Empowering indigenous communities in India through the use of design thinking methods

Gareth H. Loudon[1], C. Santhosh Kumar[2], Sreekumar, K.T.[2], Haritha H.[2], Kuruvachan K. George[3]

[1]Cardiff School of Art & Design, Cardiff Metropolitan University, UK.
[2]Amrita School of Engineering, Amrita Vishwa Vidyapeetham, India.
[3]Institute for Infocomm Research, Singapore.

Abstract

The project explored how user-led design research methods such as design thinking can be used to engage with, and empower indigenous communities in rural India, with a focus on how to improve their health and well-being. The project was a collaboration with researchers from Amrita Vishwa Vidyapeetham in India; villagers from indigenous tribal communities in the Kerala State of India; medical doctors and healthcare workers who work in these rural communities; and experts in eHealth solutions. The design thinking methods used in the project are based on many of the key principles of indigenous research methods, but also put a strong emphasis on how to generate impact by considering solutions that are desirable, feasible and viable. The project included ethnographic field work in three tribal villages in the Wayanad district of Kerala; participatory workshops to help discover and develop new ideas to meet the health needs of the indigenous tribal communities; and reflections by tribal villagers and healthcare workers on the benefits of the project, as well as limitations and on-going challenges. This paper documents the approach taken in the project and the lessons learnt - in particular, how design thinking methods and techniques can be effectively used to engage with indigenous communities in a respectful manner, to ensure equitable partnership, and to enable the mobilization of knowledge to help improve the health and well-being of indigenous communities in India.

1. Introduction

There has been a growing interest in the use of human-centred design methodologies, such as design thinking, to help develop culturally appropriate solutions that address the needs of people living in developing countries (Brown, 2009). Human-centred design (HCD) is an approach to create new products, systems or services based on the needs, desires, context and culture of the intended users (Giacomin, 2014), and involves the intended users throughout the process.

Design thinking uses methods that stem from anthropology, such as rapid ethnography (Millen, 2000; Hammersley and Atkinson, 2007), to understand people's everyday lives including their behaviours, motivations, desires, beliefs and values. Rapid ethnography is also used to describe what meanings people place on objects, products, services, cultures, events and histories; and to describe how objects, products and services are used.

In addition to understanding people's everyday lives, design thinking is also about the fast prototyping of ideas and gaining feedback from end users and stakeholders so that the resultant solutions are appropriate, usable and effective. Design thinking demands multidisciplinary collaboration to gain a range of perspectives and insights. The aim of

design thinking is to generate a number of possible solutions that meet the needs of users, but are also technically feasible and economically viable (Kelley and Kelley, 2013).

Even though HCD approaches such as design thinking have been successfully applied in industrialised countries, previous efforts to apply these approaches for communities from developing countries have often resulted in solutions not being culturally and contextually appropriate (Donaldson, 2008). This has often been because designers from industrialised countries were just making stop-over visits to developing countries and then designing solutions remotely. Drawson, Toombs and Mushquash (2017) also report that indigenous research "has historically been completed on, rather than with" indigenous communities.

To try and address these problems, the company IDEO was asked by the International Development Enterprise, funded by the Bill and Melinda Gates Foundation, to develop a field guide for how to apply human-centred design (HCD) methods, such as design thinking, in such contexts (IDEO, 2009). Many of the ideas, methods and techniques described in the IDEO field guide have roots in participatory design approaches such as rapid rural appraisal (Chambers, 1981) and participatory rural appraisal (Chambers, 1994), as well as building on ideas and approaches proposed by Schumacher (1973). Many of the methods, such as storytelling, are also used in community based participatory research (Minkler and Wallerstein, 2011) and indigenous research methods (Drawson et al., 2017).

Our project explored how the ideas and techniques proposed by IDEO in their HCD field guide could be applied to help improve the health and well-being of indigenous tribal communities in the Wayanad district of Kerala, India. The project was a multidisciplinary collaboration including researchers and clinicians from Amrita Vishwa Vidyapeetham in India; indigenous tribal communities from the Wayanad district of Kerala, India; clinicians and healthcare workers working with these communities; and experts in human-centred design methodologies and eHealth technologies from Cardiff Metropolitan University and the Centre for eHealth and Care Technology at the University of Agder, Norway.

The focus of this paper is to document the approach taken during the project and to share the lessons learnt from the reflective study undertaken with clinicians, healthcare workers and villagers from the indigenous tribal communities in the Wayanad district of Kerala. This paper will not document all the healthcare findings from the project, or the possible solutions proposed, as that will be covered in another paper.

2. Background

Indigenous tribal people in India are called 'adivasis', where adivasi means original inhabitant (Pramod, 2013). They represent 8.6% of India's population (Census India, 2011), however, in the Wayanad district of Kerala they represent 17% of the population that totals 817,420 (Census India, 2011), i.e. about 140,000 people. The indigenous communities of Wayanad are made of many tribes, with the main tribal groups being the Paniyas, Kurichyas, Mullakurumas, Kattunaikkans, Adiyans and Uralikurumas (Pramod, 2013). Each tribal group has its own unique social, cultural, linguistic and anthropological characteristics. While the average life expectancy in Kerala is 74.9 years (Census India, 2011), and the highest in India, the average life expectancy for the adivasis in Wayanad is around 45 years (Antony, 2014). Most of the tribes in Wayanad are landless and impoverished (Rajasenan & Abraham, 2013). Land was taken away from the tribes in Wayanad by the British imperial government when they introduced land titles and property ownership (Kurup, 2010) and the problem was further exacerbated by the migration of settlers into the Wayanad district (Pramod, 2013).

The World Health Organisation (2016) proposed several strategies to improve the resources for health in areas such as the indigenous tribal communities in Wayanad, including how to harness technology more effectively, and how to build "greater resilience and self-reliance in communities". The Indian government established the National Rural Health Mission in 2005 "to provide accessible, affordable and quality healthcare to the rural population" with the aim of establishing "a fully functional community owned, decentralized health delivery system" (National Health Mission, 2017).

In 2005, Amrita Vishwa Vidyapeetham helped establish the Amrita Kripa Charitable Hospital in Wayanad as a tribal health initiative. The hospital has an out-patient department that sees roughly 150 to 250 patients per day, as well as a pharmacy and laboratory for basic investigations. All services are provided free of charge for the tribal communities. The hospital also provides outreach services for the tribal communities. See Figure 1 below. In 2013, the hospital teamed up with the non-governmental organization Amrita SeRVe (Amrita SeRVe, 2018) to help the tribal villages in Wayanad become more self-reliant. A key part of this work involves the use of community healthcare workers who act as a bridge between the hospital and the tribal villages. The remit of the community healthcare workers is broader than just direct healthcare support, and includes a focus on education, water and sanitation, agriculture, income generation, eco-friendly infrastructure and self-empowerment.

Figure 1. Amrita Kripa Charitable Hospital in Wayanad (a) outpatients queuing (b) laboratory (c) vehicle for outreach work in the indigenous tribal villages.

Many of the health problems of the advivasis seen by doctors at the Amrita Kripa Charitable Hospital in Wayanad are related to the changing socio-cultural scenarios; to changing dietary habits; the difficulty in accessing healthcare services because of the remoteness and accessibility of some of the tribal villages; financial difficulties; and a lack of education and awareness. Commonly seen health problems of the advivasis at the hospital are due to malnutrition, infections, acid peptic disease, and diseases related to alcohol and tobacco abuse. However, it is also worth noting that doctors have noticed many positive aspects of the tribal life, including lower levels of stress compared to the non-tribal population; more contentment with life; and no loneliness, as they are part of a closely-knit community. In addition, women are more empowered in the indigenous tribal communities compared to the non-tribal population, children have more autonomy, and there is a better acceptance of giving birth to baby girls (there is generally no dowry system).

Before the start of this collaborative project, Amrita Vishwa Vidyapeetham (Amrita) had already been exploring how information and communication technologies could be used to assist the clinicians and community healthcare volunteers working with the indigenous tribal communities in Wayanad. However, they realized that the challenge was not just about technology development, but also how other cultural, financial and geographical factors impact on the creation of appropriate, affordable and accessible solutions. Therefore, Amrita initiated this collaborative project to explore how a new multidisciplinary approach could be taken.

3. Approach

The main aim of the project was to explore how user-led design research methods such as design thinking can be used to engage with, and empower indigenous tribal communities in the Wayanad district of Kerala, India, with a focus on how to improve their health and well-being. Therefore, the project was not just about capturing and understanding the needs, knowledge, behaviours, motivation, beliefs and values of the indigenous tribal communities of Wayanad – although this was a crucial element. It was also about helping these indigenous communities build their own capacity for developing new ideas and solutions to problems they face, by providing them with key skills, tools and techniques. The project aimed to encourage engagement, collaboration, co-creation and co-production.

Key objectives for the project were to:

- Understand and document the current situation and challenges faced by indigenous tribal communities in the Wayanad district of Kerala, India with regards to their health and well-being.
- Train researchers, clinicians and healthcare workers (who are working with the indigenous communities), as well as villagers from the indigenous tribal communities themselves, on how to employ user-led design research methods such as design thinking to generate new ideas and possible solutions to improve the health and well-being of the indigenous communities.
- Run an interactive design thinking workshop with key stakeholders and international experts to discover key challenges and opportunities. Key stakeholders included researchers, clinicians, community healthcare workers, villagers from the indigenous tribal communities, technology companies and government advisors.
- Conduct a reflective study with clinicians, community healthcare workers and villagers from the indigenous tribal communities on the benefits of the workshops, as well as limitations and on-going challenges.
- Create a plan for developing possible solutions further, through future collaborative projects.
- Disseminate findings from the project to the academic community, policy makers and the healthcare community in India, as well as other key groups such as technology companies.

The project was broadly divided into four main stages. The first stage focused on conducting field work in the indigenous tribal communities of Wayanad; the second stage involved running design thinking workshops; the third stage included a reflective study on the benefits of the approach, as well as limitations and on-going challenges; and the fourth stage, that is still in progress, creating plans for future collaborative projects with the indigenous tribal communities in Wayanad to improve their health and well-being. Dissemination of the project findings has happened throughout the project, and will continue, through various events, workshops, visits, meetings and publications.

3.1 Fieldwork

The first stage of the project focused on conducting rapid ethnographic fieldwork in three tribal villages in the Wayanad district of Kerala. The aim was to capture stories from the villagers, healthcare workers and doctors to try and understand how the cultural context; the physical infrastructure; the physical environment; and the physical remoteness of villages impacts on villagers' health and healthcare needs and the possible solutions that could be developed. Our approach used a combination of participant observation and interviews. All

authors participated in the fieldwork. In preparation for the fieldwork, ethics approval was gained from the Cardiff School of Art and Design's Research Ethics Committee and from Amrita Vishwa Vidyapeetham.

The fieldwork included semi-structured interviews with two doctors at the Amrita Kripa Charitable Hospital in Wayanad and three community healthcare workers at the tribal villages. Semi structured interviews were chosen as they give the interviewee more leeway to talk on their own terms compared to standard interviews (Hammersley and Atkinson, 2007). In preparation for the semi-structured interviews, interview guides were created, not so that the questions were read verbatim and in sequence, but to enable the steering of the conversation to a range of key topics. Topics included healthcare priorities, current approaches and challenges, technology access and usage, education and skills, cultural factors, financial and legal issues, and logistical challenges. All interviewees were encouraged to tell stories about certain experiences they have had in trying to support and improve the health and well-being of the indigenous tribal communities of Wayanad.

The interviews with the two doctors were conducted in English, as both doctors were fluent English speakers. The interviews with the three community healthcare workers were undertaken in Malayalam by researchers from Amrita. The researchers from Amrita were given a crash course in how to conduct semi-structured interviews just prior to the interviews taking place.

In total, two days were spent in the three tribal villages in Wayanad (see Figure 2 below), gaining insights through participant observation into the cultural life of the villages and villagers' everyday lives, including their behaviours and the material objects they use. In addition, informal conversations were held with many of the tribal villagers (by the researchers from Amrita) throughout the two days to gain further insights into their behaviours, motivations, beliefs and values. Again, storytelling was a key method used to gain these insights.

Figure 2. One of the tribal villages in Wayanad.

After completing the field work the team analysed the findings and highlighted key factors that are important when trying to improve the health and well-being of the indigenous tribal communities of Wayanad. These included socio-cultural factors, limitations of infrastructure and the remoteness of some of the villages, educational issues and economic factors.

3.2 Workshops

The second stage focused on running two participatory workshops with key stakeholders and partners, including some of the tribal villagers from Wayanad, community healthcare workers, local and overseas academics, students, clinicians and technology companies. The academics and students came from a range of disciplines including healthcare, engineering, sociology, agriculture and design. The overall aim of the two workshops was to facilitate culturally sensitive knowledge exchange between all the partners and stakeholders, and to

facilitate the co-creation of new solution ideas that could have a meaningful impact on the health and well-being of indigenous tribal communities in Wayanad.

The first two-day workshop focused on training participants on how to apply key methods and techniques of design thinking to help discover new insights and to help design and develop new solutions. The second two-day workshop used design thinking methods to help generate new ideas that could meet the healthcare needs of the indigenous communities.

Figure 3. Some of the participants in the workshops.

Both workshops took place at Amrita's Coimbatore campus, with both workshops having 30-40 participants each. We felt it was critical to include some of the tribal villagers in the workshops for several reasons. Firstly, one of the main aims of the project was to train tribal villagers in how to develop new solutions to improve their health and well-being, i.e. to become more self-reliant; secondly, so that the tribal villagers could be involved in the co-creation process, sharing their own ideas with other participants, and for the villagers to give feedback on ideas from other participants in terms of their cultural appropriateness, as well as their desirability, feasibility and viability, i.e. help generate new solution ideas that could have meaningful impact; and thirdly, to try and highlight that the views and ideas of villagers are of equal importance and value as the other participants.

The first morning of the two-day training workshop included an overview of design thinking concepts and process; case studies on how design thinking has been applied in other developing countries; and key factors and processes that affect idea generation. The afternoon focused on the principles and practices of rapid ethnography; further case studies; practical training and guidance on how to undertake participant observation and semi-structured interviews; how to encourage storytelling; and the importance of empathic listening. Day one culminated with participants being asked to put into practice what they had learnt during the day by undertaking a rapid ethnography activity in teams, with the challenge of coming up with new ideas/concepts that could improve the well-being of staff and students at the Coimbatore campus.

The second morning of the two-day training workshop introduced methods for analysing ethnographic research data, followed by an activity where participants (in their teams) applied the methods based on the research data they collected from the day one challenge. The final afternoon covered concept generation techniques and methods, again followed by an activity where participants (in their teams) applied the concept generation methods based on their analysed research data. All teams then presented their ideas back to the other participants. The final part of the day focused on the methods for the fast prototyping of ideas/concepts and how to evaluate prototypes in terms of their desirability, feasibility and viability to make sure proposed solutions can have a meaningful impact.

Figure 4. Idea generation and evaluation in multidisciplinary teams at the workshop.

The second two-day workshop focused on generating new ideas that could improve the health and well-being of indigenous communities in India, using design thinking methods. To set the scene, the first morning included talks on the government initiatives to improve rural healthcare in India; the current health and life of indigenous tribal communities in Wayanad, including findings from our fieldwork from stage one; and how other tribal village initiatives by Amrita, in the state of Tamil Nadu, have had a meaningful impact on their health and well-being.

Figure 5. Team presenting ideas generated during the workshop.

Following on from the series of talks, participants were put into teams. Teams were carefully selected so that there were people in each team from a range of different backgrounds and with a range of skills (e.g. cultural, medical, technical, commercial, design). The teams were then set the following challenges during the rest of the workshop. Firstly, to debate, discuss and list the issues, problems and concerns of key stakeholders (e.g. tribal villagers, government, healthcare workers, doctors, technologists, private sector) with regards to supporting the health and well-being of people living in rural communities in India; secondly, to generate a range of ideas that could help improve the health and well-being of people in rural communities in India; and finally to evaluate the different ideas proposed in terms of their desirability, feasibility and viability. After each challenge, all teams presented back their insights and ideas to all participants. All participants were guided on how to use different design thinking methods for concept generation and evaluation throughout the workshop.

The final part of the workshop focused on how to translate the ideas proposed in the workshop into meaningful action; whether the activities should be government led, or led by non-governmental organisations such as Amrita, or by the healthcare workers and the tribal communities themselves, or by the private sector, or by a combination of the above.

3.3 Reflective study

The third stage of the project allowed us to critically reflect on, and document, the process of engaging with the indigenous tribal communities in Wayanad - what worked well, what could have been done better, and what we need to focus on next. For example, did our approach value and respect the beliefs, knowledge and traditions of the indigenous tribal communities of Wayanad? Did our approach enable the creative expression of ideas from the villagers? Has our approach had a meaningful impact on the challenges faced by indigenous tribal communities in Wayanad?

This reflective study was done in collaboration with the tribal villagers themselves, together with doctors and healthcare workers working in these communities. The reflective study also allowed us to capture the experiences and reflections of the villagers and healthcare workers on being involved in the research project, including the participatory workshops, and how they could use the ideas gained from the workshops for developing new ideas. We used conversational and storytelling methods to capture their reflections, experiences and ideas for the future. To aid communication and minimize cultural barriers, these conversations were facilitated by the team members from Amrita.

4. Reflections

4.1 Fieldwork

As highlighted by previous researchers, indigenous communities have often "been the subjects of research endeavours" (Drawson et al., 2017), where there has not been a sustained effort to support capacity building. When we conducted our initial fieldwork we heard similar stories from the community healthcare workers based in the tribal villages, and from the villagers themselves. Even though many of the research endeavours had good intentions, such as installing solar panels to provide electricity, or to supply drinking water, the activities were usually not sustained. The common result was that such solutions ended up being temporary.

One key advantage of this project was that it was part of a larger effort by Amrita to improve the health and well-being of the indigenous communities in Wayanad, and had been running for several years. Not only through the establishment of the Amrita Kripa Charitable Hospital, but crucially, through the role of the community healthcare workers. As a consequence, the tribal villagers had established a high level of trust in the efforts of Amrita, as Amrita had proved to the villagers that they would deliver on promises made, and that the actions of Amrita, in collaboration with the villagers, had a major impact on their health and well-being. We believe this sustainable commitment to supporting indigenous communities is crucial, and something that other researchers should consider when planning a project.

When we visited the three different tribal villages in Wayanad, we went with the community healthcare worker linked with the particular village. This worked extremely well, as on our arrival, the healthcare worker explained that we were part of the Amrita project. This immediately established a level of trust, and enabled us to spend many hours in each village, wandering around the village, chatting to many of the villagers. The villagers were very open and happy to show us their homes, what crops they have planted and harvested, what initiatives they have been involved in, and to share stories about their daily lives, including the challenges they face. What was also clearly obvious was that the villagers had a great love for the healthcare workers and what they have done for them. Another interesting finding was that the healthcare workers got the villagers themselves to undertake key

activities, rather than doing it for them. For example, creating a well to have access to drinking water. Therefore, there was a strong focus on capability building in the villages.

Overall, the visits to the three tribal villages, although only over two days, provided tremendous insights into the everyday lives of different indigenous tribal communities in Wayanad - the challenges they face (such as malnutrition and income generation), the infrastructure that is available, and the initiatives they were undertaking. Firstly, because of the trust already established by Amrita; secondly, because of the role the healthcare workers played in introducing us when we visited the villages; and thirdly, because of the approach and knowledge of the research team from Amrita undertaking the core of the fieldwork. The members of the research team from Amrita not only spoke the same language as the villagers (a crucial element), but were also very respectful and empathetic. The three core members of the research team are quite young (under 30 years old), with one female and two males. This also seemed to help break down barriers and help build rapport with the villagers.

Another key reflection from the fieldwork was that there were several good initiatives happening in the different tribal villages, whether that related to supporting education and skills training, farming, fishing, sanitation, or income generation, but there seemed to be limited sharing of ideas between the villages. This is mainly due to the remoteness of each village, but there definitely seemed an opportunity to find a way that the best practices of the different tribal villages could be shared.

4.2 Workshops

There were many positive comments from the doctors, tribal villagers and healthcare workers who attended the workshops. For example, the villagers and healthcare workers all commented that they were very happy to be involved in the workshops and all participants at the workshops treated them with respect, as equals. They also commented that they were able and encouraged to interact freely with the other participants and to express their ideas through the two workshops. In terms of the content covered during the first workshop, the villagers and healthcare workers highlighted that it helped them in knowing that there are methods and techniques they can use to help them find solutions to the problems they face. The villagers also commented that they shared their workshop experiences with their family and friends when they got back to their village.

One of the main benefits of the workshops, mentioned by many, was the bringing together of people from a diverse range of backgrounds with different skillsets. This helped provide new perspectives and new ideas for improving the health and well-being of the indigenous tribal communities in Wayanad, as well as a recognition that a lot of things can be done for the villagers to improve their quality of life. Ideas generated in the workshop covered topics such as education and training, organic farming, eHealth, cross-village collaboration, new income generation models, jewellery and soap making, fishing, sanitation and energy generation. There was also a recognition that it is important to use this diverse skillset in the development of new solutions to make sure that they are desirable, feasible and viable, and that the villagers should play a central part in the planning and development.

In terms of areas where there was room for improvement, a few were highlighted. Firstly, there was a language barrier for some of the delegates, particularly one of the healthcare workers and the villagers. Participants at the workshops spoke either Malayalam, Hindi, Tamil or English, or a combination of these languages. The main content for the first training workshop was delivered in English. In addition, the main talks for the second workshop were delivered in English. Even though we had someone giving informal translations to the non-English speakers during the presentations, it would have been better to have full real-time

translation available for everyone. For the team based activities during the workshops language barriers were less of a problem as we tried to form teams where everyone could speak the same language, for example, Malayalam, Tamil, Hindi or English. In addition, during discussions and team presentations, participants spoke in their language of choice (with someone providing translation when necessary).

Another key issue raised about the second workshop was that a clear action plan was not formulated at the end of workshop. As a consequence, participants were not clear on the next steps to take or whether future support would be available, i.e. would there be meaningful impact based on the ideas generated in the workshops.

4.3 General reflections

The aim of the project was to explore how user-led design research methods, such as design thinking, can be used to engage with, and empower the indigenous tribal communities in Wayanad, with a focus on how to improve their health and well-being. Up to this point in the project, the approach seems to have been successful in engaging with the indigenous communities, but further work is needed to empower the communities, as the villagers themselves have not implemented any new activities, as yet, based on ideas gained from the workshops. This is partly due to the fact that funding problems and logistical problems remain. However, as Koh (2012) highlighted, "design thinking is not just a process; it is a mindset, a way of life", and it takes time to change people's mindsets. Therefore, more work needs to be done to help make this change sustainable. However, it is interesting to note that one of the healthcare workers has recently leased agricultural land so that the tribal villagers can earn an income from selling produce they cultivate (and to help their own nutrition).

Figure 6. Cultivation of leased land for farming by tribal villagers in Wayanad.

5. Next steps

As highlighted in some of reflective feedback, it is important that for the next steps, all the key stakeholders in the project (including the indigenous communities) put an action plan together to make sure the project results in meaningful action and sustainable solutions for the indigenous tribal communities of Wayanad. This activity has already started, and initial plans are being developed at present with regards to supporting the education of the villagers, helping the villagers generate more income, and in providing better healthcare support. Part of this activity includes gaining additional funding. A big advantage we have is that Amrita have established trust with the indigenous tribal communities in Wayanad and the villagers are open and willing to take the next steps.

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