

# DESIGN RESEARCH IN PROFESSIONAL PRACTICE

## Contextual Empathy, The Indian Train Network

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### ABSTRACT

The Indian railway network is the 4<sup>th</sup> largest in the world, spanning 80,000 miles and supplies trade, tourism and travel to a wide variety of audiences and users. This paper reports on a series of design activities run on the rail network with the general public in the development of empathetic and meaning-centred approaches within ethnographic and co-design processes.

Authors approached the challenge sensitively, stewarding participants to engage and develop their own local understanding and design strategies. The research engaged with live on-the-spot public audiences, increasing the unpredictability and serendipitous nature of the inquiry. This added an extra edge to conventionally planned empathic processes, often unexplored within user centred design. Passengers engaged and responded to real-time 'live' design challenges whilst journeying across the Gujarat region of India.

The work yielded insights for 'open user centred design' and repeatable lessons for 'live-working' emphasising the importance of ensuring direct contextual experiences within creative empathic methodologies.

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### KEYWORDS

*User centred design, Design for Diversity, Cultural Context, Live working*

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## INTRODUCTION

Designing for people, communities or demographics is a complex and sensitive process. It is important to understand the contextual information and ramifications surrounding the perceived product requirements and the users' aspirations. To contextualise activities and behaviours, in-depth observations of "in the field" <sup>1</sup> praxis of are often required. Our work introduces and tests 'live working', a process creating in-situ studios for participant designers to establish contextual empathy and a wide range user centred outputs. The authors build on existing practices, locating the approach within the following practices:

### *Ethnography*

Ethnography practice imparts real world "everyday contexts, rather than somewhat rigid conditions created by researchers" <sup>2</sup>, providing live participant-led insights. The practice explores dichotomies between "what people say they do and what they actually do" <sup>3</sup>. Where necessary, researchers "go native," <sup>4</sup> viewing the world through the eyes of those they are studying. When "ethnography is applied to design, it helps designers create more compelling solutions" <sup>5</sup> based on grounded insights. Participant observation, ethnography and fieldwork are synonymous to "spending long periods watching people, talking to them about what they are doing, thinking and saying, designed to understand their world" <sup>6</sup>. Observations are processed into insights seeding conceptual thinking and design outcomes. In *'Universal Methods of Design'*, Hanington *et al* state that "Ethnography practices must exercise caution to avoid the tendency to find what you are looking for" <sup>7</sup>.

Ethnography builds levels of awareness and empathy through perception. C. G. Jung, the 20<sup>th</sup> century Swiss Physiologist, devoted research to understand analytical psychology and the nature of awareness. Jung proposes interesting models on characteristics of sensitivity, and, similar to the art of design, attaches his theories to the aspect of perception. Designing is very much about perception and how we see things, but also their interpretation and expression. One of his 'quaternity' theories relates to 4 aspects of seeing, which refers to four psychic functions: sensing, thinking, feeling, and intuiting. The "essential function of sensation is to establish that something exists, thinking tells us what it means, feeling what its value is, and intuition surmises whence it comes and whither it goes" <sup>8</sup>. Sensing and intuiting he terms as irrational types, with thinking and feeling as rational types.

In Aigas' *'Ethnography Primer'*, it identifies six stages of ethnographic research: "problem definition, find the people, plan an approach, collect data, analyse data and interpret opportunities and finally share the insights" <sup>9</sup>. Ethnographic analysis, specifically within design practice, "links findings to a concrete direction" <sup>10</sup> through scenarios or insightful opportunities. This process of developing perception and the outcome are dependent on the nature and temperament of the participants (observers and observees), in combination with the situation / environment / framework where the work is taking place. In other words, although the methodology attempts to be objective, ethnography is not completely impartial of subject and yields an "interpretation and meaning" <sup>11</sup> of what is seen.

### *Co-design*

The practice of co-design often builds around “tools that create a fluency”<sup>12</sup> and engagement. Co-design is a means to understand peoples “behaviours and perceptions”<sup>13</sup> by placing them at the centre of the design process. The process of co-design can “be creative for all stakeholders involved”<sup>14</sup> if there is more professional designer involvement. Whilst very “few high street designers will have the time to engage in these sorts of activities”<sup>15</sup>, they are important for getting a wider perspective from, or with, the intended audience. The approach implies that customers can act as concept creators but also engage as “detectors of value-in-context”<sup>16</sup>. Co-design helps designers gather “information about the contexts of people’s interactions with products”<sup>17</sup> so that stakeholders can help define, address and solve challenges.

### *Empathy*

The “best-designed products and services result from understanding the needs of the people who will use them”<sup>18</sup>. Although ‘best designed products’ could be dependent on one’s interpretation, there is a certain genuineness in an outcome when there is a strong inter-connectedness between designer and user. Understanding the needs or latent (deep-rooted) needs requires an authentic connection between observee and observer that goes beyond detecting what people do and what they say to being sensitive to how they truly feel and think. Sensitivity, or the psychic functions as described by C. G Jung of thinking/feeling and sensing/intuiting, are both rational and irrational. Both consciously and subconsciously, these affect and influence our insights, reasoning and construction of ideas. Empathic Design is not a substitute for a technological or functional orientated approach to design but complements it by placing people, their interactions and behaviours at the centre. Brenés<sup>19</sup> definition of empathy is about feeling with people: attached, coupled and without judgement, differentiating it from sympathy that drives disconnection - a feeling towards or detached from others<sup>20</sup>. Remaining objective may seem counter instinctive in all this but our attention to empathy also requires a position of equanimity; a dualistic position of both attachment and separation in order to make sense of things.

### *User Centred Design*

Design practice has naturally matured beyond “insider tools”<sup>21</sup> that enabled designers to view through the participants’ eyes; to include and involve users in the design process itself. “Getting people personally, emotionally engaged so they can reflect on a process”<sup>22</sup> unites the design thinking of both designer and user. The Human Centred Design (HCD) toolkit<sup>23</sup> sponsored by the Bill and Melinda Gates Foundation identifies a number of reasons why organisations should do HCD. These include: a connectedness to people you wish to serve, transformation of data into actionable ideas, generation of new opportunities and speed and efficiency of getting to solutions. The toolkit references three Design Thinking lenses: “desirability, feasibility and viability”<sup>24</sup> which provide a perspective on assessing or steering the outcomes and/or process. Another key aspect of HCD is the recording and sharing of observations post fieldwork. In a more reflective environment, teams can probe further abstract conceptual thinking and explorations around insights and opportunities.

### *Participatory design*

Traditionally, participatory design has involved users in “evaluative research: testing existing products or prototypes of developed concepts”<sup>25</sup>. Participatory design is different to co-design as it has more “open-ended outputs to look for [design] opportunities”<sup>26</sup>. The often non-linear process of participatory design involves the client, the user, the designer and alternate stakeholders<sup>27</sup>. The process of participatory design explores users’ either “existing or possible contexts of use, aiding the design team to have a more empathetic approach”<sup>28</sup>. The practice of participatory design can often create a “rich setting”<sup>29</sup> to discuss and work within. The participatory design process should take the participant through “small steps”<sup>30</sup> of a process, without overwhelming them. The process of

including users in design processes should include “looking at people in context, actively involving [them to] try things”<sup>31</sup>. In *Participatory Design in Informatics*, Carroll and Rosson state: “in participatory design, the designer’s role is more nuanced and more complex. Ideally, all the relevant stakeholders participate in even the inner loop of design conception, and all continue to participate meaningfully as the design is specified, implemented, delivered, installed, and used”<sup>32</sup>.

### *Direct contextual empathy*

Direct contextual empathy is about transformative live encounters, as opposed to transmissive ‘let me tell you about it’ events. It requires immersion in tangible contexts, observing real people so that you might understand why you feel what they feel and think what they think. It stimulates your direct, responsive and intuitive creativity and provides strong rationales and foundations for developing design ideas. Design, or the generation and emergence of new forms, is defined by the properties and the relationship between all the components (of the system) coming together<sup>33</sup>. One of the ways that we have been reflecting on direct contextual empathy is to describe it within a systems-thinking framework of four inter-dependent components:

- First-hand knowledge and experience of the project context (Indian railways)
- Our processes and methodologies (ethnography + co-design + empathy + user centred design),
- The nature and experiences of the people that make-up the team (designers, passengers and railway staff)
- The synchronistic opportunities that present themselves as the work evolves.

Direct contextual empathy is one particular framework that provides a structure from which we develop our ideas, much like scaffolding erected for a building. It is a vital elemental process, but, once complete, it is dismantled and put away.

### *Contextual introduction*

*The National Institute for Design (NID)* is a globally well respected UG and PG design Institute in India. It has campuses in Ahmadabad, Gandinagar and Bengaluru. Every year they run electives inviting international designers and academics to participate in ‘live’ projects. In 2016 the project was ‘Design for railways’. The Indian Railways (IR) is a national asset, a transport network connecting far-flung areas of the country. It is one of the largest transportation and logistics networks of the world, which runs 19,000 trains. It runs 12,000 trains to carry over 23 million passengers per day, connecting about 8,000 stations spread across the sub-continent. It is equivalent to moving the entire population of Australia. The train network runs “more than 7,000 freight trains per day, carrying about 3 million tonnes of freight every day”<sup>34</sup>. The “biggest challenge facing Indian Railways today is its inability to meet the demands of its customers, both freight and passenger”<sup>35</sup>. IR’s challenges are “cleanliness, punctuality of services, safety, quality of terminals, capacity of trains, quality of food, security of passengers and ease of booking tickets are issues that need urgent attention”<sup>36</sup>. To comprehend the user density of Indian Railways, in 2013-14 they “carried 8,425.6 million passengers”<sup>37</sup>, which is about 1,430 million higher than the world’s population combined.

The Indian Railways are a universal democratic power, a taxi or airplane is not, as they are accessible to all and built to last. In *All Men Are Brothers*, Gandhi stated that “no human being should be a stranger to another” and that “we will love all mankind without any distinction of race or class or religion”<sup>38</sup>. Gandhi’s approach is translated into the Indian railways, as they are democratic and reflective of contextual values. It is acknowledged that there are issues of abuse and ‘class’ inherent in IR, but there is also a cohesive social levelling. The project took a group approach, sharing values and collegially building on concepts and directions. Throughout the process, the authors were conscious allowing the situation and unfolding of events (emergence of ideas) to direct the course, pace, process and outcomes as naturally as possible. Their approach was to install (rekindle) and encourage a sense of *awe and wonder* in the proceedings, suppressing lenses of judgement and to

encourage participants to think of themselves as ‘stewards’ rather than ‘masters’ of their observations and design ideas.

## METHOD

The project’s initiation did not use a traditional ‘design brief’. The contextual focus was the ‘interior train journey experience’, specifically lower-class carriages. The design participants were students on MA courses with backgrounds in vehicle design, illustration, animation, furniture and graphics, hailing from locations around India. To create understanding between the multi-discipline participants, metaphors and analogies were used to communicate concepts, building on previous research <sup>39</sup>. The method for the workshop drew on all contextual references previously described (Figure 1.).

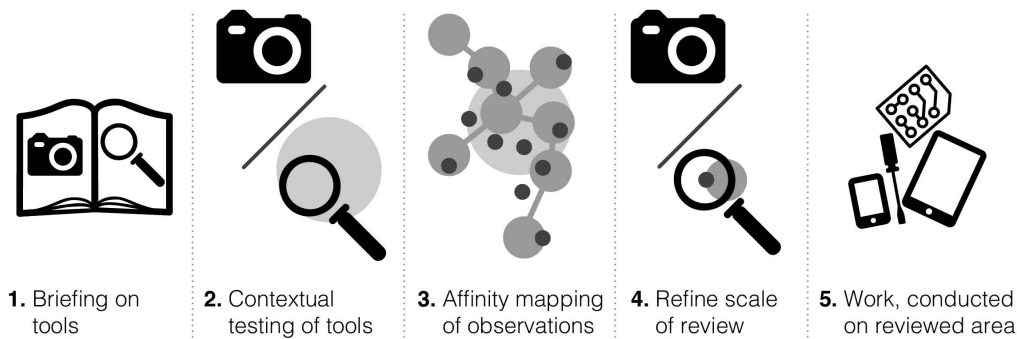


Figure 1. The cultural empathy process. Source: Author generated

### *Briefing group*

The workshop started with a briefing (Figure 1) and participants were asked to ‘park’ previous experiences of IRs. Participants were guided to build on colleagues’ concepts, not dispose of them. In *Professional perspectives on collaborative design work*, Feast describes that “collaborative design should target not only methods of solving design problems, but also informal and social interactions that bring together different stakeholders while respecting their differences” <sup>40</sup>. The authors built on Feast’s empathic design approach by removing hierarchical structures through group discussion, democratic voting, contemplative reflection and removal of ‘titles’. The briefing included contemporary observation examples, recording methods and ethnographic readings including; Experience prototyping <sup>41</sup>, AIGA ethnography primer <sup>42</sup>, Ethnography practice <sup>43</sup> and co-design principles <sup>44</sup>. The methods and literature formed cornerstones for teams to scaffold on. The authors introduced ethics and empathy, reinforcing the requirement that Indian culture and contexts were central to the research, not the authors.

### *Empathy trial*

After the briefing, participants visited contextual locations to document themes, including markets, manufacturers and retailers. On the ‘empathy trial’, to gather cultural observations, participants tried methods building their confidence. Once observations were gathered, the participants ‘affinity mapped’ <sup>45</sup> to highlight interests. The mapping enabled participants to review activities witnessing common issues, affinities and possible intervention points. The maps also provided opportunities for colleagues to “borrow” <sup>46</sup> concepts or isolate areas of interest, building on IDEO’s methodologies. It was imperative to the author/stewards that the participants were not problem finding but theme and context exploring. The ‘trial’ provided a means to practice the methodology for participants. The

authors become 'stewards', guiding participants without dictating personal interests. The ethnographic process was repeated on short train journeys, so participants could ground their thinking in contextual values. The ethnography trial rationale was two-fold:

1. A trial for participants to gain comfort and confidence with ethnography and opportunistic co-design.
2. The IR journey enabled them to focus their interest as an exploratory process.

In *On designing open-ended interpretations for collaborative design exploration*, Mattemaki et al state "Empathy cannot be achieved without engagement, and inspiration goes hand in hand with cross-disciplinary collaborations involving tangible materials from which to be inspired from and with which to work" <sup>47</sup>. Participants were reminded that the ethnography process aids us to "discover meaning, understand norms, be worldly, identify barriers and observe reality" <sup>48</sup>. Participants were encouraged to document everything, as insights should be post analysed, comprehending cultural context and not solely problem finding.

In *Making Culture: Locating the Digital Humanities in India*, Murray and Hand describe a particular Indian culture: 'Jugaad'. Jugaad, is an "indigenous form of hacking that differs from its western counterpart in its ubiquity, precipitated by economic constraints and lack of resources" <sup>49</sup>. The practice of Jugaad is deep rooted in Indian culture and the freedom it brings. The doctrine of Jugaad is comparable to Suri's "experience prototyping" <sup>50</sup>, making and 'adapting on the fly', suiting users and familiar to the participants. Both the design rationale and cultural surroundings of 'adaption' created good bedfellows for the participants' and the users' comprehension.

### *Live-working*

The concept of 'live-working' builds on Dindlers' work in *The construction of fictional space in participatory design practice*. Dindler advocates for participatory design as "designers can scaffold the creation of fictional space in PD in terms of how design work is staged" <sup>51</sup>. The authors took the 'design space' concept and trialled it live, rather than staging behind closed doors. The 'live-work' approach is hard to repeat in a 'classroom setting' as it is intertwined with the contextual environment, however the method is very repeatable. The contextual importance is also re-enforced by Binder and Brandt in *The Design: Lab as platform in participatory design research*. Authors scaffolded from Binder and Brandts work taking "participatory design research into fields that have not traditionally been seen as the realm of designers or design researchers" <sup>52</sup>. Placing the design practitioner on location is not new, providing the capabilities of extending the designer/researchers capabilities to respond to 'live' conditions is important and transformative. Binder and Brandt "learned that the success of participatory design research is dependent on all partners putting something at stake in the process" <sup>53</sup>, creating empathic design. One key aspect of an empathic design approach is locating 'live' opportunities for observations and fieldwork.

In *Co-creation and the new landscapes of design*, the authors comment: "we are heading into a world where experience often trumps reality" <sup>54</sup>. The authors align their approach with Sanders, building alliances with users of services and products accompanying designers. This approach is also akin to IDEO's 51 Method Cards. The Method Cards are divided into 4 suits: "ask, watch, learn and try" <sup>55</sup>. They identify and illustrate a number of exercises on how to carry out empathic exercises with users; going into context; observing real people; learn who, what why and when; empathise with how people feel and think (not just what they say and do); how to value your insights (and intuition) and various techniques on how record and share discoveries <sup>56</sup>. These values were part of the briefing, so participants were equipped with appropriate skillsets. The fresh approach encourages diversity for recruitment and engagement.

### *'Live' on location*

During train journeys, participants took model-making materials to improvise and build prototypes live whilst travelling with fellow passengers. This approach built on Metatla et al's *Designing with and for people living with visual impairments: audio-tactile mock-ups, audio diaries and participatory prototyping*. Metatla et al state "Methods used to engage users in the design process often rely on visual techniques, such as paper prototypes, to facilitate the expression and communication of design ideas. The visual nature of these tools makes them inaccessible" <sup>57</sup> to cross language divides. The model materials acted as a physical device that could conquer language, communication and cultural barriers. The intention of the model making materials enabled the participants to cross barriers, enabling fluid communication through 'live-working'. In *The Nature and Art of Workmanship* <sup>58</sup> defines the context and importance of making, not only through craftsmanship, but in the "act of making"; building on this was critical to the work.

### *Contextual location*

The contextual environment of the train presented haptic observations, listed below.



Figure 2. Washing children's clothes on the train. Source: Author photograph



Figure 3. User adapting carriage for portable cot, rocking them to sleep. Source: Author photograph

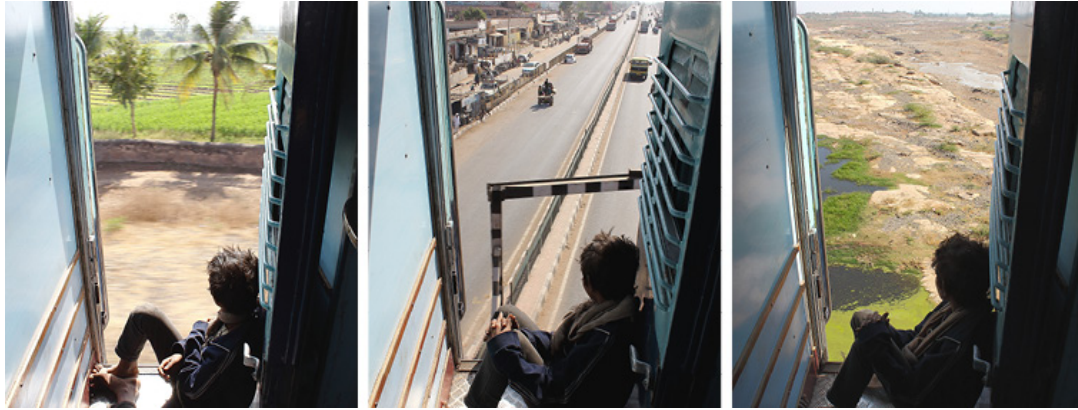


Figure 4. Immersive experience of riding the door. Source: Author photograph

The contextual venue (the train) was perfect for this type of work as travellers were interested in what was happening and they had time to spare often with little entertainment. The train provided situations of: washing (Figure 2), improvisation (Figure 3) and were quite free from health and safety concerns (Figure 4). The participants appeared as tourists aiding interactions, as photographs and interviews were accepted and very interactive. The process orientated around Jugaad that is both socially and culturally acceptable, letting people adapt and re-appropriate. The authors feel appropriate settings are critical; the trains gave particular freedom, context and suitable constraint.

## **Results**

### *Live-working participant responses*

In one train compartment, a participant group were looking at opportunities to encourage exchange, conversation or interaction between passengers and were drawing simple things in chalk like noughts and crosses and other such universal games. In an adjacent carriage, design participants were commenting on the lack of bins and, consequently, passengers were simply throwing their rubbish out of the open windows. The designers and fellow passengers got talking and set about constructing ideas of designing bins on the outside of the carriage so as to 'go with' people's natural instinct or behaviour and constructed some makeshift bins just below the window. They also had an idea on how to open the external bins automatically just before each carriage approaches the station, dumping the rubbish into a big central hopper and thereby having a refreshed bin at every station. Encouraging people (many of whom may be illiterate) to think ecologically and to place their rubbish in a bin (any bin) was an obvious observation and something to solve.

There is something about travelling on a train that is unique. Although you can't leave between stations (despite all the doors being left open), it is easy to get up from your seat and move around, albeit in a confined train space. Also, spending a few days on a train journey (a very short distance for Indian railways) encourages a level of interest and enquiry in other people's activities. One team constructed more appropriate furniture (Fig 5). Initially concepts provided a laptop sized table, but moving congestion presented instant issues and damage to prototypes. Quickly, a new table was fashioned out of the remnant modelling materials but this time it morphed into a long thin tea perch, stretching the length of the bench seats (Fig 6). The process also created interventions in the toilets, which passengers were happy to actively critique.





Figure 5. Live working in train studio. Source: Author photograph Figure 6. Live working. Source: Author photograph

This open mindset of continually contributing to each other's ideas and concepts seemed both natural and democratic; a sense of 'us' working together. Perhaps it was a reflection of a cultural tolerance and humility that reflects a characteristic of the environment and people with whom we were working. However, the consequence of such egalitarian behaviour meant that decisions took longer to reach compared to a more autonomous or singularity approach to ideas. The process of recording and sharing observations is a powerful tool to help you remember detail, context and situations that might otherwise have been forgotten. It provides an opportunity to reflect and enquire a little deeper with those you are observing, particularly as users often tend towards giving positive feedback to avoid seeming offensive. It provides material you can reflect on after the event to give colleagues a chance to interpret and build on the ideas of others. It provides useful material that you can reflect on quietly after the 'event', a process of contemplative reflection not normally included in conventional fast-paced high-energy design led workshops.

## DISCUSSION

With any empathic work, a sensitivity and awareness of culture is critical and, although "it is never a good idea to stereotype"<sup>59</sup> there appeared to be a very high level of tolerance amongst passengers. Although India has extremely diverse cultural demographic, workshop participants felt comfortable asking questions in Hindi, Urdu or English. A lot of passengers travel great distances on trains and so expect to converse and interact with strangers from all over India. The trains are often full and this might well encourage conversation (perhaps a little different to travelling on UK trains). 'Conversation' was one of our themes/frameworks derived from some of the early work that helped spearhead a number of ideas.

It is a strong argument that when and where should other cultures 'fly in' and understand contextual values, why can't we leave it to the locals instead? The authors are not advocating for a colonialist perspective. Bruce Nussbaum, Professor of Innovation and Design at Parsons states that this is '*Humanitarian Design the New Imperialism*'. He expands by advocating whether or not "designers are collaborating with the right partners, learning from the best local people, being as sensitive as they might to the colonial legacies of the countries they want to do good in"<sup>60</sup>. The authors are advocating for contextual local empathy, appropriate to project outputs, not colonialism.

### Process

The 'live working' yielded quick results with the participants that had never designed 'in-situ'. It built upon ethnographic principles of, "what people say they do and what they do are different"<sup>61</sup>. Live working encouraged participants to actively engage and develop concepts quickly, there is a responsive moment however that would need to be repeated over time so participants do not see

outputs as 'whimsicle'. The process of building cultural empathy through live working builds on co-design principles of "behaviours and perceptions" <sup>62</sup> by placing them centrally in the design process. The authors see this as an extension of co-design but not participatory design. The process of participatory design explores either users' "existing or possible contexts of use, aiding the design team to have a more empathetic approach" <sup>63</sup>. The practice of participatory design can often create a "rich setting"<sup>64</sup> to discuss and work within. The participatory design process should take the participant through "small steps"<sup>65</sup> of a process, without overwhelming them. However, the live working process guides them through a pertinent solution or output based on all of the methodologies previously mentioned.

The composition of this project tasked participants with an initial series of light warm-up assignments; photographing and sharing together images of what might define the diversity of Indian culture. Watching and recording everyday city life (before venturing out on the trains) helped foster and exercise an empathic mind-set of discovery and exploration. Making mistakes and overcoming the awkwardness of trying new processes, participants soon became more relaxed and the mechanistic process of seeing (observational field work) was exchanged with empathic transformative insights. This transformative experience resonated with numerous participants and passengers; for example, they understood what insecurity could feel like for women travelling alone. Once the rapport becomes natural and barriers between 'observer' and 'observee' wane, real co-designing emerges, and roles become somewhat indistinguishable. Spending time in context; working on the trains with passengers, food sellers and train staff is all about 'live' working and responding intuitively to emerging concepts. This immediate working process affords moments of serendipity that aligns key passengers, train staff and design researchers to an idea that can be prototyped, tested and evaluated in real time.

### *Method differentiation*

The live working process differentiates itself because:

- It is fixed to specific locations and is instantly contextually grounded.
- It does not require active recruitment, just passing interest, lowering the barriers to entry.
- Participants can see directly what the motivation is to participate with a quick discussion.
- It seeks participation outside of organisers/designers understanding or comprehension.
- It can directly impact their surroundings, discussing with relevant stakeholders live.
- The work builds on participatory design, but is differentiated due to its location within specific contexts whilst including everyone within its proximity.

There is an inherent advantage and efficiency in grounding ideas instantaneously with passengers on real journeys, as opposed to making a series of observations and bringing them back to the studio to develop. One advantage is that the process realises the potential of an idea immediately, and provides the designer with the opportunity to close the loop with passengers that help create the idea. Often the impulse and meaning of capturing an idea can be diluted if not addressed instantly – a bit like eating freshly picked fruit. Having the opportunity to generate and test ideas with passengers that are there ready and eager to help is a fantastic natural resource and stimulation for creativity. Natural, in the sense that the recruitment is unbiased, opportunistic and extremely exciting. Assuming that all the appropriate anonymity and confidentiality requirements are preserved the selection process proved unencumbered by the inertia of having to plan, set up and record timed observational sessions.

### *Wider learning from live working*

One delight of combining direct contextual knowledge with direct contextual empathy is the synergy and 'us-work'; great for those that thrive on 'symbiotic' team working practices and very different from the fly-on-the-wall ethnographic research. Approaching the project with humility, awe and wonder are characteristics not often expressed in user centred design but are always advantageous in observational research. In the situation of the authors' Indian railway project, these characteristics define accurately our attitude to contextual empathy.

Our intention was to follow a systematic study of people, Indian train culture and a design methodology that would derive a series of defined phases: insights, strategies and expression of design interactions and details. In reality, these phases blended and merged with a lot of on-the-spot improvisation. Although we worked towards an overall objective of embedding an ecological awareness we had to quickly learn to detach from our expectations and be patient with the outcomes. Our process unfolded with uncertainty, yielding lots of playful opportunities, moments of serendipity, going with the flow, unpredictability and all those unknown potentials/dilemmas that co-designing presents.

With a team of 22 young Indian designers, two guardians, a train of passengers, vendors and train personnel, the notion of 'us-work' proved at times complex and challenging, particularly with our initial empathic research. But Indian trains and train journeys are long and natural smaller happenstances formed. Smaller teams of four (two designers and two passengers) discussing ideas, illustrating and making real-time sketch models proved very productive and engaging. Everyone seemed to really enjoy the real-time making and testing of prototypes on the train as part of the natural process of developing ideas. Live working 'with' others in context adds an additional dimension to traditional studio brainstorming. It also seems to reduce the two traits that can sometimes encumber young designers: self-consciousness and ego.

The team should have established a returning link with participants (train passengers and rail personnel) to spend time reflecting with these people rather than soliciting their support, and feedback on the go. The nature of design-led workshops can habitually be quick paced, often as a consequence of time restrictions. However, it would be interesting to share the ideas and development work with passengers and train personnel in a quieter reflective exercise, particularly in a country that is known for contemplative enquiry.

In Goethe's contemplative enquiry into the phenomena of light <sup>66</sup>, he reveals the *beautiful interplay between* colour and the emergence of green and magenta under a particular arrangement of black and white stripes. Adopting Goethe's observational approach to science as an analogy within contextual empathy, we reveal the *beautiful interplay between* people and their environment and the emergence of insights and potentials.

#### *Tips to take forward:*

1. Detaching from expectations and adopting a position of equanimity encourages holistic thinking and natural responses to the work.
2. Trust the situation to reveal meaningful outcomes (the emergence of synchronistic phenomena) without jumping too eagerly to conclusions.
3. Engage with humility (a sense of awe and wonder) as an actual outcome; more than just part of a process of discovery.
4. Contextual empathy is more than a cerebral exercise. Prototyping live, on the go, in-situ with real users, yields innate and deeper responses.
5. Combine high-energy fast paced activities with contemplative reflective enquiry.

## CONCLUSION

Direct contextual experiences (DCE) and similar synchronistic events (Jung's collective works 1958) provide an interesting framework from which to reflect on the process and outcomes of our design process. DCE affords a unique set or coincidental circumstances where subjectivity, objectivity and the connection or relationship between them, are all fundamentally one event. Working 'live' with participants, fellow travellers, food sellers and train operatives yielded a rich and colourful content that we could then work into themes and rationales for development. Despite the team's honourable intention to remain impartial and objective, one has to acknowledge that one's own emotional interest seemingly influences the research, particularly as insights and ideas are being formed. Whilst this might seem somewhat problematic it highlights a slightly more holistic placement of Human-Centered Design as a creative tool.

### *Contextual empathy points*

- The process led to active participatory design opportunities, which were socially motivated.
- The work reached alternate diverse audiences that would not usually opt-in to such activities.
- Insights were very contextually grounded with direct application.
- Provided multiple opportunities for different levels of audience participation, to audiences that have multiple affluences and levelled the field.
- The authors believe the process can be located anywhere, especially where language or cultural values are different? Or where projects require a more divergent approach.
- The output opens the concept of a traveling maker space and how it could function.
- Authors perceive it could be applied to service design, grounding the cross connections that can often remain unseen.
- All of the positives need to be viewed at a distance, as it is also dangerous only to consider that demographic, isolating views not present in that location.

The process reached an audience that would not normally opt-in to such activities and involving these passengers within the idea generation process helped participants realise the contributions they can make, as well as a sense of shared ownership and common purpose. This process of designing 'live' with and in front of audiences lends itself to multiple opportunities and has subsequently been adopted by the authors designing a next generation of public bicycles in China. It lends it self particularly to a context where language and culture values are diverse or just different, or where the solutions impact on a very wide demographic such as the railway network. However, there is a note of caution that the authors are aware of that is common to a lot of qualitative design research, and that is the small sample size and time limits. Although there were a small finite number of passengers to work with (with respect to the population) and therefore statistically insignificant in terms of objective substantiality; the process is rich, insightful and abundant in subjective creativity.

The train journeys focused on shorter two to four hour trips. The trips yielded multiple insights from which the team could utilise their skills and experience to develop design concepts. The Indian Railways system, particularly in the cheapest seats, presents a levelling system that encourages conversation and interactivity between fellow passengers. We exploited this phenomenon and set to work making, drawing, photographing, testing real-time as daily life on the train unfolded along our journeys. With zero coercion, fellow passengers could not resist the temptation to interact and share their thoughts, passions and energies into generating and making concepts collaboratively. Improvisation and spontaneity were our currency and the sheer enthusiasm meant that ideas were flowing contiguously.

As stewards of the process, our role was to join the dots and bring seemingly unconnected events and ideas together. Examples included participants observing passengers surreptitiously throwing their rubbish out of the open window and subsequently designing an external refuse system. In another compartment, some students were drawing pictures of flowers on the seats with chalk to pass the time. Finally, the active design and engagement of toilet facilities. The question arises as to whether we would have created more or better ideas if we had had more time and more journeys.

### **Conclusions for repetition**

6. Find appropriate mediums for communication based on participants' skillsets, models, sketching, photo-manipulation etc. for communicating Direct Contextual Experiences.
7. Understand appropriate questions; locate the 'root' of the idea opposed to the concept in between; this can take time and involve a range of studies.
8. Live working in contextual situations worked when the situation provides freedoms unbound by conventional norms.
9. Cultural empathy steps; full immersion with a range of knowledge expertise, removing judgement, levelling hierarchy and empowering communication regardless of skillsets.
10. Stewards letting go, not dictating direction, but guiding scenarios.
11. Ethical parameters; what cultures are you working within? How do you maintain ethical procedures protecting both the user and the researcher?

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