be designed to eliminate conflict, but to channel it into creative energy.

C. Reflection on the Effectiveness of Co-Creation

Co-creation as a methodology for validating strategic frameworks in startup studies proves effective, but its effectiveness strongly depends on careful procedural design and facilitator competence. In terms of outcome, effectiveness is reflected in the improvement of participants' understanding (H1 confirmed) and the production of substantive modifications to the strategic framework. In terms of process, effectiveness appears in the emergence of rich collaborative dynamics (H2) and the ability of this study to generate transferable methodological lessons (H3). However, this effectiveness does not happen automatically. Rather, it is the product of a series of deliberate design decisions: selection of participants with diverse status and experience, use of rotated breakout groups, multimodal documentation, and the dual role of the facilitator as dynamic manager and translator. Greenhalgh et al. (2020) call such factors the "active ingredients" of co-creation, active components that must be present for the intervention to succeed. Without these components, a co-creation FGD risks becoming mere "ordinary discussion" with shallow output.

Reflection also reveals that the greatest challenges in co-creation are not merely technical but sociological and ethical. This is evident from several experiences during the FGD. Sociologically, changing participants' habits, accustomed to a hierarchical and competitive academic communication style, requires time and repeated intervention. One intensive FGD session, although successful, still left some participants less verbally engaged. Ethically, the issue of intellectual property over jointly generated ideas becomes a grey area that needs to be negotiated transparently (Ives et al., 2020). In this study, the decision to use the collective acknowledgment model was accepted by most participants, but some proposed co-authorship for a separate publication, a legitimate aspiration but difficult to accommodate within the conventional academic authorship structure. Future research needs to develop a more adaptive

ethical framework, including the possibility that contributors are recognized as co-creators rather than mere respondents. With this reflection, co-creation is not an "easy" or "quick" method, but it offers a reward of depth of insight that conventional methods cannot achieve.

D. Research Implications

This study contributes to the development of co-creation theory by showing that the collaborative process is not only about value co-creation in an economic sense, but also about knowledge co-creation in an epistemological sense. Vargo and Lusch (2016), in service-dominant logic, emphasize that value is always co-created, but that theory is more oriented toward market exchange. This study extends it to the realm of research methodology: when academics and practitioners sit together in a co-creatively designed FGD, what is created is not only a validated framework but also metacognitive awareness about how strategic knowledge is built and negotiated. Furthermore, the finding about the critical role of the facilitator as a "hierarchy balancer" challenges overly optimistic participatory assumptions; we propose that future theoretical models of co-creation include power dynamics as a moderating variable. Another theoretical implication is the integration of the concept of double-loop learning (Greenhalgh et al., 2020) into the co-creation literature, which has so far mostly discussed single-loop (improvement within an existing framework) rather than the transformation of participants' own thinking.

For researchers, especially in the field of startup studies and entrepreneurship, this study provides a concrete protocol for designing and evaluating co-creation FGDs. The protocol includes: (a) recruitment of participants with diversity of status and experience; (b) use of pre-tests sent before the FGD as scaffolding; (c) rotated breakout group structure to maximize cross-perspective interaction; (d) multimodal documentation with an independent co-facilitator; (e) calculation of gain scores as a supporting indicator; and (f) an intellectual property agreement before the discussion begins. For research funding agencies and scientific journals, possible policy implications are: (1) to provide alternative acknowledgment formats besides traditional authorship to accommodate co-creation contributions; (2) to encourage publication of reflective methodological reports as supplements to substantive result articles; and (3) to allocate funds for training co-creation facilitators given the complexity of the role. For startup practitioners, the validation results of a strategic framework through co-creation promise that the framework is not only theoretically valid but also implementable, because it has been tested by those who understand field realities. Co-creation has the potential to bridge the gap between

academic research and the practical needs of the startup ecosystem, a goal that has long been difficult to achieve with traditional research methods (Shepherd & Gruber, 2021).

5. CONCLUSION AND LIMITATION

5.1. Conclusion

The results of this study conclude that co-creation as a research methodology, operationalized through a structured FGD with pre-test/post-test, rotated breakout groups, active facilitation, and multimodal documentation, is substantively effective in validating strategic frameworks for startup studies, while answering all research questions and confirming the three hypotheses proposed. This effectiveness is supported by three main pieces of evidence: first, a consistent improvement in participants' understanding with an average gain score of 15.4 points (15.4%) exceeding the minimum set threshold (answering the question about the magnitude of improvement and confirming H1); second, the emergence of qualitative themes (negotiating academic hierarchy, constructive friction, facilitator role, and co-creation as a double-loop learning arena) that explain the mechanism behind this effectiveness (answering the question about process themes and confirming H2); third, the formulation of seven methodological lessons transferable to other researchers, covering facilitation design, bias management, and collaboration ethics (answering the question about methodological lessons and confirming H3).

This study not only contributes to the development of a richer participatory validation method compared to expert surveys or conventional FGDs, but also provides a reflective framework for researchers wishing to adopt co-creation as a primary approach. These findings strengthen the proposition in service-dominant logic that value, in this case methodological value, is always co-created through interactions among actors, and challenge the assumption that equal participation occurs automatically without design intervention (Vargo & Lusch, 2016; Voorberg et al., 2018).

5.2. Limitation

This study has several limitations. First, from a design perspective, the absence of a control group and the use of a single-group pre-test-post-test without randomization limit the ability to claim causality definitively; participants' improvement in understanding could be influenced by maturation or testing effects, although qualitative triangulation has reduced this risk (Cohen, 2018). Second, the small sample size ($n=10$) and the fact that participants were limited to academics (not direct startup practitioners) limit the generalizability of the findings to a wider population; the dynamic and pressure-laden context of startups might produce different co-creation dynamics if the participants were founders or investors. Third, this study conducted only one intensive FGD session of 6 hours; a longer and repeated (multi-session) co-creation process might yield deeper reflection and reveal new challenges such as participant fatigue or decreased long-term commitment (Greenhalgh et al., 2020). Fourth, from the ethical and intellectual property side, although the collective acknowledgment model was agreed upon,

there remains potential ambiguity regarding individual contributions that are substantive to the modification of the framework; this reflects a gap in conventional academic publication practice that has not yet fully accommodated co-creation as an alternative form of authorship (Ives et al., 2020). Fifth, the use of gain score as the main quantitative indicator has a statistical weakness, namely a negative correlation between pre-test and gain score (regression to the mean effect), so that participants with very low initial scores tend to show larger increases regardless of the intervention.

Future research is advised to develop a stronger design with a control group (for example, a group that only reads the strategic framework without discussion, or a group with a conventional FGD without co-creation elements) to isolate the specific effects of the co-creation approach. In addition, replication of the study with more diverse participants, including startup founders, investors, incubators, and policy makers, will increase the transferability of the findings and reveal cross-stakeholder dynamics that may differ from academic hierarchy. Longitudinal research involving multiple co-creation sessions (e.g., three separate sessions over one month) could explore whether the improvement in understanding persists over the medium term, as well as how relationships among participants develop over time. From a methodological perspective, subsequent studies could integrate social network analysis to map the flow of ideas and formation of alliances during discussion, or use digital tools (e.g., synchronous co-creation platforms such as Miro or Mural) to facilitate anonymous participation and reduce voice dominance bias (Edmondson, 2019).

Furthermore, the development of a more formal ethical framework to recognize the contributions of co-creation participants, for instance through a contributorship model separate from traditional authorship, is urgent given the increasing popularity of this approach in cross-disciplinary research. Finally, inferential quantitative research with a larger sample could statistically test the relationship between process variables (e.g., level of constructive friction, quality of facilitation) and gain score or quality of the validated framework, thereby complementing the descriptive findings of this exploratory study (Shepherd & Gruber, 2021). With these directions, co-creation methodology has the potential to become mainstream in the validation of strategic knowledge, not only in startup studies but also in other fields that demand close collaboration between researchers and stakeholders.

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