





LEARNING ABOUT MAKERS IN CHINA

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This chapter will introduce an experiment in fieldwork methods conducted to investigate China's fast-transforming spaces for "making" and tinkering with digital manufacturing. Through multidisciplinary workshops organized in Renens in May 2017 and in Shanghai and Shenzhen in March 2018, this experimental approach aimed to overcome issues faced by traditional participative ethno-graphic methods—to deconstruct and reconstruct the research object—while studying phenomena where knowledge and practices evolve locally, but also online, across cities and international networks.

From Do-It-Yourself (DIY) communities to industrial research and innovation, a redefinition of the processes of making has emerged globally under the name of the *maker movement*. Making, traditionally considered an essential means of cultural transmission and learning (Ingold 2013), has been separated since the 19th century from other cultural activities, in order to follow the structural division of industrial production. Questioning this separation, *makers* want to reconsider the act of making as an instrument for knowledge transmission and community engagement.

Around the world, various initiatives have been created to support this trend, gathering groups of stakeholders from local communities, governmental offices, universities, institutions, businesses, etc. Locally, the makers tend to meet in specific places often known under terms such as *fablabs, maker-spaces, hacker-spaces*, etc. While these words have already gained momen-tum (see section 2), their existence is hardly homogeneous, as their role and characteristics echo the sociocultural, political and technological settings in which they take place.

In Chinese cities, the industrial transition from low-cost to higher-margin production of services and technologies has led to major urban transformations. Here, the spaces of the makers offer an interesting sneak peek into these changes. Iconic places such as xinchejian in Shanghai or x.factory in Shenzhen have become an integral part of those cities' industrial strategy, with visits and sometimes partnerships with top officials and leading industrial actors across China and abroad.

The entanglement of discourse and projections from the different stakeholders turns the study of this phenomena into a complex problem—increased in China by the speed of urban change in recent years. In this chapter, the authors explicate



their methodological attempt to consider not only the local whereabouts of specific places, but also their entanglements in larger municipal, national and global networks. The text begins by giving some context about makers in China before introducing existing theories and approaches of studying changing spaces. It continues with a detailed description of the experiment which included participatory public events, on-site multidisciplinary fieldwork and the making of a small booklet during a ten-day workshop in China. The chapter ends with a discussion of the main takeaways, learnings and shortcomings of our approach, as well as recommendations.

MAKERS, MAKERSPACES AND CHINA

In recent years, the cost of industry-grade tools (numerical control machining, additive manufacturing, electronic sensors or microcontrollers, etc.) has been decreasing rapidly, facilitating the access of small organizations and individuals to these resources. At the same time, the surge in online activities worldwide has made vast arrays of learning materials available for tinkering with technologies, with the central example of open-source software and electronics. This new distribution of information and tools has had major strategic implications for companies and entire industries whose development has traditionally relied on their edge in technological innovation.

Inventors, entrepreneurs, students, scholars, journalists, policy–makers... multiple groups of people have tried to define, discuss, claim and describe this growing trend. In 2011, Anderson—a famous Californian editorialist—popularized the term "maker movement", describing how "makers" were taking advantage of these new opportunities to lead a new "industrial revolution" that would radically transform the practices of manufacturing, business and education. At its core, making was defined by Anderson as a hands–on approach in defining new economic pathways (Anderson 2012). While this definition quickly gained momentum with policy–makers and executives, epistemic communities also formed around the newly available materials and devices to pursue their interest for design and experimentations. For these communities, making was framed as a form of empowerment and resistance to consumption and mass production, where situated creativity would prevail over economic incentives (Dougherty 2016).

All over the world, vastly different practices and communities have organized—or been grouped—under the unified umbrella of a maker movement or maker culture. Diverse appellations (hackerspaces, fablabs, makerspaces, etc.) have emerged to qualify different organizational and business models, as well as goals and connections to larger (global) networks (Capdevila 2017). For the purposes of this study we will rely on the general term *makerspaces*, defined as shared spaces or workshops that loosely associate themselves with the maker movement and provide tools, tables and chairs for regular members' meetings and/or public events.

In China, early makers positioned themselves as part of this seemingly global movement. A loose translation of the term maker, the Chinese term *chuangke* (创客), was created by China's open-source hardware advocates to position their



work within the global and national dynamic of innovation, entrepreneurship and creativity discourse (Lindtner 2015). This fairly young term was later endorsed by Chinese Prime Minister Li Keqiang in 2015 as part of the ten-year plan on industrial and economic reforms *Made in China 2025*. Once indicating a local community member, *chuangke* came to describe the figure of a young, active Chinese tech entrepreneur.

Following this announcement, makers in China were propelled to a new position of innovation leadership with the mission to reboost and diversify the national economy, both locally and abroad. Continuing on from previous plans to foster innovation and creativity through urban development (Keane 2006), the government targeted innovations coming from communities and individuals to transform China's image from "the world's factory" into an "innovation–oriented nation" (Lindtner 2017). As Wang (2016) writes, the Chinese makers inherit a double identity—or a single identity with a double activity: the entrepreneur and the activist.

In 2010–2011, makerspaces started to appear in China (Bolli 2020; Renaud 2018). Like in many other cities, these spaces were originally created by hobbyists and professionals willing to share space, tools and ideas to grow their projects. Members would usually pay a monthly or yearly fee for access and volunteer to help run the space. Regular public workshops were organized by members to share their skills, create an income and give visibility to the space.

In 2015, a large public investment policy called *Mass Innovation, Mass Entrepreneurship* (众创 *zhongchuang*) transformed the landscape of making in China (Wen 2017). Benefitting from subsidies, new spaces appeared (and sometimes disappeared) in cities all over China. Small organizations and spaces that existed prior to public intervention often faced unplanned and even difficult situations due to the rise of public interest and attention. Spaces opened and closed, people joined and left, organizations changed or disappeared. City governments in Shenzhen or Shanghai supported the emergence of Chinese public figures and companies as representatives of the global maker movement.

Beyond the maker–enthusiast, makers are now at the forefront of China's industrial strategy to position itself as a strategic hub and exporter of innovation in manufacturing, with support from large international industrial firms such as Apple or Tesla and programs like the Belt and Road Initiative. Therefore, maker–spaces are interesting places to observe and document the encounter of China's top–down policies with a vast array of local and global stakeholders.

HOW TO STUDY CHANGES IN COMMUNITY SPACES?

COMPLEX FIELDWORK AND MULTIDISCIPLINARITY

There are many challenges to such a study. First, China's urban and industrial development comes in all kinds of scales and varieties. The diversity of the country and its size makes any generalization pointless. Second, the pace of transformation and evolution one can witness on the ground makes traditional



inquiries very difficult. Third, the "maker movement" stands at the crossroads of major economic and industrial interests, and therefore is subject to lots of attention. The multiple discourses, statements and actions surrounding it are motivated by incentives and intentions, which are not always easy to discriminate.

Still, studying makerspaces is a unique opportunity to observe China's urban and industrial transformation through actual spaces created by communities—as well as interactions between people, space and state in China. As small organizations, makerspaces face significant sustainability challenges. Their existence relies on the support of members, public and private stakeholders, as well as their place in a larger socioeconomic ecosystem (Kingsley & Saunders 2016). The entanglement of the lifepaths of these organizations and their members makes tracking changes challenging, especially in short windows of time when maintaining contextualization and cultural sensitivities is already difficult. Traditional methods of ethnographic inquiry such as on–site participatory observation show their limits in the face of these multifaceted objects that exist altogether in local, national and international discourses, places and networks.

There is therefore a need to develop research methods that can apprehend fast-changing, multilayered and multisited fields of research (Marcus 2016). Researchers have been keen to rely on the participation of local stakeholders to help them grasp reality. Still, Cornwall and Jewkes (1995), who discuss the notion in the context of health research, remind us that: "Participation' is rapidly becoming a catch-all concept, even a cliché. 'Participatory' research methods can be used not only to enable local people to seek their own solutions according to their priorities, but also to secure funding, to co-opt local people into the agendas of others or to justify short-cut research within a top-down process" (Cornwall & Jewkes 1995). In the context of makerspaces in China, we relied on our familiarity with many stakeholders (evolving from long-term involvement with the topic and local communities) to allow them to voice their ideas at several levels of the process and acknowledge their influence in the construction of the research narrative (Clark et al. 2009).

The study of complex social realities can also be improved by having experts with different backgrounds, knowledge and research specialties (Ramadier 2004). The involvement of experts from different fields, besides comprehending the different disciplinary points of view on the subject enquired, helps to disassemble and reassemble an acquired knowledge. The capacity to look at things from a different perspective helps to compare, contrast, differentiate, clarify and synthesize the complex reality analyzed. As Hine (2007) explains, interdisciplinary methods can also be problematic, by making the formulation, validation and communication of the research more difficult. Therefore, the team should be careful to preserve the disciplinary thinking of each member (Ramadier 2004).



Ultimately, this disassembly of global "assemblages" is made possible by active dynamics and exchange between the practitioners (researchers or participants). The building of strong and meaningful relationships becomes an essential and often underconsidered—component of the research. To create boundaries and share practices through common activities becomes an important way to develop common knowledge and experience. In our case, hands–on work– shops were central to exploring the craft and tools of the makers (Marshall and Rossi 2017).

Short-term and multisited research such as the example proposed in this article also have to rely on extensive local knowledge to develop a chronology of the "new worlds" in the "global cultural flow" (Appadurai 1990). Therefore, we decided to lead our research by combining short intense actions (such as workshops) and longer time spans (for literature and fieldwork). Two members of the scientific team spent several months on-site to develop networks, specific language skills and cultural sensitivity. Meanwhile, we also created specific moments to act as stepping stones for a larger understanding of our topic.

As we were dealing with objects with strong spatiotemporal constraints (and being also far from China), we decided to design the research project through the rhythm of successive events allowing us to build up the framework and the network. All the research design was made by a core multidisciplinary team of four researchers (anthropology, geography, economics) which was further extended during workshops (sociology, design, architecture, etc.). A first prefiguration workshop was held to explore and refine the methodology. Then, extensive time in the field in several cities in China (Beijing, Shanghai, Chengdu, Shenzhen, Hong Kong) was necessary to build sufficient knowledge about local circumstances and stakes. Finally, we conducted participatory workshops in two different cities to confront our observations with local stakeholders.

PRELIMINARY RESEARCH AND PREFIGURATION WORKSHOP

The first prefiguration workshop entitled *"How to study makerspaces?"* took place on May 18 and 19, 2017 in Renens, Switzerland. For two days the researchers were hosted at *Les Ateliers de Renens*, an old printing factory repurposed into a creative cluster hosting a makerspace, a fablab, a bio-hacklab and a coworking space. An important advantage of this location was the multiplicity of types of spaces under the same roof, as is often the case in China. It fosters a comparative perspective. The workshop brought together 15 researchers, makers, practitioners, and political and educational representatives from different backgrounds and disciplines with the goal of designing new methods, processes, protocols or tools that could support the study of makerspaces.

Most participants were postgraduates or young researchers and practitioners —a deliberate choice as most academics seem to become less prone to experimentation as their careers advance. There were no formal presentations, rather time was divided into short work sessions of discussion, field exploration of the location, hands-on prototyping or online/offline experiments. The goal for



participants was to conceive elements or methods that could later be used in the field in China. We tested prototypes of the methods in teams. At the end of the workshop, the results were presented during a public event.

This first workshop allowed us to experiment with new ways to observe, record and map activities, changes, discourses and stakes that surrounded the space. Open questions such as "How to constitute a documentation of activities in a makerspace," "How to co-create research that is useful for the maker communities" and "How to lead workshops as forms of investigation" were shared and discussed. Different methods (creative interviews, network mapping, comparative study across multiple spaces) were tested in small groups to identify potential challenges while collecting, discussing and interpreting the data.

These three days allowed us to gather information and approaches for the on-site workshops, which would take place ten months later in March 2018 in Shanghai and Shenzhen. Several important elements came out of these initial sessions: the importance of pre-existing connections for a constructive exchange with space tenants; a clear communication and intervention strategy in order to obtain interviews; the ability to identify the different actors present in the spaces (practitioners, educators, managers, investors, researchers, etc.) as well as the levels of interaction (makerspace, city, international, etc.); and finally, the importance of creating a final event to share collected information and widen the network.

These early findings helped to elaborate a more critical view, allowing distance and a comparative approach for later steps of the project in China. Deconstructing research practices in this context allowed us to reconstruct them while integrating the Chinese context during the second workshop.

THE MAPMAKERS' WORKSHOP IN SHANGHAI AND SHENZHEN, CHINA

A popular way to explore China's maker realities is the organization of on-site "learning experiences." ¹ Considered as both research and learning experiments, students and curious participants (from random enthusiasts to qualified scientists) come for short discovery sessions lasting usually a week or two, packed with visits to key locations and encounters with important figures and organizations of the maker movement. These short and intense experiences are often co-organized by Chinese and international entities whose aim is to discover and learn, as well as to potentially promote their own products and services. This common practice resonates with the propensity of members of the maker community to travel and organize events abroad as a way of meeting and interacting

1 Educational, explorative or entrepreneurial trips organized by various actors, for example: China Hardware Innovation Camp (CHIC), an educational project, initiated by École Polytechnique Fédérale de Lausanne in Switzerland; Hello Shenzhen, a bilateral residency exchange program connecting makers in the UK and China supported by the British Council; Noisebridge trips through makerspaces in China initiated by Mitch Altman, founder of Noisebridge Hackerspace in San Francisco, USA; high tours organized by x.factory makerspace in Shenzhen, China, to discover the Shenzhen ecosystem.



with local communities. These visits were frequently mentioned in interviews, and appeared in many ways to be related to the construction of national and international narratives about maker communities in China.

To revisit these experiences, we decided to organize and conduct a ten-day on-site research session across different spaces. The *mapmaker* workshop took place from March 1 to 10, 2018 in Shanghai and Shenzhen. It was led by a scientific team consisting of a social anthropologist, an urban geographer, a designer, an architect, a professor of China's urban studies and an economist specializing in innovation in China. The participants had met during the preliminary workshop in Renens, which allowed a continuity of experience. Among the team of experts, four of the researchers had extensive experience on the topic, and of China. The two main organizers had conducted comprehensive research and were well-acquainted with active local networks. The two others (namely the designer and architect) were unacquainted with China, but were active in studying maker culture in Europe.

Following an initial phase of organization and the sharing of objectives among the different members of the group, the experience consisted of two sessions of five-day fieldwork in makerspaces (one in Shanghai, one in Shenzhen). In each city, the last day was dedicated to a free presentation event in a public space where early results of the workshop—and the whole research project—were presented and discussed with participants. To recreate an understanding of the multisited field of research, the experiment started in Shanghai—where the first makerspace in China opened in 2010—and ended in Shenzhen—where China's maker culture exports itself to the world.

In each city, the team visited an average of six to seven spaces over the course of five days. The multidisciplinary team made use of different disciplinary methods, techniques and skills to produce images, maps and drawings, as well as holding interviews and discussions with stakeholders. The collection of research material was organized strategically among the team members according to their specific skills. Each visit or interview was followed by a short debrief and exchange of views. The focus on two main constituents of the investigation—space and actors—was useful in confronting the different (disciplinary) points of view. In particular, drawing and mapping by the designer and architect proved to be very useful when carrying out later analysis about objects, settings and atmosphere in a space. Note–taking and interviewing were also invaluable in recollecting precise knowledge about actors, whereabouts and history of the organizations.

To conduct the mapping, questions with precise angles were defined beforehand: "How is the space organized and where is it located?" "What are its dimensions and common furniture?" "What type of machinery is used and how are they organized in the space?" The team decided to rely on phones and tablets for acquiring and processing information. Measurement and digital hand-drawing apps were used, as well as more traditional instruments such as laser rulers, graph/drawing paper, and a professional camera for photos and videos. Although



digital tools require greater care to avoid errors, digital sketching tools allowed rapid graphic reworking and instant use of the documents—especially for the purposes of public presentations.

An important part of the work was to organize things online (Wilson & Peterson 2002). A website² acted as a repository for each event or workshop organized with shared data, pictures and text. From the first website announcement, to long–lasting discussion groups initiated during the workshop, the wealth of digital channels of communication, publication and archiving allowed the work-shops to be organized smoothly. For each city, we created discussion groups³ for public announcements about the sessions and discussion or link sharing. Reflecting on the popularity of messaging apps in China, multiple chat groups were instrumental in managing the logistical and practical aspects of the on–site organization, but also to create an additional participatory space for discussions and relationships—for instance with people unable to join the events. Some groups largely outlived the workshops, with active exchanges with and between local stakeholders occurring more than a year after the events, usually in order to share information and advertise events and promotions.

The public presentations in Shanghai and Shenzhen happened in partnership with local venues. While we were originally expecting the stakeholders we had already met to come, few actually took part in the events. Instead we had a diverse crowd of 20–30 people interested in *making*, with various levels of knowledge and acquaintance with the topic. Many participants were active members of organizations in their free time, shaping new ways of working and thinking and were interested in learning from the maker culture and to connect with each other and share their experiences, which also allowed the researchers to collect information on the perception and knowledge about the maker culture locally.

The afternoon of the first event was dedicated to exposing data and our early findings to the public. While researchers could fine-tune their analysis and gather feedback and expertise from audience and teammates, newcomers could discover a new field and present their insights. We compared the data collected (pictures, interview notes, drawings and maps) as well as our ideas and insights, but above all we shared the experiences gathered on-site during visits and interviews. Finally, these public events were a chance for the team members to present their personal research, the methodologies used and their results, and to broaden the spectrum of discussion. Pictures and notes were also made during the public presentations, which were documented and published on the website of the research project and shared in the WeChat groups. Rather than being limited to the direct settings, the learning provided lots of useful contextual and experiential knowledge. The goal of these sessions was to learn *"with"* the material ecosystem of interest (Ingold 2013), and therefore the last day was dedicated to binding everything together by making a small book.











BINDING IT TOGETHER, MAKING A ZINE

"Learning-by-doing" is one of the foundational pillars of the discourse and practices of maker communities. Indeed, what better learning process than doing things yourself?

As our goal was to explore how things are made in China, we decided to make something with a local audience. This experience would be an opportunity to enter the practices and discussions associated with a more hands-on exchange. Makers make all kinds of objects but researchers mostly make books. Therefore, we decided to make a booklet—a zine⁴—in the short time span of the investigation. To better understand the legendary *Shenzhen speed*, in the city where products rise and fall in a matter of days, the team ambitiously decided to make this zine during the final day of the session. After eight days of fieldwork, we selected materials, defined a plan and produced a booklet. It was a long day and a late night, spent with computers, hammers and whiteboards in one of Shenzhen's makerspaces.

During the whole trip, we also tried to encourage remote contributions to the zine by setting up an online writing tool. Despite receiving a few submissions, the online platform turned out to be difficult to manage. First, providing guidance, answering questions and reviewing content from distant participants generated a large communication overhead—something that had already peaked with the numerous chat groups. Second, the choice of the tool itself was not really appropriate. Git—a popular source management platform in the world of computer development—was chosen to store and accept contributions. Makers are reputably tech–savvy enough to know about Git, but it turned out that those eager to write texts were not always those tech–savvy makers—who may prefer to code. The difficulties of the writing interface prevented it from becoming more meaningful for the publication process.

The aim of the zine was not to compile fully written analyses—scientific writing requires time to mature. The goal was to capture the raw energy that drives makers in Shenzhen by putting ourselves in similar condition—and conversationally putting together a first prototype of the present book. The zine was finalized at the Shenzhen Open Innovation Lab (SZOIL) on the night before the public event, which took place at the Shenzhen Design Center. In the morning, we produced 300 color copies of the final version of the zine at a local print shop, that would later be bound together into a few dozen zines during the afternoon. Participants from many different backgrounds began to arrive at the event venue around 2 pm. High–school students, scholars, architects, hardware designers, NGO members: a very diverse crowd was in attendance. The topic of this work–shop was *Web–to–Book Binding*. After compiling and printing the pages, the last step in releasing our proto–books was to bind them together. Our team provided all the materials required for book–binding (tools, cover, stamps, wire, scissors)



and more), bought in the morning in the surrounding shops. After presenting the project, and after the participants presented themselves individually, the real manual work started: making the book!

Most handcraft workshops require each participant to create her/his own book following a step-by-step procedure described in a tutorial or by a teacher. For ours, we wanted to ask the question: how do we learn as a group? We selected a traditional Chinese technique of book sewing that required several complex manipulations. Despite having instructions, few of the participants had ever done any book binding previously. Instead of having each person make their own booklet from zero to end, the work was divided into tasks: assembling the pages, drilling holes, cutting the cover, measuring string, sewing the pages—and, of course, constant quality control to improve the process as the product progressed through the different stages. Each task was separated onto a different table, forming a small assembly line where everyone could change role at any time. In less than two hours, we made 31 books with lots of dedication, mistakes and laughter.

Some participants experimented for the first time sewing and hammering. Beyond the personal experience, the goal was set so every person would be able to go home with their own copy of the book—and that everyone had learnt how to make books as a group. Once all the books were produced, we closed the workshop with a talk about another handcrafted book about maker culture in the region (Poon 2018). The participants—as well as our team—were satisfied with both the group dynamic and the work achieved in such a short amount of time. The making of the book led to interesting discussions about how manual work is regarded in China, the difficulty of access to the ideas of the maker, and the difficulty of making something without prior support or education in manual work.

DISCUSSION

The diversity of participants involved in this research, from multidisciplinary research teams to public events, made for a complex and fascinating experience that brought to light several elements for reflection in the renewal of fieldwork methods. The focus on making an actual object as a *group* provided a lot of feedback and a large amount of empirical learning in a short amount of time. The focus on real-time action (through timed workshops and events) allowed us to get a grasp on fast-changing spatial and urban resources intervening in the building of a maker culture—by shaping the experience when pressure is building as product delivery nears. This was especially suited for a study about makers, where stakeholders are usually willing to test, learn, join, try, fail and share knowledge and know-how.

Learning from experimental approaches allows for diverse opinions and ideas to exist untested first, before finding their place, or being discarded, as empirical knowledge and networks are built. One of the unique points of this experiment was the ability to lead fieldwork as a group. Multidisciplinarity existed not as a



theoretical approach but as an opportunity to combine skills and approaches to maximize focus during the short timespan of the visits, interviews or events. The reliance on common goals, defined together beforehand, helped each member of the research team to focus on his/her specific craft (maps, interviews, drawings, etc.) and to benefit from the common discussions and the material produced afterwards. Another key form of complementarity was the difference in familiarity with the actual field itself—Chinese cities. Expertise and more naive takes were useful in identifying blind spots and traversing different levels of discussion and reflection.

The program initially prepared was largely adapted to the occurrences of fieldwork. In many regards, the methodology inductively emerged from the field. Still, the reliance on extensive prior on-site research allowed adaptability and protected against too much randomness in the selection of local investigations. This ad-hoc design also provoked a gap between the initial plan and its realization, i.e., the participants of the public workshops were not makers but people interested in making, the proposition of online writing largely missed its target. Online organization had a deep impact, and as such constituted an integral part of the research methods. In a short amount of time, participants of the discussion groups were able to share links, pictures and feedback.

The public events forced the researchers to explain, show and demonstrate research by creating common maps with various stakeholders. Asking questions about lifepaths and listening to personal stories helped remove the gaps, highlight the information and confirmed or disconfirmed the original sets of hypotheses. Learning with—or through the eyes of—the learners widened the scope of understanding, and helped to consolidate and share knowledge. Local users and actors were able to actively share their experiences and learn from our research during interviews, visits and public events. This active interaction enabled not only the re–framing of the research questions but also a rethinking of the outcomes of the research, involving non–academic stakeholders through specific workshops and fieldwork.

As a result of these workshops, the focus of the research project became larger and included more elements of urban and spatial mapping as well as more creative approaches (hand and iPad drawings, zine making, mapping, picture staging of objects, etc.). Also, as the main participants of the public events were not makers, the team had a great chance to learn about (and share) the perception of the maker culture from (and with) non practitioners. The participants were all gravitating, with their own interests, to these places, bringing and opening positive dialogues as well as networking happily.

Concentrating the research—based on previous fieldwork, data collection and analysis—on an intense ten days of interaction with local communities helped to create a two-sided discussion with the participants and stakeholders on the spot. At the same time, the imperative of the fieldwork led to multiple theoretical and practical multidisciplinary exchanges between the research team. Bringing



MAPPING SPACES FOR MAKING, SHANGHAI & SHENZHEN 2018 (ZINE). Graphic design: Anaïs Bloch & Emanuele Protti external contributors with the research team helped prevent field fatigue and was useful in spotting questions that appeared obvious to researchers familiar with the field, but required thorough thinking.

Through all of this, human encounters appeared to be at the center of the design of this experiment. The understanding of places varied according to these encounters, as well as our capacity to grasp and evolve in the networks of makers in the main Chinese cities. While prior expertise was instrumental in the ability to enact such an experiment, relationships within and outside the research team played a central role in enabling or preventing part of the initial intentions to succeed.

CONCLUSION

The aim of this chapter was to share a multidisciplinary learning experiment in the context of a broader research project about makerspaces in China at École Polytechnique Fédérale de Lausanne (EPFL).

Studying makerspaces in China is complex and challenging due to the rapid evolution of Chinese cities and the ephemerality of the spaces themselves. A first workshop was organized in Renens, Switzerland in May 2017 with a group of 15 researchers from different fields to explore and test multidisciplinary meth– odological approaches for the study of makerspaces. Based on learnings from this first event and months of field experience in China, a second workshop was organized in Shanghai and Shenzhen in March 2018. This ten–day workshop was an opportunity to revisit spaces, complete data, learn from and with stake– holders during public events in each city, dedicated to knowledge sharing and the making of a small booklet about the experiment. This on–site research was conducted as a team, with two participants from the first workshop, completing the disciplinary variety of the initial team (anthropology, geography, economics, design, architecture).

While this experiment was designed to fit the maker culture and environment, the protocol could be adapted to other contexts and projects to share and confront early findings, hypotheses and reflections with local stakeholders. These elements of the method are particularly suited to the context of complex, multifaceted objectives, as they can help to complement systematic approaches to fieldwork with the depth of direct experience.

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