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Beyond the Designer: Everyday Object Adaptation and Household Problem-Solving in Indian Homes

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Abstract
Design does not stop at the studio door. When a household object breaks, becomes unsuitable, or outlives its original purpose, the people who own it often repair it, modify it, or give it a new job, usually without any design training. This paper examines that informal activity as everyday design intelligence, using Bhopal, Madhya Pradesh, as its local context. It combines secondary research (scholarship on everyday design, repair and jugaad; government material on reuse and waste reduction; media documentation of household reuse) with a small online survey of three Bhopal residents aged 18 or above, collected in October 2026. Rather than treating adaptation as a single act of reuse, the paper reads it as a sequence of decisions and proposes the Adaptation Loop, a five-stage working framework: Notice, Decide, Source, Make, Judge. The survey shows that all three respondents met household object problems often or sometimes; that two drew on an online idea or tutorial and one on personal experience; and that two reported a complete solution and one a mostly complete one. Respondents also named recurring barriers: finding tools and materials, knowing how to begin, durability, time, cost and safety. Because N = 3, the findings are descriptive and are used to illustrate and test the usefulness of the framework, not to estimate behaviour in the wider population. The paper closes with design implications and a research agenda for larger, observation-based studies.

Keywords: everyday design, object adaptation, household problem-solving, repair, repurposing, jugaad, Adaptation Loop, Bhopal

1. Introduction

Most of the design that shapes daily life happens after a product leaves the factory. A bottle becomes a planter, a worn cloth becomes a duster, a loose handle is bound back in place. These acts are small and rarely recorded, yet each involves noticing a problem, weighing options, finding materials, making something and deciding whether it works. That is a design process, carried out by people who would seldom call themselves designers.

Wakkary and Maestri (2008) describe everyday design through resourcefulness, adaptation and emergence, and Maestri and Wakkary (2011) show that repair can be creative rather than merely restorative. In India such practice is commonly associated with jugaad, resourceful improvisation under constraint (Prabhu & Jain, 2015). Government programmes on waste

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reduction and reuse (NITI Aayog, 2022, 2023; Press Information Bureau, 2023) place the same behaviours within a sustainability frame.

What is less often examined is the process: how a household member moves from noticing a problem to judging a solution. This paper therefore asks not only what people adapt, but how they decide, where their ideas come from and what stands in their way. It does so through a small exploratory survey in Bhopal, and it offers a framework, the Adaptation Loop, to organise what is seen.

2. Problem Statement

Household objects regularly fail, become unsuitable or lose their original purpose. People respond by repairing, modifying or repurposing them, yet these informal practices are largely absent from formal discussions of design and product development. There is a need to understand how people without professional design training identify problems, use available resources, develop alternatives and evaluate results, so that this hidden design intelligence can be recognised and supported.

3. Aim, Objectives and Research Questions

Aim. To explore how individuals adapt, repair, reuse and repurpose household objects through everyday problem-solving, with Bhopal as the local context.

Objectives

1. Identify household situations in which objects are repaired, modified, reused or repurposed.
2. Understand the process people follow when developing solutions to object-related problems.
3. Explore the influence of personal experience, family knowledge, online information and available resources on adaptation decisions.
4. Identify the challenges people face during repair and adaptation.
5. Examine how object adaptation relates to resourcefulness and sustainable consumption.
6. Identify opportunities for further design research.

Research questions

- RQ1. What do people do when a household object no longer works as intended?
- RQ2. How do they identify and develop alternative uses for existing objects?
- RQ3. What influences the decision to repair, modify, reuse or repurpose?
- RQ4. What difficulties arise during adaptation?
- RQ5. How do people judge whether an adapted solution is successful?
- RQ6. What can household adaptation contribute to a broader understanding of design and resourcefulness?

4. Literature Review

4.1 Everyday design and resourcefulness

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Wakkary and Maestri (2008) treat design as something that emerges from ordinary interaction with objects and environments, not only from professional process. Decisions are shaped by immediate need, available materials and prior experience. A person who changes the use of a container is already reasoning like a designer: reading the object's properties, imagining another role for it and testing the fit.

4.2 Repair as a creative process

Maestri and Wakkary (2011) argue that repair is not simple restoration. It can involve experimentation, modification and new solutions. This matters here because it shifts attention from the object's original condition to the maker's understanding of the problem and their judgement of whether the result is good enough.

4.3 Jugaad and improvisational innovation

Prabhu and Jain (2015) examine jugaad in relation to innovation and entrepreneurship in India. More recent urban scholarship connects repair and jugaad to the everyday maintenance of city life (Corwin, 2026). Both strands suggest that improvisation is tied to context. Not every act of reuse is jugaad, however; intention, process and constraint need to be understood before the label is applied.

4.4 Household reuse and waste reduction

NITI Aayog's LiFE material describes familiar household practices such as storing and reusing bags, bottles and jars and turning old textiles into household products (NITI Aayog, 2022). Its report on waste reduction documents household practices in several Indian cities, including Bhopal, and shows that repair, resale and reuse form part of household resource management (NITI Aayog, 2023). These are contextual findings, not measurements of this study's respondents.

4.5 Media and public initiatives

Media reports document households reusing containers and turning old clothing into useful items (The Indian Express, 2023; NDTV Food, 2022). The Meri LiFE Mera Swachh Shehar initiative promoted reduce, reuse and recycle activity through collection and reuse centres (Press Information Bureau, 2023). These illustrate visibility and institutional interest, but not how common the practices are.

5. Research Gap

The literature covers everyday design, repair, improvisation and sustainable consumption, and public sources document reuse and waste reduction. Less attention has gone to the household problem-solving sequence: how people notice a problem, choose between repair and repurposing, locate resources, experiment and judge the outcome. This study addresses that gap in an exploratory way in Bhopal and does not claim to establish prevalence.

6. Conceptual Framework: The Adaptation Loop

The research questions and the structure of the survey suggest that household adaptation can be read as five linked stages. The Adaptation Loop is offered as a working framework developed by the author for this study. It is not a validated model, and the survey is used only to see whether it is a useful way to describe what respondents reported.

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Stage	Core question	Linked RQ	What it captures
Notice	What is wrong, and is the object worth saving?	RQ1	Trigger, type of problem, household area
Decide	Repair, modify, reuse, repurpose or replace?	RQ3	Influence of experience, family knowledge, online ideas
Source	What do I know, and what do I have?	RQ2, RQ3	Knowledge, tools, materials
Make	How do I build or fix it?	RQ2, RQ4	Experimentation, difficulties
Judge	Does it work, and will I keep using it?	RQ5	Outcome, durability, safety

The word loop is deliberate. A judgement that a solution is unstable returns the maker to Decide or Source, and a successful solution can change what is noticed next time. Constraints (time, money, tools, safety) act on every stage, not only on Make.

7. Methodology

7.1 Approach

The study is exploratory and combines qualitative interpretation with descriptive survey information. Secondary and primary evidence are kept separate throughout.

7.2 Context and participants

The context is Bhopal, Madhya Pradesh. Eligible participants were household members aged 18 or above who currently live in Bhopal and have experience of household object problems or adaptation. The verified survey export contains three submitted responses; all three respondents confirmed that they were 18 or older and lived in Bhopal.

7.3 Instrument and data collection

Data were collected in October 2026 through a structured online questionnaire of 17 items (Appendix A), covering experience of object problems, actions taken, alternative uses, influences on decisions, how solutions were developed, outcomes, difficulties and one real example.

7.4 Secondary research

Secondary material comprised academic literature, government reports and initiatives, news reports and publicly documented social-media examples. It supplies context and is never counted as primary survey data.

7.5 Analysis

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Responses were reviewed and grouped by the questionnaire's themes and then mapped to the stages of the Adaptation Loop. Simple counts are reported for single-response questions. No inferential statistics are used, because the sample cannot support them.

7.6 Ethical considerations

Participation was voluntary, limited to adults, and the survey collected no information beyond what the questionnaire required. Examples are reported as participants described them and are not independently observed.

8. Contextual Findings from Secondary Research

Bhopal. The NITI Aayog waste-reduction report records, at city level, the sale of unused household goods to informal waste collectors, the use of tailoring repair services and the reuse of parts from unused items (NITI Aayog, 2023). Selling an unused item, repairing clothing and repurposing an object are different behaviours and are not treated as equivalent here.

Indian households generally. LiFE material shows reuse of bags, bottles, jars and old textiles as part of ordinary domestic routine (NITI Aayog, 2022).

Online visibility. Media coverage shows how social platforms make informal adaptation visible (The Indian Express, 2023; NDTV Food, 2022). Views and engagement are not evidence of how often households do these things.

Public initiatives. Meri LiFE Mera Swachh Shehar shows how unused goods can be redirected to further use through organised collection (Press Information Bureau, 2023).

9. Primary Findings: Survey Results (N = 3)

The sample is a small local snapshot and is not representative of Bhopal households.

9.1 Summary of responses

Dimension	Responses (count of 3)	Loop stage
Frequency of household object problems	Often: 2; Sometimes: 1	Notice
Main influence on the decision	Online idea or tutorial: 2; Personal experience or knowledge: 1	Decide / Source
Outcome of the solution	Solved completely: 2; Solved most of the problem: 1	Judge

9.2 Notice

Two respondents said they often experienced problems with household objects and one said sometimes. Object problems were part of daily life for all three.

9.3 Decide and Make

Responses included repairing damaged objects, modifying existing ones, keeping objects for possible later use and changing how an object was used. The real examples given were a

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household item associated with bathroom washing or laundry and a beer glass bottle used in connection with a plant. Both are participant-reported descriptions.

9.4 Source: where ideas come from

Two respondents named an online idea or tutorial as the main influence; one named personal experience. This suggests digital information and personal knowledge may both feed adaptation decisions. It does not show that tutorials dominate among Bhopal households.

9.5 Barriers

Respondents named six difficulties: finding suitable materials or tools, knowing how to begin, making the solution stable or durable, limited time, limited money and concerns about safety. Having an idea does not make implementation easy; knowledge, materials, time and safety shape whether an attempt succeeds.

9.6 Judge

Two respondents said the solution solved the problem completely and one said it solved most of it. Respondents also reported saving time or effort and continuing to use the solution.

9.7 Reading the findings through the Adaptation Loop

All five stages could be located in the responses, which supports the framework as a descriptive tool at this scale. Two points are worth noting. First, the barriers cluster at Source and Make (materials, tools, knowing how to begin, durability) rather than at Notice: respondents recognised problems readily but met friction when turning an idea into a working object. Second, the one outcome short of complete success is a reminder that Judge is where durability and safety questions arise, and where the loop can return a maker to an earlier stage. Both observations are preliminary and need testing with more participants.

10. Discussion

The literature gives a conceptual base for treating resourcefulness and repair as everyday design (Wakkary & Maestri, 2008; Maestri & Wakkary, 2011), and the survey offers a small local illustration. Three themes stand out.

Knowledge is mixed. Online tutorials were the main influence for two respondents and personal experience for one. Online content may supply the idea, while experience helps adapt it to the household's own tools and materials. How inherited practical knowledge and digital instruction combine is an open question this study can only raise.

Resourcefulness is constrained. Reported difficulties show that adaptation is not only creativity. It is decision-making under limits of tools, materials, time, cost and safety, which is consistent with the view that improvisation should be understood in context (Prabhu & Jain, 2015).

Sustainability is a possible consequence, not a measured one. Repair and reuse can extend an object's life and may reduce immediate replacement, as the secondary sources suggest. This study measures neither environmental nor economic impact.

11. Design Implications

1. **Support the Source stage.** Guidance on commonly available materials, basic tools and safe practice could ease the most reported friction.

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2. **Lower the barrier to starting.** Step-by-step, visual and plain-language repair and adaptation guidance responds to the difficulty of knowing how to begin.
3. **Bridge online and experiential knowledge.** Tutorials that invite adaptation to local materials, rather than fixed instructions, may suit households that mix both sources.
4. **Design for Judge.** Simple ways to check stability, durability and safety before continuing to use an adapted object would address an under-supported stage.
5. **Document informal knowledge.** Photographs, interviews and case studies can record household practice that formal design discourse overlooks.

12. Limitations

1. The survey has only three responses, so findings are exploratory and cannot be generalised to Bhopal or India.
2. Data are self-reported; no adaptation activity was directly observed.
3. The study cannot measure how frequently households repurpose objects.
4. Secondary examples (news, social media, government reports) give context and do not represent the survey sample.
5. Environmental and economic impact were not measured.
6. The Adaptation Loop is a proposed framework that has not been validated beyond this small sample.
7. Interviews and household observation would be needed to understand the process in depth.

13. Conclusion and Future Research

Household object adaptation shows that design thinking is not confined to trained designers. The Bhopal survey, small as it is, illustrates people noticing problems, drawing on online ideas and personal experience, and judging their own solutions, while contending with limits of tools, materials, durability, time, cost and safety. The Adaptation Loop gives these observations a structure that can be tested.

Future work could (a) test the framework with a larger and more varied sample across age, gender, income and housing type, (b) pair surveys with household interviews and observation, (c) build photographic case studies of adapted objects, and (d) examine how people judge the safety and durability of improvised solutions. Such work would show more clearly how design can support accessible, safe and sustainable everyday living.

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