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METHODOLOGICAL FOUNDATIONS OF EFFECTIVE USER RESEARCH IN PRODUCT MANAGEMENT

Summary. *Methodological approaches to user research in product management are examined in the context of early-stage startups. Drawing on practical cases and established frameworks, it is shown how the structure of interviews and question design influence the validity of insights. A significant gap is identified between users' stated intentions and their actual behavior, often leading to false positives. It is substantiated that behavior-focused qualitative research and bias control function as decision-support mechanisms, and their application should align with the startup's uncertainty level and resource constraints.*

Key words: *user research, in-depth interviews, questions, responses, product management, customer development, qualitative interviews, evidence-based decision-making, behavioral data.*

Introduction. Contemporary product management is experiencing a profound transformation – shifting away from intuition-driven decision-making toward strategies firmly rooted in robust empirical evidence. Yet, merely incorporating a research phase into the development process does not guarantee success – the true value of the insights obtained depends entirely on the methodological rigor and precision applied. In the highly uncertain context typical

of early-stage technology startups, the ability to distinguish between genuine user needs and socially desirable responses becomes a critical determinant of business survival. Unfortunately, much research suffers from superficiality or, worse, the subtle influence of the researcher's own confirmation bias – a factor that can ultimately lead to the creation of products incapable of capturing a real market audience.

This paper examines the widespread challenge of "false positives," a scenario in which prospective customers provide polite affirmation of a concept yet ultimately decline to pay for its implementation. To mitigate this risk, we adapt the principles presented in Rob Fitzpatrick's *The Mom Test* [1], tailoring them to meet the dual demands of academic rigor and the practical realities of software engineering. Special attention is given to the unique operational context of startups, where scarce financial and temporal resources render extensive academic studies impractical and force teams to strike a careful balance between the speed of data collection and the reliability of the insights obtained. Within such high-pressure environments, the temptation to interpret favorable feedback as confirmation of market demand grows exponentially – a cognitive pitfall that can transform superficially conducted interviews into a potent source of self-deception. By systematically designing interview protocols that probe for verifiable behavior rather than socially desirable statements, startups can better discern genuine user needs, validate their hypotheses, and allocate scarce resources toward ideas with real commercial potential.

The aim is to define a distinct methodological structure for performing in-depth interviews that generate authentic data concerning real consumer behavior. We will strictly examine techniques for designing questions that center solely on the respondents' previous experiences rather than their hypothetical plans or pledges, given that historical actions form the only dependable basis for predicting demand. This paper provides a practical set of tools for decoding gathered intelligence, showing via actual cases how superior "custdev" can protect a team

from catastrophic strategic mistakes. By emphasizing actionable intelligence derived from observable behavior, this approach ensures that limited resources are directed toward initiatives with demonstrable market traction, thereby increasing the likelihood of sustainable success in highly uncertain startup environments.

Results and Discussion. The methodology of contemporary product management did not emerge arbitrarily; rather, it reflects a deliberate evolution from the linear, prescriptive models characteristic of the industrial era toward more dynamic and iterative approaches. Beginning with the Customer Development framework introduced by Steve Blank in the 1990s, product management practices have progressively incorporated continuous feedback loops and hypothesis-driven experimentation. These principles were further refined within the Lean Startup framework, which emphasizes rapid iteration, validated learning, and the systematic testing of assumptions [2]. This evolution illustrates a fundamental shift in focus: from executing predetermined plans based on intuition or precedent to actively engaging with real user behavior and market feedback. As a result, modern product management equips teams with the tools to adapt swiftly to uncertainty, identify genuine customer needs, and allocate scarce resources to initiatives with demonstrable potential for success.

Although the conventional Product Development paradigm proposed a sequential path from idea to release – tacitly presuming the entrepreneur held complete market insight – this strategy becomes deadly amidst the extreme unpredictability inherent in startups. The theoretical basis for validating ideas rests on the notion that a startup is not merely a miniature version of a major corporation, but rather a temporary entity hunting for a scalable business model. In this framework, User Research functions as a rigorous scientific trial where every business concept is handled as a bundle of hypotheses demanding instant empirical confirmation or refutation. This becomes particularly significant in the context of the Ukrainian IT sector's shift away from an outsourcing model, where

specifications were mandated by the client, to a product-focused model that requires teams to autonomously decode user requirements and pursue outcomes instead of simple technical output [3].

A vital difference between research conducted at a product's maturity versus its birth involves methodological tools, where qualitative methods (Qualitative Research) hold undisputed priority over quantitative approaches. While quantitative statistics offer significance, they only resolve "how much?" and "what is happening?", ignoring the causal connections that drive human conduct. In the initial phases, where sampling sizes are restricted and the product frequently exists only as a notion, efforts to utilize mass surveys result in a warping of reality, because respondents provide answers to hypothetical inquiries regarding experiences that do not yet exist. An in-depth interview executed with scientific exactness permits the researcher to operate like an ethnographer watching the subject's organic behavior, uncovering concealed drivers and obstacles. It is exactly this strategy that reduces the hazard of building unwanted products, converting subjective dialogues into impartial data for managerial choices.

The knowledge crisis frequently faced by startup founders is often rooted in a collective delusion, where a team's internal certainty about the brilliance of a concept overrides objective market realities. A core tenet of impactful research, central to The Mom Test framework, requires moving the conversational goalpost from seeking confirmation to hunting for the truth [1, p. 43]. Since cultural etiquette prioritizes courtesy, respondents tend to offer polite answers to prevent awkward situations of rejecting an entrepreneur's idea. This dynamic produces misleading feedback – flattery and hollow assurances – which novices mistake for genuine market interest. To gather uncorrupted data about actual pain points, the interviewer must entirely forgo pitching the product and instead direct attention to the user's ordinary activities, thereby lifting the emotional burden to be polite.

The methodological integrity of a study relies on rigidly separating historical facts from futuristic speculation, a distinction necessitated by how human memory and imagination operate. Modern neuroscience suggests that the brain utilizes identical neural pathways for creative imagination [4], implying that answers to hypothetical inquiries regarding potential purchases are merely idealized simulations with no connection to real buying habits. In contrast, tapping into episodic memory by discussing specific prior events extracts concrete evidence that reliably predicts future behavior.

A discrepancy between a stated attitude and actual motivation is evident when a user claims a problem is critical but their history shows no effort to fix it. Therefore, researchers should ignore all forward-looking predictions, concentrating solely on proof of resources – such as capital, time, or energy – already spent on solving the issue.

Validating obtained insights requires to exercise a high level of discipline in separating facts from interpretations, as even a sincere narrative may contain a significant proportion of subjective distortion. During an interview, Confirmation Bias manifests through specific mechanisms [5]:

– primarily via selective questioning, where the researcher poses inquiries that solicit confirmation;

– concurrently, through selective attention, where the researcher hears only those phrases validating the hypothesis while ignoring body language or subtext indicating doubt;

– and finally, through selective memory, where only positive feedback is retained post-interview.

Rob Fitzpatrick suggests a drastic approach, advising that every conversation should include a query capable of dismantling the founder's current business model [1, p. 41]. The investigative process should be deliberately structured to expose critical flaws that could render a concept unviable. This approach reflects Karl Popper's philosophy of falsificationism, which asserts that

a scientific theory can never be conclusively proven, but only rigorously tested and potentially disproven.

In the context of product development, the probability of market success increases with each attempt at refutation that the idea survives, as these stress tests reveal whether assumptions hold under realistic conditions.

Conversely, soliciting only positive feedback or praise provides little more than a comforting illusion, encouraging teams to develop products that may appear promising in theory but fail to resonate with actual users. By systematically seeking disconfirming evidence, startups can reduce the risk of self-deception, prioritize concepts with demonstrable viability, and allocate scarce resources toward initiatives that have genuinely validated potential in the marketplace.

The value of qualitative research lies not in interview length but in crafting questions that minimize researcher bias. Effective questionnaires separate behavioral questions, which yield empirical evidence, from hypothetical ones, which create noise. Research on Behavioral Event Interviewing shows that recalling past actions reliably predicts future behavior, as it draws on episodic memory rather than speculation or socially desirable responses [6]. Consequently, researchers should avoid prompts like "Would you..." or "What is your opinion..." and instead request concrete accounts, such as the last time a specific problem occurred or the precise steps taken to solve it [7].

Leading questions threaten the integrity of the experiment because they embed a clue or a desired response, pushing the respondent to subconsciously align with the interviewer to keep the conversation smooth. Asking if a user feels a process is "too time-consuming" implants a negative judgment in their mind. To secure authentic data, one must employ open-ended inquiries that set no limits on answers and rigorously use follow-up techniques to drill down into behavioral drivers. Applying a chain of "Why?" questions aids in peeling away surface-level logic to reach true motivations, exposing latent obstacles that a shallow analysis would miss.

Verifying the value proposition via questioning demands a specialized tactic, especially concerning pricing strategies, where bluntly asking about a willingness to pay nearly always produces exaggerated numbers. Since participants are not confronted with an actual purchasing decision, they often overestimate their financial self-control. A scientifically robust approach involves analyzing the user's allocation of funds for similar needs; asking questions, to get an accurate insight into price sensitivity and the real value of the problem to the customer.

Thus, the questionnaire must aim to uncover "anchors" of reality – concrete acts, spending patterns, and established habits – rather than engaging in discussions about theoretical future usage. Table 1 contrasts different strategies for phrasing inquiries.

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Table 1

Effective vs Ineffective User Research Questions

Question Category	Ineffective Formulation	Effective Formulation	Data Impact Rationale
Problem Validation	"Do you consider data security important for your company?"	"Tell about the last security incident you encountered. What were the outcomes?"	The former appeals to abstract, universally accepted values (triggering social desirability bias), whereas the latter demands evidence of actual pain points and experiential data.
Intent Verification	"Would you buy an app that automates your reports?"	"How exactly do you generate reports nowadays? How much time do you need monthly?"	Hypothetical purchase inquiries elicit optimistic forecasting. Analyzing current expenditures reveals the problem's actual economic value to the client.
Feature Assessment	"Would you like a voice input function?"	"Do you utilize voice input in other apps? In what contexts?"	Direct inquiries regarding a feature induce an affirmative response (the "more is better" fallacy). Probing past experience reveals whether the habit is organic to the user.
Usage Frequency	"How often do you plan to use the service?"	"Recall your last week. How many times did you encounter the problem our service solves?"	Respondents tend to overestimate future engagement. Only the frequency of past problem occurrence correlates with actual solution adoption.

Active Search Verification	"Would you pay $10 to solve this problem?"	"Have you already searched for a solution to this problem? If so, which options did you consider and why did you reject them?"	If the user has not sought even a free or makeshift solution, willingness to pay is improbable. Active search serves as a strong indicator of market demand.

The distinct character of User Research within a startup ecosystem is defined by acute resource scarcity and the need to keep iteration cycles fast, effectively banning traditional academic protocols that rely on extended data harvesting and processing timelines. Amidst deep uncertainty, where every week of hesitation could destroy the company, the interview morphs into a tactical weapon for swift hypothesis testing, requiring rigorous self-control from founders and the suppression of the instinct to market their vision. The most frequent error at this juncture is allowing an exploratory chat to degenerate into a sales pitch, where the interviewer, enamored with their own concept, starts convincing the participant of its genius instead of hearing out their difficulties. Such conduct obliterates the study's validity, turning the conversation partner from a provider of unbiased insights into a passive audience member who nods along with the founder's points merely to be polite.

A productive startup interview should mimic a relaxed chat concerning the user's personal and professional existence, where the product remains unmentioned until the underlying problems are thoroughly grasped. A vital capability for the investigator is the skill to steer through vague or conflicting answers, which often stem from the participant's reluctance to offer a blunt rejection. Under the principles of *The Mom Test*, any answer that does not constitute a clear "yes", supported by concrete evidence or firm commitments, – must be decoded as a courteous "no". Statements like "I might try this" or "that sounds interesting" are classic examples of informational "noise" and ought to be ignored, with attention instead redirected toward identifying strong signals – namely, evidence of prior, proactive efforts to find solutions or the existence of user-created workarounds developed in the lack of a polished commercial

product. Converting the "raw" intelligence gathered during these sessions into proven strategic wisdom requires the researcher to stop interpreting statements literally and instead engage in deep semantic evaluation. Rob Fitzpatrick offers a straightforward yet potent taxonomy for classifying respondent feedback (Table 2).

Table 2

Classification of Respondent Responses*

Category & Metaphor	Response Examples	Nature of Statement	Data Value	Processing Methodology
Compliments ("Fool's Gold")	"This is genius!"; "I'm thrilled!"; "The market needs this!"	Social politeness; desire to end the conversation; support for the interlocutor's emotional state	Zero or negative (misleading)	Deflect. Do not record as validation; steer the conversation back to facts (ask about current solutions to the problem)
Fluff ("The Fog of War")	"I would probably buy this"; "I usually exercise in the morning"; "This will be relevant in the future"	Hypotheses; generalizations; idealized self-conceptions	Low (these are opinions, not facts)	Grounding. Ask about specific past instances instead of accepting general assertions
Facts / Hard Data ("The Currency of Truth")	"Last month we spent $500 on this service"; "I spend 30 minutes daily transferring data to Excel"; "I searched for a solution but found only expensive alternatives"	Description of actual events; specific actions; real expenditures	High (building blocks for decision-making)	Record in Detail. Look for behavioral patterns across different respondents

Source: developed by the author based on [1, pp. 23-40]

In our perspective, a frequent pitfall for many product teams is treating user feedback as literal architectural blueprints, overlooking the reality that while customers understand their own challenges deeply, they seldom possess the expertise to design effective solutions. When a participant demands a particular feature, this insistence should be treated solely as a signal of a concealed necessity or obstacle, the true root of which requires causal deconstruction. The task of the analyst is not to tally the recurrence of certain words, but to weave scattered data

points into a comprehensive behavioral framework that illuminates the authentic, frequently subconscious drivers of choices, which can differ from the logical justifications offered during the interview.

To guarantee unbiased interpretation, it is important to examine the dataset as a whole, spotting recurring behavioral trends across various demographic groups while counteracting cognitive biases. The greatest risk arises from the brain's inherent tendency toward selective filtering, whereby a researcher unintentionally prioritizes evidence that supports initial assumptions while overlooking broad skepticism or contradictory data. Valid insight cannot be built on standalone, passionate quotes, no matter how convincing they seem; it must be grounded in the recurrence of scenarios within the respondents' personal history. A lack of alignment between a verbally stated issue and concrete past efforts to solve it acts as a stark warning of interpretative error, making it necessary to revisit early assumptions concerning the product's commercial potential.

The ultimate validation of these insights is achieved not by asking more questions, but through the mechanism of commitment, which serves as the only dependable sieve for filtering out social pleasantries. If a prospective customer praises the concept yet declines to invest any tangible asset in its execution – be it personal time, reputation through introductions, or a financial deposit – this indicates that the demand is illusory. In academic contexts, this method permits a sharp distinction between "opinion," which is free, and "intent," which requires sacrifice. Only a user's willingness to trade their own resources for the promise of a solution provides adequate justification for moving to the Minimum Viable Product phase, converting the development process from a gamble into a controlled investment strategy with foreseeable results.

The practical value of qualitative research frameworks is particularly evident when evaluating strategic pivots, as timely and accurate insights can prevent the misallocation of resources to business models that ultimately prove unviable. A striking illustration of effectively translating research findings into

actionable product strategy can be seen in the evolution of the fintech startup Pyrpose, which operates in the climate-focused investment sector. Initially, the company hypothesized the existence of a significant user segment whose environmental concerns would naturally motivate them to engage with hybrid financial instruments blending charitable giving with traditional investing. The team assumed that ethical considerations would constitute the primary driver of user behavior. However, this assumption—anchored in broad, universal values—demanded rigorous empirical validation through actual spending patterns, rather than relying solely on users' stated intentions to contribute to environmental causes. By systematically observing real financial behavior, Pyrpose was able to distinguish between aspirational commitments and actionable user engagement, thereby refining its product strategy and increasing the likelihood of sustainable market success. This case underscores the importance of grounding product development decisions in tangible evidence rather than abstract ideals, particularly in nascent markets characterized by high uncertainty.

A series of in-depth interviews employing techniques aimed at uncovering historical behavior exposed a substantial gap between participants' stated philosophical views and their actual transactional practices. The findings indicate that, within most users' cognitive frameworks, charity is treated as an emotionally driven, non-recoverable expense, whereas investment decisions are guided exclusively by rational considerations of return and capital preservation. Despite voicing support for green initiatives, participants showed no inclination to blend these two distinct categories in their financial planning, favoring straightforward tools with transparent economics. This finding, secured by discarding hypothetical inquiries, proved that the original concept of a hybrid product would fail to gain traction in the mass market due to cognitive dissonance in how value was perceived.

Acting on this exposed gap between expectation and reality, the company performed a strategic pivot, discarding philanthropic messaging to focus on

building a robust investment platform. The updated strategy emphasized financial performance and asset clarity, positioning environmental impact as a significant bonus rather than the primary engine for user acquisition. This shift allowed the product to synchronize with the audience's true behavioral patterns – specifically, investors looking for capital growth alongside ethical options, but who are unwilling to trade profit for ideology. This case empirically confirms that high-grade User Research acts not just as a supplementary design step, but as a foundational tool for validating business models, capable of protecting the team from catastrophic mistakes before a single line of code is written.

To visualize the data-led strategic decision-making algorithm outlined above, a schematic representation of the process by which research insights inform product adjustments is presented (Fig. 1).
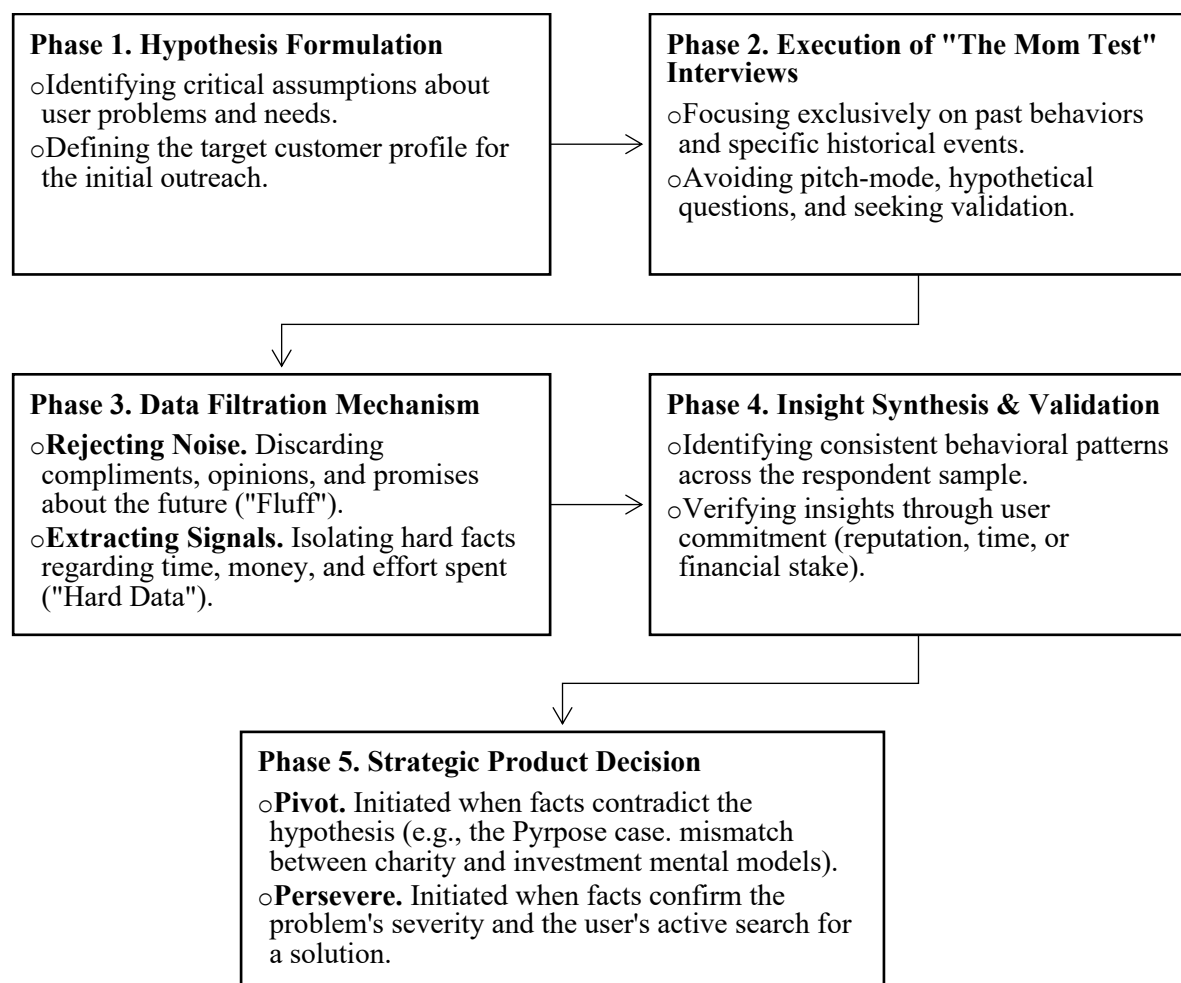
Phase 1. Hypothesis Formulation
o Identifying critical assumptions about user problems and needs.
o Defining the target customer profile for the initial outreach.

Phase 2. Execution of "The Mom Test" Interviews
o Focusing exclusively on past behaviors and specific historical events.
o Avoiding pitch-mode, hypothetical questions, and seeking validation.

Phase 3. Data Filtration Mechanism
o **Rejecting Noise.** Discarding compliments, opinions, and promises about the future ("Fluff").
o **Extracting Signals.** Isolating hard facts regarding time, money, and effort spent ("Hard Data").

Phase 4. Insight Synthesis & Validation
o Identifying consistent behavioral patterns across the respondent sample.
o Verifying insights through user commitment (reputation, time, or financial stake).

Phase 5. Strategic Product Decision
o **Pivot.** Initiated when facts contradict the hypothesis (e.g., the Pyrpose case. mismatch between charity and investment mental models).
o **Persevere.** Initiated when facts confirm the problem's severity and the user's active search for a solution.

Fig. 1. The Data-Driven Decision Making Cycle in Product Management

Conclusions. Summarizing the research findings, it is important to recognize that the methodological rigor of user research transforms from a recommended best practice into a business survival imperative. The chief epistemological danger for founders does not stem from a lack of empirical data, but from its systematic distortion by social politeness and cognitive biases, which create a misleading impression of actual market demand.

Applying the principles deconstructed in this study facilitates a paradigm shift in user interaction: rather than seeking psychologically comfortable validation, the researcher focuses on the rigorous extraction of past behavioral facts, which serves as the sole valid instrument for forecasting future transactions. A critical success factor for product strategy becomes the fundamental evolution of the manager's role model from a visionary propagandist to a skeptical researcher capable of dispassionately separating the informational signal from social noise.

Empirical analysis demonstrates that a team's capacity to disregard respondents' optimistic promises and execute difficult strategic pivots based on evidence of actual resource expenditure represents the sole dependable method for avoiding the formation of product misconceptions. Thus, high-quality User Research functions not merely as a requirements-gathering phase, but as an integral element of the risk management system, ensuring the construction of business models upon a foundation of verified human needs.

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