

Pen Neighbour 笔邻:
A Research-Creation Approach to Intervening in Short-Term Volunteer Programs in
Rural China

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ABSTRACT

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Mandi Zhou

Education inequality is one of the most pressing concerns in rural China today. Every summer, thousands of volunteers, mostly Chinese highschool and college students, travel from other cities and countries to help fill the education gaps in China by teaching the students. However, as volunteerism becomes more and more popular, the quality of short-term volunteer programs has become questionable, in terms of improving students' academic performance. This research-creation project investigates three critical questions: Are the short-term volunteer programs in rural China genuinely effective? How can I intervene as a designer? What would be a solution or an alternative to the short-term volunteer programs?

From evaluating Chinese economic disparity to learning from several case studies of volunteer programs in a closer lens, this paper is divided into three parts: the first part paints a picture of the current landscape of short-term volunteer programs in China; the second part of the research explores the potential for a creative intervention through design justice, design for pluriverse, participatory design, and embodiment; lastly, the third part walks through the development of an interactive application entitled Pen Neighbour with generative research methods, such as cultural probe study, participatory observation, surveys, interviews, and user testing.

Based on the research results, short-term volunteer programs do not ultimately fulfill the educational gaps in rural China due to short service periods and a lack of supervision and training. Therefore, the goal of the project is to fill the gaps in traditional short-term volunteer programs in rural China by providing an alternative volunteer approach that incorporates the principle of design justice throughout the research and design process. The participatory research method empowers the students and other stakeholders of the programs by giving them voices. It allows them to make design decisions based upon their opinions and preferences in every step of the research-creation process. Through an iterative design process, Pen Neighbour has evolved from a traditional one-on-one penpal program to an embodied experience on a digital mobile

application prototype. The current design of Pen Neighbour prolongs the service period of the volunteer programs by building long-term relationships between the volunteers and the students, one letter at a time. In Pen Neighbour, volunteers are no longer limited to being trained teachers; instead, they become mentors, friends, big brothers, and sisters with the students. Most importantly, it gives an equal opportunity for both the students and volunteers to design the program and their own Pen Neighbour experience, which is something that traditional volunteer programs lack.

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Introduction & Research Questions

This research originated from my personal experience of volunteering in the past. I joined my first volunteer program in the summer of 2010 in Zhejiang, China, where I worked as a summer school teacher for a class of forty 6th grade students for two weeks. At that time, I was sixteen years old, in my junior year in high school. Many of my students were only three years younger than me. Even though I had no experience in teaching, I was full of passion. I was excited to take on the challenge, and prepared to have the most unforgettable experience of my life. Two weeks went by quickly. I vividly remember the day when we had to say goodbye to the students. We cried our hearts out and promised each other that we would stay in touch. Working with the students was indeed one of the most remarkable experiences of my life. Over the years, I found myself participating in similar programs that involved teaching and volunteering in underprivileged schools. However, the more I volunteered, the more I doubted myself whether or not I was truly making a positive impact on the students and the communities in the long run.

There was a school in China that I had volunteered for that made me question my impact on the children. It was almost one week into the program when we found out that we were teaching the same English materials that the previous two volunteer groups had taught that same summer. I also learned that the school was a "volunteer attraction" with lots of groups of volunteers coming to teach annually. Many volunteer groups were led by non-profit organizations or universities in China, recruiting Chinese college and highschool students. Nevertheless, there was little communication between each group, which often made the students learn disconnected or repeated content every summer. Consequently, despite the good intentions we had, we did not always make an effective contribution to the students. Academically, our goal was to help the students grow and improve, yet we ended up teaching them repetitive information. In addition, it left many of them heartbroken to know that the connection we built was only temporary, as most of the volunteers would not meet them again.

Unfortunately, this volunteer program was not the only one which has this kind of issue. There are so many more people just like me who are volunteering to make a difference in someone else's life, to give back to the community, to gain different life experiences, or just to

polish their resumes. Yet, not many of us question whether we, as volunteers, truly contribute more than we harm the hosting communities.

Therefore, I started my research with three key questions: Are the short-term volunteer programs in rural China truly beneficial to the local community, especially to the students? How can I intervene as a designer, to improve or propose an alternative to the short-term volunteer programs? This will be a social design project as it rethinks the short-term volunteer programs and works with local students and other stakeholders of the volunteer programs according to design justice principles. The concepts of wicked problems, design justice, participatory design, design for the pluriverse, and embodiment became the theoretical framework that guided me to think critically, make decisions as a designer, and answer my research questions.

Chapters 1 and 2 provide the foundation for my thesis. These chapters explain the background of volunteer programs in China today and how the theoretical framework, which helped me to interpret the issues through a designer's lens. Chapter 3 is my journey in developing a tool for an alternative volunteering approach, which is a penpal program called Pen Neighbour. I have applied research methods such as interviews, participant observation, cultural probes, surveys, and user testing through different phases of designing Pen Neighbour. Each of the research methods was essential to my participatory research. The participatory design process involved the students, volunteers, the school principal and the non-profit organization of a short-term volunteer program in Shandong China, a professor, and a program director of another non-profit organization. With the participation of the stakeholders of the short-term volunteer programs in rural China, my initial hypothesis and design have changed substantially in each stage of the Pen Neighbour program. Pen Neighbour has transformed from a standardized letter format to a digital application specifically designed for students in rural China and volunteers residing around the world. Towards the end of Chapter 3, I explain the current design of Pen Neighbour and its user testing results. Even though it marked the end of my Master of Design thesis, the Pen Neighbour project has only just begun and will continue to evolve and grow. In the last chapter, I share my reflection on the research, the design process of Pen Neighbour, and my plan of action in the future.

Chapter 1: Background

This chapter answers my first research question on whether or not the volunteer programs in rural China are effective. Do the volunteer programs fulfill its goal of aiding the educational disparities in China? It is crucial to first gain an understanding of the ecosystem of volunteer programs in China. This chapter explores the significant multi-layered disparities in China, the direct causes of inadequate education, and the current volunteer program landscape in rural China. Then I take a close look into several case studies to reveal some of the short-term volunteer programs in rural China, their advantages and disadvantages, which correspond to my personal experience as a volunteer.

The Rich-Poor Disparity in China

China has transited into a market economy after the Open-Door policy being carried out by Chairman Deng in 1978. Since then, the total gross domestic product (GDP) of China has grown at an unprecedented and rapid rate. Throughout the past 40 years, China has maintained the fastest annual growth rate (8% on average) and become the second-largest economy (Lin, 2010, p.214) and the largest trading nation in the world with a 3.7 trillion in foreign exchange reserves (Shambaugh, 2016, p.1).

However, the statistics of the Chinese economy do not speak for lives for all Chinese citizens. Despite the rapid economic growth in the middle class in urban cities, the average net income of the households in rural China grew at a much lower rate, leaving a significant disparity between the rich and the poor (Lin, 2010, p.221). Before 1978, the income distribution was at egalitarianism. It means that there was an equality of wealth in each segment of Chinese citizens under communism. After 1978, the Chinese government gave much more freedom in the operations of businesses across diverse industries, while welcoming foreign businesses to operate in the Chinese market. Policies have privatized the previously government-owned businesses while marking the rural areas in China as the industrial zones. Under the support of the government, the middle class in urban cities was greatly benefited, and private wealth proliferated as the Chinese economy grew (Ahmad & Wang, 1991).

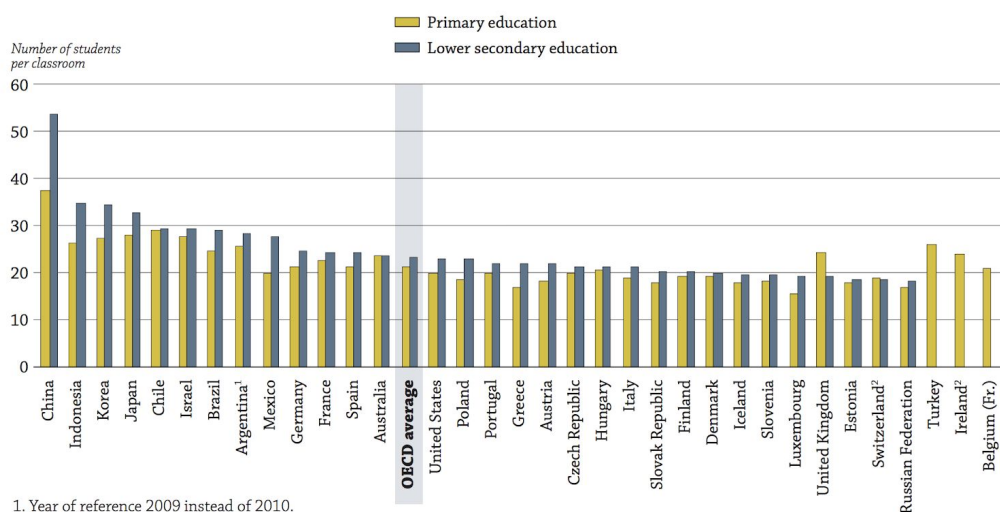
The rapid growth of urban wealth comes with a significant cost to rural citizens. While the GDP of China multiplying since 1978, the Chinese income egalitarianism was replaced by the vast gap that emerged between the rich and poor in China. The wealthiest 10% of the Chinese population earns almost ten times the income earned by the most poverty-stricken 10% of the Chinese population. Despite a growing number of migration into the urban cities, as much as 50.3% of the total Chinese population still lives in rural areas. In 2010, the annual average disposable income of a citizen in rural areas was only USD 898 compared to that of a citizen in urban cities, which was USD 2,900 on average (Hassan, 2016).

Education Inequality in China

To solve the poverty problems in China, the Chinese government has taken a multidimensional approach. They consider not only monetary earnings but education, nutrition, medical care, household, and social engagement together as a “cycle of poverty,” where each element is considered to be a contribution to poverty one generation after another. Inequalities in education have been considered as one of the leading causes of poverty in rural China. Inequalities in education in rural China are results from complex, multi-layered factors (Zhang, 2015). These can include teacher shortage, financial problems, absence of parental care and discrimination against rural citizenships.

The teacher shortage is the most direct contributor to the limited access to education for students in rural China. Although it is a universal problem that affects both developed and underdeveloped countries around the world, the teacher shortage issue in China is much more severe compared to the condition in other countries. China, among the other developing countries, has the largest population base. Among the 1.3 billion population, it has about 5 million primary school teachers and 3.3 million secondary school teachers serving as many as over 170 million students (Wu & Qi, 2016). Compared to the average class size at the lower secondary level of 23 students among all of the OECD (Organization for Economic Co-operation and Development) countries in the world, the average class size in China has reached to 50 students to one teacher in 2010 (Figure 1). China’s average class size exceeds that of many developing countries on the list, such as Indonesia, Argentina, and Mexico (OECD, 2012).

Average class size in educational institutions, by level of education (2010)



1. Year of reference 2009 instead of 2010.

2. Public institutions only.

Countries are ranked in descending order of average class size in lower secondary education.

Source: Education at a Glance 2012: OECD Indicators, Indicator D2 (www.oecd.org/edu/eag2012).

Figure 1: Average class size in educational institutions, by level of education in 2010

Source: Education at a Glance 2012: OECD Indicators, Indicator D2

Further, under the average national pupil-teacher ratio, the teachers are severely unevenly distributed across China. Most of the teachers work for urban schools located in the wealthy regions of Eastern and Southern China. The class size in many Chinese rural villages is far above 50 students per class. This number does not apply to the areas where there is no school nor teacher that school-age children have access to. While the students in urban areas are taught by multiple teachers from each subject, sitting in classrooms equipped with computers, projectors, and air-conditioning, hundreds of thousands of students in rural areas travel from home in the mountains, cramped in a small classroom with tearing walls and broken desks. There are many schools with only one classroom, and students from all grades are taught in one class by one single teacher. Some cases in extreme poverty areas in China do not even have one teacher, which leaves many school-aged children “schoolless” (Wu & Qi, 2016).

In addition to insufficient educational resources, rural-urban migration leaves the children in rural China with little or no parental care or support. Over 250 million Chinese citizens from rural China move to urban cities in search of better paying job opportunities, which left over 60

million children behind in rural China. These left-behind children tend to have a much more fragile connection and relationship with their parents. These children are often left to be taken care of by the grandparents who are aging and unable. They receive much less parental care that they need compared to the children in urban cities do ("China's Education Gap," 2016).

Indeed, the quality of education in rural China is far below the average in urban China. However, helping the teacher shortage and class quality issues alone will not solve the problem. Unfortunately, many of the students in rural China would not even be able to afford education after the free nine-year compulsory education, nor do they feel the need to pursue higher education. 60% of the students from rural China drop out after middle school because they cannot afford high school and have to make money to support their family. As many as 95% of the students would drop out of high school before even taking the college entrance exam. The 5% who are willing and financially able to attend college then have to go through a discriminatory system. In China, high school students take college entrance exams in the city their hukou (Chinese household registration) belongs to. Each province has its quota on the number of admitted students in their universities. In order to encourage higher scores from the students, the urban cities, such as Beijing, Shanghai, or Guangzhou, offer a higher quota for those who apply for colleges. This means that a student applying from rural regions is much less likely to be admitted by the universities compared to an applicant from urban cities. Study shows that an applicant in Beijing is 41 times more likely to be offered admission by Peking University than an applicant from rural regions is ("China's Education Gap," 2016).

Lack of teachers and care from the parents and the financial inabilities make the schools and study environment either inaccessible or inadequate for the students in rural China. The inefficient education results in a lack of knowledge and skills, which makes the students from rural areas uncompetitive in the job market. Most of them end up doing agriculture works or jobs that require minimal professional knowledge and receive minimal wages. Low paying jobs urge the people in rural regions to migrate to the cities to find better-paying jobs and leave their children behind like their parents did. Their children then repeat their parents' paths, finding themselves in the endless cycle of poverty (Zhang & Jing, 2008).

Volunteer Programs in China

Understanding the central factors that contribute to the inferior education in rural China, Chinese policymakers handed out a series of policies to fill the gap of schooling for the children in rural regions. The government of China issued poverty relief funds that gave schools teaching equipments and textbooks. It also offered extra financial aid to those from families of extreme poverty (Fan, 2007). On the other hand, to tackle the problem of insufficient teachers, the Chinese government passed on a series of policies and programs to encourage volunteers from universities in China to teach in local schools, aiming to provide better education in hope to break the cycle of poverty (Zhang, 2015).

Along with some NGOs (non-governmental organizations), the Ministry of Education and the State Council of China collaborate and incorporate volunteerism in rural China as one of the major efforts in combating educational inequality and poverty. The Government of China began to recruit college graduates to support educational, agricultural, and other developments in rural China. These government-led volunteer programs are usually long-term, lasting from two to three years with stipend living expenses. The volunteers who participated in the government-sponsored long-term programs will also be rewarded with prioritized considerations on future employment and admissions to grad schools (Zhang & Lin, 2008).

Along with the government-sponsored long-term programs, there are also independent short-term volunteer programs led by non-governmental organizations (NGOs) and universities. These programs are highly encouraged by the Chinese government (Liu, 2015). Nowadays, short-term volunteer programs have become popular summer service activities among college and even high school students in China. These short-term, non-government sponsored programs range in period from one day to as long as a month, and take place during holidays, summer, or winter breaks (Zhang & Lin, 2008).

These short-term volunteer programs and their stakeholders comprise the focal point of the research. More specifically, I chose the independent short-term volunteer programs in rural China for several reasons. First, I am personally more familiar with short-term volunteer programs in China as I have participated in several programs in the past. As mentioned previously, I have developed a personal attachment with my own students and fellow volunteers.

I therefore see this research-creation project as an opportunity to use my expertise as a designer in the service of the students and volunteers who I deeply care about. Second, I have already observed some issues within the programs I participated in that can be profitably explored through research-creation practice. Whereas the government-led volunteer programs have an organized recruitment process and systematic quality report system throughout the whole service period, the independent short-term volunteer program recruitment process and quality control seem to be neglected. As independent short-term volunteer programs become more and more popular in China today, I believe it is important that I conduct further research on the efficiency of those programs. Third, short-term volunteer programs are much more accessible to me than the government-led, long-term programs. I have connections with several non-profit organizations that have the potential to collaborate with me on the research. This gives me access to all the stakeholders of short-term volunteer programs for research and implementation on a potential alternative volunteer program in the future.

Case Studies: the Problems and Difficulties of Volunteer Programs in China

There has been a number of studies on volunteer teaching programs in China, particularly to evaluate the efficiency and quality of the programs. It is true that the volunteers usually bring new and fresh energy and innovative teaching materials to the local schools. Coming from other cities or even other countries, volunteers open a new window for the students to get to learn about the outside world (Liu, 2015, p.45). However, besides these benefits, multiple studies have found that short-term volunteer programs and even some long-term programs are not as effective as we hope. Even though the case studies do not provide quantitative data of all the volunteer teaching programs in China, they do reveal many problems within many existing short-term volunteer programs. The problems can be summarized as the following:

1. Unqualified Teachers with Lack of Training and Minimal Supervision

The volunteers are usually college or high school students with relatively more knowledge on the school subjects, but that does not necessarily make them qualified teachers. With a close study to an NGO in China called Sunshine, the researchers took a sample of 203 past volunteers and found that only 30 of them had experience in classroom teaching. 20 out of

those 30 volunteers had volunteer teaching experience with Sunshine or other volunteer programs (Zhou & Shang, 2011, p.590). Moreover, the participants of Sunshine are usually college students, while many other volunteer programs mostly recruit high school students as volunteers, who are even less likely to have teaching experience prior to the program.

Despite the fact that most of the volunteers usually have no experience in teaching, research shows that there is little or no training offered to the volunteers before they teach the students. Most of the programs in the case studies and in my personal experience have not prepared volunteers with sufficient training. Volunteer training can include understanding the local cultures, students' academic levels, and classroom management strategies. For the programs that do offer volunteer training, they are usually given by former volunteers instead of professionals. The lack of sufficient initial training ultimately disrupts the quality of teaching for the students. For example, knowing little about classroom strategies, the volunteers can have a hard time controlling the classrooms. This may result in the students paying little attention to the lectures, distracting the classes, or even leaving the classroom during a lecture (Liu, 2017, p.40). In addition to insufficient training prior to teaching, the volunteers often receive minimal supervision and guidance from the organizations, which leaves the quality in the classroom unknown. The volunteers usually have to learn things on their own, which takes time and can leave themselves disoriented, frustrated, and discouraged during classes (Zhou & Shang, 2011, p.590).

Consequently, with unqualified and inexperienced teachers, volunteer programs usually make a quite limited impact on the students' academic performance. In addition, The local teachers do not continue teaching the same course content once the actual semester begins. Having no one to review the course materials with the students, the students tend to forget what they learned from the volunteers after the latter leave (Liu, 2017, p.47). These ultimately make the volunteer classes whose primary goal was academic improvement a waste of time and effort.

2. Cultural Differences

While many volunteer programs make efforts to respect the local communities, addressing cultural differences between the volunteers and the locals can take more than simply

being respectful to the students. Taking the ethnic group difference as an example, China is made up of 56 ethnic groups. As much as 92% of the total population is Han. While Han people are mainly located in the Eastern part of China, 95% of the minority groups reside in rural China, which is the underdeveloped areas in Northwestern China. Han is usually considered to be the default Chinese culture by the mainstream media both inside and outside of China. However, the 55 other ethnic groups each have their own unique culture, language, and traditions. Each ethnic minority group is different from Han in their ways and such differences cannot be overlooked (Wan, 2010).

Mostly residing in the remote villages in Western China, the Chinese minority groups have little interaction with the other ethnic groups. The volunteers coming from universities in urban China usually have little knowledge about the unique traditions, customs, and languages in the regions in which they will be serving. The most they could learn about the cultures of other minority groups would be through mass media and the internet, which tends to create stereotypes and reinforce ethnocentrism towards the other ethnic minorities (Wan, 2010).

Over and above their ethnic differences, the volunteers and the local students also come from extremely different socioeconomic and religious backgrounds. Cultural competency goes beyond avoiding cultural and religious taboos. Researchers have found that students are much more likely to have better academic performance under culturally appropriate pedagogy. On the other hand, when the volunteers are not culturally competent, it is much more difficult for them to communicate with the students and leave them stressed and anxious throughout the programs (Zhou & Shang, p.576).

3. The Short Service Period

Among all the problems the reports reveal, the short program length is the most fundamental one. For the volunteers who teach during the semesters, the short-term volunteer programs not only interrupt the faculty arrangement and teaching schedule, but most do not end up teaching the core courses. Many schools choose to assign only non-compulsory subjects, such as art or physical education, or use the volunteer teacher as substitute teachers since they are not going to stay for long. Consequently, the volunteer teachers only get to teach the courses that are

not essential. The core courses in the Chinese education system include mathematics, English, and Chinese. The performance in these subjects makes a difference in the colleges that students get to attend in the future. Nevertheless, all the efforts the volunteers put in, hoping to improve the quality of education, only go to the courses that are not a part of the gaokao, which is the college entrance exam in China (Liu & Li, 2008).

For the volunteers who teach for short-terms during summer and winter breaks, most commonly from two weeks to a month, the short period of teaching time itself becomes a problem. No matter how long the volunteers prepared the course plan before the programs, it is common that the volunteers have to adjust the level of difficulty of the course plan after getting to know the academic levels of the local students. The students who are in the same year can have academic levels that are very different across different schools and individuals (Liu, 2017, p. 44). Adjusting the course plans, getting used to the local living conditions, getting to know about the students, not to mention receiving sufficient training, and adjusting to cultural differences all take time. Within a short service time on the site, it is extremely difficult or even impossible to provide effective classes to the local students.

4. Emotional Burdens to the Students

Despite the poor academic contribution, it is true that the students enjoy the volunteers' teaching and company throughout the programs. However, the volunteer programs oftentimes leave them with an emotional gap long after the programs end. It takes time for the students to adjust themselves back to the regular classes (Liu, 2017, p.47). Students also build strong relationships with the volunteers within a short period of time. The number of volunteers who stay connected with the students and how long they stay in touch after the volunteer programs are over is unknown. However, in the same study with the Chinese NGO, Sunshine, out of 203 past volunteers, only three volunteers return to the programs to teach. For the majority of the volunteers, it is only a one-time experience. However, teaching and building relationships with the students require much longer and continuous efforts.

In conclusion, even though there have been few investigations to compare the students' achievements before and after the volunteer programs, it is believed that the short-term volunteer

teaching programs in rural China are rather ineffective. Although the long-term government-sponsored volunteer programs exhibit similar problems as the short-term programs do, they have a much longer time to adjust, reflect, and improve throughout the programs. As the report, “Short-term Volunteer Teachers in Rural China: Challenge and Needs” states:

“It is unknown whether these organizations are sending volunteers to benefit rural children or the volunteers themselves. The former type, under current levels of training and supervision, would be unlikely to result in a significant positive influence on the children, especially if the goal is to improve children’s academic performance. Therefore, resources are being wasted. For the latter, agencies should still provide some support to minimize unnecessary burnout among the volunteers, as well as to avoid potential harm to the rural community, when volunteers were “muddling through” the program (Zhou & Shang, 2011, p.593).

Suggestions for the Existing Volunteer Programs

These findings in the case studies answered my initial research question: the short-term volunteer programs in China are not as efficient and beneficial as we might hope them to be. With that being said, how can we change the existing programs for the better, or what can be alternatives to the volunteer programs?

Understanding the difficulties and ineffectiveness of the short-term volunteer programs, the researchers give some recommendations for improvement. These recommendations are particularly valuable to me in the next steps of my research. The recommendations given by the researchers can be summarized as the following:

1. *Involve education experts in selecting the program and training contents*
2. *Make volunteer training mandatory to the programs and include cultural knowledge in the training*
3. *Design curriculums to fill out the education gaps*
 - *For example, instead of focusing on academic performances, the programs can be designed to focus on students’ personal development or prepare them for the job market.*
4. *Past volunteers, experts pass down their experiences and learnings through a handbook (Zhou & Shang, 2011, p.594)*

I found that researchers give recommendations for the volunteer programs but do not mention whether they took initiatives to share with the organizations nor making efforts to implement them to the volunteer programs. Therefore, the goal of my project is to fill the gaps in the former research by taking actions from their recommendations.

Chapter 2: Theoretical Frameworks

The case studies in the previous chapter expose the common challenges in many short-term volunteer programs in China. This answers my first research question: the volunteer programs are not as effective in helping the educational disparities in rural China. However, there are many more layers of issues to consider before I move on to the next stage of my research.

As chapter 1 paints the background in educational disparity in rural China, the challenge is beyond the economic disparity on the surface. Supplying volunteers to aid the teacher shortage issue is only a superficial solution to a much more complex and wicked problem. There are many more issues to be considered. For instance, it is essential to understand the intersecting inequalities the students in rural China receive that go beyond poverty and limited educational resources. The concept of design justice allows me to analyze the current design of volunteer programs and equal distribution of risks and benefits to the students and other stakeholders of the volunteer programs. This chapter will introduce the concepts and theoretical frameworks that have helped me to understand, analyze the issues further through the lens of a designer.

Poverty and Educational Inequalities in China as a Wicked Problem

Horst Rittel, a German design theorist, first introduced the term, wicked problems, in 1973 (CogNexus Institute). Unlike tame problems, wicked problems require understanding beyond the knowledge of a single discipline, such as science and engineering. They are much more ill-defined, complex, and even impossible to solve in many cases. Wicked problems are usually contradictory, unstructured, and incomplete. Rittel believes that social problems are

wicked problems that designers face today (Cooper, 2016). He points out that some social professionals are somewhat naive to believe that they could solve social problems just like scientists solving problems in a lab. They carry out social planning like running a lab test. They first identify a problem, design strategies, plans, and tactics while forecasting different versions of potential outcomes and solutions. They place a great emphasis on monitoring statistics derived from the social system as the feedback of the social design, then take the analysis of the data to evaluate the original plan and make adjustments accordingly. It is treated as an ongoing process and systematic procedure of monitoring data collected from different variables in the planning system. Rittel points out that such a social planning model has been idealized and, in fact, is unattainable (1973, p.160).

The way that problem solvers or the designers frame the questions and create the solutions often reveal their own sets of attitudes, prejudices, and desires. A designer must thoroughly understand the others in the society in an objective way. However, especially with the increasing diversity of society, one cannot easily define an objective definition of equality and the public good because completely understanding and fulfilling everyone's values and interests is impossible. Achieving the perfect goal would require gathering everyone in society in one room and discussing it, which is impossible. Even if there were a method to collect everyone's ideal, there would be countless objectives being held by different politics and beliefs, which, according to Rittel, makes a universal goal unachievable (Rittel, 1973, p.169).

Like other social problems, educational inequalities in China can be understood as a wicked problem. They are unique, interconnected with other social problems and have no perfect nor immediate solutions. Understanding the education inequality issues in China as a wicked problem helps me to learn that:

- 1. There are no right or wrong but bad, good or better solutions to the problems.*
- 2. There is no immediate or accurate test for the solution.*
- 3. It takes multidisciplinary approaches to the issues to solve the issue.*

This means that I may never find the ultimate solution or a perfect version of a volunteer program. However, through actively engaging and learning from the stakeholders of the volunteer programs, such as the students, volunteers, schools, organizations, education professionals, collectively, we will be able to provide a better alternative to the existing

programs. This guides me to take a participatory design approach and interpret my research-creation as a collective effort.

Design Justice through Participatory Design

Participatory design involves people who are affected by the design outcomes and people who generally do not have their voice heard in the design process. It encourages a collaborative rather than a hierarchical relationship between the designers and the users to achieve democracy and sustainability of the community (McCarthy & Wright, 2015, p.9). Participatory design methods are used throughout my research-creation process by actively communicating with the stakeholders of the volunteer programs in rural China through different forms. I consider participatory design to be essential to my research-creation process, not only because the issues I intend to resolve is a wicked problem that needs to involve the stakeholders, but it is also because the participatory process gives design justice to the stakeholders of the volunteer programs, most importantly the local students in rural China.

In “Design Justice: Towards an Intersectional Feminist Framework for Design Theory and Practice,” Costanza-Chock points out a problem in design today. The current design builds on systems and principles that leave certain segments of people out, especially those who are intersectionally disadvantaged and oppressed by the matrix of domination. The matrix of domination is a form of the interlocking system of power, determined by “white supremacists, heteropatriarchy, capitalism, and settler colonialism.” Further, the design process that we use today makes it nearly impossible to recognize and design for the oppressed and marginalized people in society. Therefore, there is a need for design justice, which is a practice that aims to bring an equal distribution of risks and benefits for a pluriversal group of people to challenge the matrix of domination (Costanza-Chock, 2018).

The matrix of domination also exists in China. The impoverished, ethnic minorities, and farmers residing in rural underprivileged areas in China are the marginalized and oppressed groups. They are discriminated against by not only the general public but also by governmental policies and legal institutions (Gong, 2009, p.32). Besides, as mentioned in the previous chapter, their children suffer even more than their parents do, from lack of parental care, education, and

having to leave school at an early age. They are a group of people who are intersectionally disadvantaged and oppressed in Chinese society.

The situation can be worse for those students who participate in the volunteer programs, which ironically are designed to be beneficial to them. Given that most of the short-term volunteer programs create an emotional burden with limited academic improvements for the students, the students' rights and power are further exploited in the design process of the volunteer programs. The program design and course plans are usually the responsibilities of the volunteer organizations and the volunteers themselves. The decision-makers of the volunteer programs are those who are considered to be the privileged group. Even though the students are the primary participants of the volunteer programs, they usually do not get to participate in the program design process at all. Through my personal experience and the case studies I read, there have been rarely any form of students' participation throughout the design of the volunteer programs. The students are usually the passive receivers of the "help." However, as the stakeholders of the volunteer programs, they are just as important as, if not more important than others.

To apply design justice principles means that I use design to sustain and empower the communities by working collectively with the stakeholders towards a liberatory goal, and liberate them from the dominating and exploitative systems. To do so, the designer gives the power to the community by their participation (Costanza-Chock, 2018). In discussing the politics of Design, Disalvo states that "...participation is a political-ideological concept that is intrinsically and intimately linked to power. ...participation [is] a (formal or informal) decision-making process which involves non-privileged and privileged actors whose power relationships are (to some extent) egalitarian" (2014, p.3). In the participatory design process, students will not only be involved in but take leadership just like other stakeholders have. Consequently, the outcome will not only fit the needs of the students but also empower them by letting their voices be heard.

While letting the students and other stakeholders take leadership, my role as a designer also shifts in the participatory design process. Traditionally, designers and researchers assume themselves to be the center of the design process, the leader, and the expert. From there, it

creates a hierarchical relationship between the designers and users or the research subjects. The design and research process are usually carried out in believing that the participants need to be educated (McCarthy & Wright, 2015, p.8). However, every community already carries their forms of knowledge and practices design without experts' knowledge or designers' help. As Escobar states: "people are already the practitioners of their knowledge." Therefore, the research process becomes the experience of the community learning from itself, inquiring into its reality. I, the designer, thus become the co-researcher with the community (2012, p.45). As a co-researcher, my role is to listen, facilitate, and support the community. As they are the experts of the subject, my job is to mediate conversations and learn from them throughout the process (Costanza-Chock, 2018).

Further, the research and design process will not be a data-gathering but a relationship-building experience. This starts with learning within the culture. There are two field research perspectives in cultural anthropology: the etic and emic. The etic view means learning culture from its external, numeric, generic information and evaluate it with an outsiders' standard and perspective. On the other hand, the emic view is an insider's view by learning within a cultural and social group while being a part of it. The emic approach inquires up close with the "inquired" to understand their lives by immersing themselves within (Morris, 1999, p.781-784). In this research project, the designer will take the emic approach. Intending to learn from within, Tallbear suggests that the researchers should treat the participants as friends and colleagues rather than research subjects. They do not learn at a distance but stand with the participants, emerging themselves in the community in order to learn from their critical conversations. In this way, the initial goals will not direct the outcome of the research but guide the researchers along the way. The research becomes a continuous effort in engaging with the community instead of a linear research procedure. Tallbear promotes a balanced relationship with the community (2014).

"Inquiring not at a distance but based on the lives and knowledge priorities of subjects," a quote from Dr. Tallbear will serve as my inspiration to construct my research-creation process in Chapter 3 (Tallbear, 2014). The initial research questions were only the starting point. Through my active engagement with the students and collective inputs from all the stakeholders of the volunteer program, my initial idea of a penpal program continues to change and evolve till today.

Design for the Pluriverse

In the article “Sustainability: Design for the Pluriverse,” Escobar points out that “the modern ontology presumes the existence of One World-- a universe.” Universalism is to believe that everyone is the same, and one solution can help all the problems across different individuals, communities, countries, and cultures (Fry, 2008). However, Escobar uses the term “pluriverse” to propose a world view, in which “many worlds fit.” It blurs the lines between “us” and “them,” which are imposed by modernism. When designing for the pluriverse, the uniqueness of other individuals, and their cultural, socio-economic, and environmental backgrounds are respected and addressed (2011, p.139).

Universalism is commonly found in the design world today. In Architecture, modernism was considered the perfect form, the “universal truth and beauty” and was applied extensively in various cultures and countries without taking the local cultures and contexts into considerations (Weisman, 1994, p.30). The design standards and aesthetics we use today are taught by the design schools whose instructors are made of mostly white males in the western world (Mitchell-Powell, 2019). However, one universal design cannot address the pluriversality of all the audience with different socio-cultural backgrounds.

The idea of universalism also appears in my experience of teaching in volunteer programs where the students’ individualities and special needs are not addressed in the programs. In this case, the nonprofit organizations (NPOs) assume universalism when they construct the courses for the volunteer programs. Across multiple regions in China, from the north to the south, and different local cultures and ethnicities, ages and academic backgrounds of the students, the NPOs offer one universal course plan for all the schools they work with. Most of the course plan content was easily copied online, from course materials designed for students in urban China. Simply assuming the students in rural China should be taught with the same course materials as the students in urban cities is rather problematic. As mentioned in the case study in Chapter 1, failing to address the cultural and socio-economic differences between the urban and rural students was proven to be an issue in the current volunteer programs. This made me work towards a one-on-one approach with the new volunteering idea. Instead of the volunteers imposing universal lectures to the students, Pen Neighbour addresses the uniqueness of each

individual in the program, promotes an exchange of knowledge and opinions for both the volunteers and the students. A one-on-one approach allows both users to express their own social-cultural and personal differences with each other, one at a time.

Pluriversality can also be reflected in the design process for Pen Neighbour. Present-day design sustains the status quo, a universal aesthetics standard from western idealisms ("What Does It Mean to Decolonize Design?," 2019). My aesthetics and education from western design schools and my own experience growing up in urban China can be far different from those of the students in rural China. Imposing my own design aesthetics on them is no different from teaching universal course content from urban schools in China.

Further, design for the pluriverse is more than addressing aesthetics differences between people. "Designers most frequently assume that the unmarked user has access to a number of very powerful privileges such as U.S. citizenship, English language proficiency, access to broadband internet, a smartphone, no disabilities, and so on" (Costanza-Chock, 2018, p.9). The "very powerful privileges," in my design project, would be someone living in urban China, well-educated with Mandarin language proficiency, have easy access to technologies, and no disabilities. This user profile is consistent with the volunteers yet can be far from the students' situation.

Embodiment

Design for the pluriverse is more than addressing the differences between volunteers and the students as two groups and designing for each group considering their own cultures as a whole. The pluriversality exists from each individuals' ontological difference. Escobar believes that when we delve beyond the marketplace, the universal knowledge and rationality, to each individual's ontology of being, there we can design for the pluriverse (Escobar, 2012, p.3). Knowledge is created through a body's movement and interaction with the outside world as opposed to universal rational arguments. Embodiment is when the mind and the body co-exist and intertwine, acquiring one's knowledge by its body, interacting with its unique physical and cultural environment (Braidotti, 1994, p.4). As knowledge produced through embodied experience, it is personal and relative. Therefore, to address the pluriversality of one's personal

and relative knowledge, I incorporated embodiment into my research methods and design of Pen Neighbour.

Instead of a universal survey form for the students to fill out, I designed the cultural probe box for the students to play with by hands. From opening the box, tearing each envelope and opening letters, making their marks on each paper, capturing moments by the camera, the embodied experience is designed for each student to learn and express with their most familiar and comfortable activities (see Figure 2 in Chapter 3). In addition, I have also incorporated embodiment into the app design of Pen Neighbour (See Figure 13 to Figure 19 in Chapter 3). Embodiment helps Pen Neighbour to create a real-life experience of letter exchange on a digital device.

The design of the Pen Neighbour app is inspired by embodied interaction introduced in Paul Dourish's book, *Where the Action is - the Foundation of Embodied Interaction*. In Chapter 4, Dourish introduces the concept of embodiment as the "property of our engagement with the world that allows us to make it meaningful" (Dourish, 2001, p.121). According to Dourish, we engage with, perceive, and make sense of the world by using our bodies. Therefore, to design a more human-centered and seamless human and computer interaction, one should take embodiment into considerations. This is called "embodied interaction." Dourish describes embodied interaction as "the creation, manipulation and sharing meaning through engaged interaction with artifacts" (Dourish, 2001, p.122). In my case, my goal is to embody a letter-writing experience on a mobile digital app. The "artifacts" become the app itself, and instead of using traditional models of messenger app design, my objective is to think in the users' shoes and embody their experience of letter writing into the app.

Despite the cold flat screens on a digital device being different from the textured, warm paper, there are ways that I create metaphors and symbolic meanings on the app design to make the experience as close to real letter writing as possible. For example, writing on a mobile device is generic and less personal. The texts are transformed into codes and delivered to another person's chat box instantly. On the other hand, writing by hand involves creativity. The lettering style is unique to the specific person. Also, some people would like to add some decorations, such as stickers, doodlings, drawings, and putting pictures on the paper. Once the letter is mailed,

it usually takes a long time for the other person to receive it. To incorporate the real-life experience into the app, I added the delayed delivery according to the locations of the receivers, and options to personalize the letters. The users can create their own fonts as well as adding decorations they could do with real paper letters. The Mailbox option also allows them to store the received letters as they can do it in real life (See Figure 13 to Figure 19 in Chapter 3).

Chapter 3: Design Process and Research Methodology

Answering my third research question: “what can be an alternative to the existing volunteer programs?”, this chapter explains my process and methodology used to create the alternative, Pen Neighbour program. In order to learn from the actual participants of a volunteer program, my entire research was scaled down to an elementary school in a village in Shandong, China. I was lucky to be able to work with a non-profit organization in China in the summer of 2018. As a volunteer teacher and a researcher, I have been in close contact with the organization, the school, and the students throughout my participatory research. I designed a cultural probe study and invited the students at the volunteer program in Shandong to participate. At the same time, I personally joined the short term volunteer program as an Art and English teacher. After the volunteer program ended, I collected my research results and started the Pen Neighbour 1.0. After Pen Neighbour transformed into a digital application, I conducted a survey with the same group of participants from the previous studies and designed Pen Neighbour 3.0. With the current Pen Neighbour user interface design, I collected user testing results from 3 students and 3 volunteers. At the end of this chapter, I will analyze the result and my plan for the future design of Pen Neighbour.

Working with the stakeholders of a short-term volunteer program in China helped me to gather information through participatory research by conducting a cultural probe study, direct observation, a survey, a user testing, and several interviews throughout the development of Pen Neighbour program. Since the participants themselves were at the center of my research, this research method has helped me to understand the students and the volunteers and greatly influenced my design as a means to explore these stages. Therefore, this chapter is divided into three parts to coincide with the three phases of the Pen Neighbour program developed through

different research methods. Through the research and creation for Pen Neighbour, I followed an iterative process that alternated between generative and evaluative research. I designed prototypes and tested them with the students and volunteers to receive feedback that led to the next design prototype.

Key Objectives of Pen Neighbour

In order to design an alternative for the current on-site short-term volunteer programs, it is crucial to address the challenges of the existing volunteer programs. From the case studies in the previous chapters, I learned that the short-term, non-government sponsored programs often:

1. Lack supervision and training for the unqualified teachers
2. Fail to address the cultural differences between volunteers and the local students
3. The service periods are often too short to improve the students' academic performances
4. Create academic and emotional burdens to the students

Therefore, the research and design objective becomes: providing a volunteer solution that overcomes these existing challenges of the current short-term volunteer programs and gives design justice to all the stakeholders with participatory design methods.

Introducing Pen Neighbour 1.0

Reviewing the challenges of the existing volunteer programs from Chapter 1, the idea of a penpal program emerged. One of the recommendations given in the case studies in Chapter 1 was to design curriculums to fill the education gaps. The education gap means the essential knowledge and education that contributes to the students' personal development rather than the compulsory exams.

The researchers suggest that since the volunteer programs are generally too short to help to achieve academic success to the students, the volunteer could potentially teach the students contents outside of the textbooks. There is much more that students can learn from aside from the knowledge required for the compulsory exams. Instead of teaching for compulsory exams,

volunteers can organize activities that help to build students' personal development. Study shows that self-esteem and interpersonal skills not only help the students to gain academic success but also help them to excel in their personal life and career (Tuis, 2015). I am interested in incorporating activities that promote self-esteem and interpersonal skills into the volunteer programs, or an alternative experience to the students other than taking classes in schools.

Instead of focusing on improving academic performances, the letter exchange will help students' personal development. In a one-on-one penpal program, the volunteers are no longer teachers. They become friends, big brothers and sisters, mentors to the students in rural China, and they communicate through letters. From a student's perspective, they are no longer the receiving end of a lecture. They play an important role, just as the volunteers do. Their voices will be heard, and their presence is essential and appreciated in the process. Unlike the experience in the current on-site volunteer programs, the volunteers will be able to build a genuine, long term relationship with the students outside the classroom.

In addition, by regularly having contact with a penpal, the students can talk to someone outside of their world. They will be able to communicate with other ethnic cultures. Many students in rural China are ethnic minorities. They usually grow up not knowing much about the other ethnic groups and experience culture shock when they go to colleges or work in urban cities (2006). In addition, through my experience with the students, they are often shy to talk to the volunteers face to face. However, they tend to talk about more topics and share more thoughts when they write to us, whether it is through small letters or writing for a class. It is often difficult to achieve such interpersonal engagement from only the interaction in the classrooms over a short period of time.

Last but not least, communicating with the volunteers who have backgrounds of higher education or in the process of applying to colleges will encourage and motivate the students to do the same. Through my conversation with Li, the program director of an NPO in China, I learned that many students in rural China actually could afford high schools and colleges. However, they choose not to pursue them because they feel secure and satisfied with their current situation. One of the reasons they feel this way is that they are rarely exposed to the opportunities existing outside of their villages, nor do they know anyone who has been to colleges, since most of their

parents have never been to colleges before. Therefore, having communicated with the volunteers will help the students to learn about the opportunities outside of the villages and the importance of higher education.

On the other hand, this program will attract the volunteers because it is less time consuming, and more flexible than traditional on-site volunteer activities. It provides an opportunity to help the volunteers to relax and take time to write with pens and paper and to take a break from social media and the internet. Also, it gives the volunteers and the students a medium to stay in touch after a volunteer program.

1. Research Method: Cultural Probe Kit

Before designing my research methods, to validate my idea, I had been in contact with Li. Li has overseen multiple short-term volunteer trips to five villages in China every summer for the past years. She agreed with the idea of a penpal program and that she actually has considered doing it with her volunteer program. However, there were several concerns about the practicality of carrying out a penpal program in the schools. In order to start a penpal program, the NPOs and volunteers would need help from the school so that the school would assign a faculty member to supervise the letter-writing process with the students. However, the school principals were not likely to cooperate on a penpal program because they did not see a direct connection between writing letters and improving the students' test scores. She estimated that it would be a challenge to start a penpal program without any faculties' help since the students might not respond to the letters on time, which would be a discouragement to the volunteers.

To tackle this problem, I designed the first penpal kit. It is a cultural probe kit with two main goals: first is to collect the most honest opinions and thoughts from the local students through creative media, second is to kick start an independent penpal program without the help of the local schools at the end of the cultural probe session. I wanted to learn about the students because I rarely found many academic resources exploring the students' experience in a volunteer program from the studies I read.

Through my conversation with Li, I learned some aspects of the students. However, I understood what I learned about the students were only observed through a NPO's perspective.

Following the principle of design justice, to let their voices be heard and design a program that respected their true needs, I found the cultural probe kit to be an excellent starting point of my research.

A typical cultural probe kit can include postcards, maps, craft materials, cameras, etc. Varieties of activities are designed to help the participants to express their thoughts or record their days. After a certain period of time, the cultural probe kit will be collected by the researcher for analysis and inspiration for a project creation (Martin & Hanington, p.54). It is informal and fun, which is a perfect method that can fill the gap of a direct interview. I projected it to be difficult to interview the students directly since they would not easily share their honest opinions and ideas, given that they tend to be shy and tense while interacting with the volunteers in my experience. On a formal occasion like a one-on-one interview, I did not anticipate that the students would be open to tell me their true feelings, especially answering questions like what they think about the volunteer teachers, as I would be one of them. Therefore, I chose to have cultural probe activities where I gave them daily activities and let them express themselves through games, crafts, writings, and taking photos.

I invited 10 students from the volunteer program I participated in the summer of 2018 to participate in the Pen Neighbour Cultural probe kit. In the cultural probe study (Figure 2), I designed a 10-day task box for each participant since most of the short-term volunteer program would last at least ten weekdays. Participants found an instruction paper when they first opened the box, along with ten sealed letters, a disposable camera, an “invisible pen,” a mini UV light, and crafting materials. They were instructed to open only one letter each day and asked to complete the task given in the letters. The original letters were all designed in Chinese, but below are four translated versions from the originals. All of the texts were written at a level that the children will understand, since most of the participants are elementary school students. They were meant to be friendly, playful, and encouraging and make the participants feel lighthearted and at ease when completing the tasks.

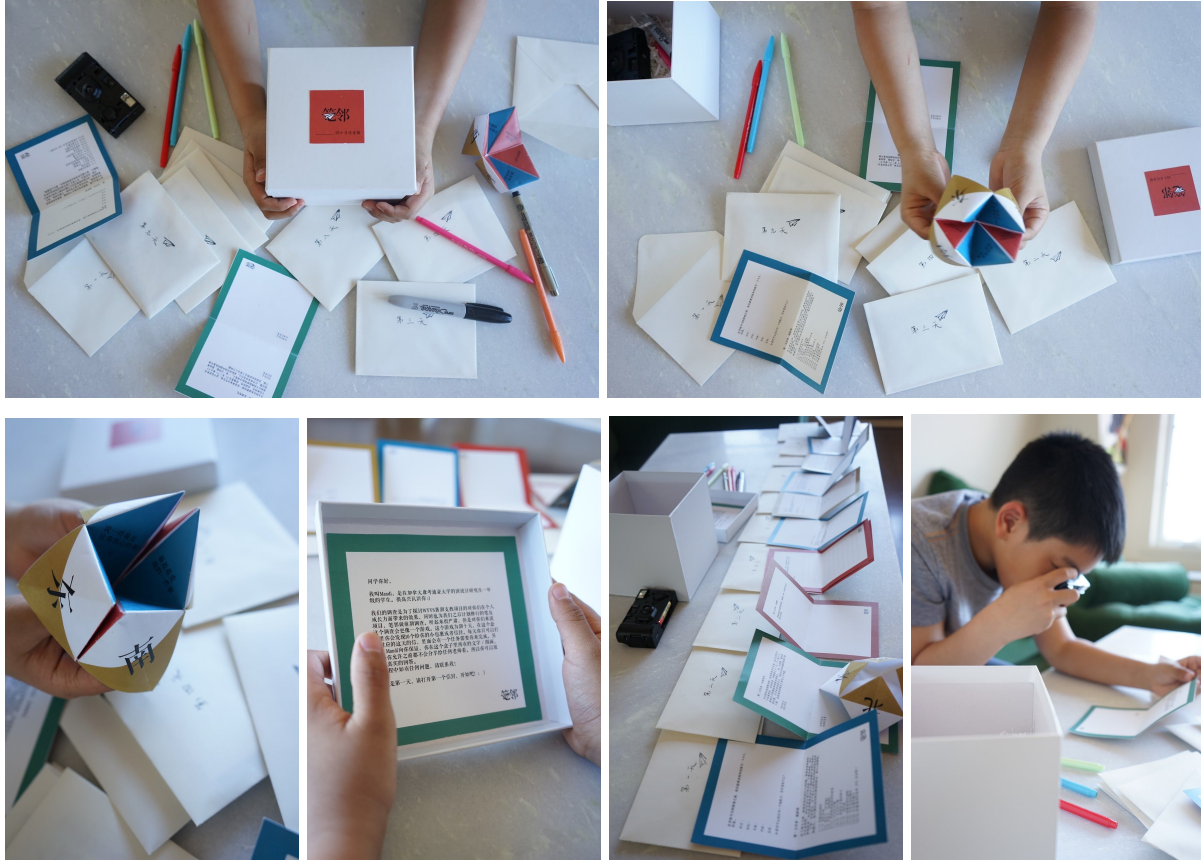


Figure 2. The cultural probe kit

In the first letter (Figure 3, top left), the participants were required to fill out their basic information: name, gender, grade, age, and ethnic group. The last question: “if you were given any superpower, what would you wish to have,” was fun and out of the box. With the disposable camera task, the entire study was meant to help the participants to relax and be as creative and free as they could in the next ten days of study. Through the lenses of the cameras, I would be able to see what I usually could not see as a volunteer teacher: for example, their home, their favorite activities or their best friends. These prompts were meant to be more open-ended as I did not anticipate specific images from the participants. The pictures they brought back to me could be inspirational in constructing the penpal program as well as getting to know the students’ perspective in the future.

在开始今天的游戏之前，我们需要你简单的填写一下个人信息。
Before we begin our task today, we need you to fill out some basic information about yourself.

姓名 Name :
性别 Gender :
年级 Grade :
年龄 Age :
民族 Ethnic Group :

如果你可以选任何一个超能力，你希望是什么？
If you were given any super power, what would you wish to have?

第一天任务 - 摄影师 Day 1 Task-Photographer

在下周五之前，需要你来完成以下10问题，需要你用照相的方式来回答。你会在这个盒子里找到一个傻瓜相机。请注意相机里一共27张你需要对应以下题目的数字来照27张照片。不用一次性照完，在下周五之前完成后把相机返还给老师就行。每个题目你有两次照相的机会，要小心把握哦。 Before next Friday, we would like you to take pictures to answer the following questions. You will be able to find a camera in this box. Please note that you can only take 27 photos in total from this camera. You don't have to finish everything today, but please taking all the photos before next Friday and return the camera to me. For every question you have 2 shots, so please be careful and have fun!

- 1 / 2. 你最好的朋友 Your BFF
- 3 / 4. 你的同桌 Your neighbor in the classroom
- 5/6. 你自己 (严肃脸) Yourself (serious headshot ptz)
- 7/8. 你自己 (扮鬼脸) Yourself (Be funny this time:D)
- 9/10. 学校里你最喜欢的角落 Your fav corner at school
- 11/12. 今天的早餐 Your breakfast this morning
- 13/14. 今天的午餐 Your lunch
- 15/16. 你现在书桌的样子 What does your desk looks like right now?
- 17/18 : 你的家 Your home z3
- 19/20: 你最喜欢的动物 Your fav animal
- 21/22: 今天天空的颜色 The color of the sky today
- 23/24: 今天穿的鞋子 Your shoes today
- 25/26: 和最最喜欢的老师 (们) 的合影! Now take a pic with your fav teacher (teachers)!

第二天任务 - 东南西北 Day 2 Task- E.S.W.N.

今天的任务需要你和一位老师来合作完成。这个信封里有东南西北，找到伙伴，问他要几下？东三下？南五下？将两只手的拇指和食指分别放入，一张一合的数，数到要的次数，打开看看你是什么。请把对应的问题的答案写倒下面，直到你们回答完了所有八个问题。 For today's task, you would need to find a teacher to participate with you. There is a "东南西北" in this envelope. Find your partner and play with him! How to play: put your 2 thumbs and index fingers into the 4 boxes. Ask your partner to pick one from 东南西北, and give you a number. You count the number while open and close the 东南西北, when you finish counting, answer the question in the position you picked. remember to write your answers below. Have fun!

你的姓名 Your name :
你的答案 Your answers :

伙伴的姓名 Your partners' name :
伙伴的答案 His/her answers :

笔邻

笔邻



Figure 3: Letter 1 (top left) & 2 (top right) from the cultural probe kit (translated version) and the participants playing fortune tellers in the classroom (bottom)

The second letter was an icebreaker game between the class and the volunteers (Figure 3, top right). Eight questions were printed inside of the fortune teller (Figure 3, bottom):

1. Recently, I have been the happiest about...

2. *What would you do if you won a million Yuan?*
3. *My favorite thing to do is...*
4. *Find out three things we have in common*
5. *My nickname is...*
6. *My favorite celebrity is*
7. *My biggest headache these days is*
8. *Ask me any questions you want*

These questions revealed things that I would not know from classroom situations. They not only helped me to get to know the students but also helped the volunteers to do the same. At the same time, it created an opportunity for the students to communicate with the volunteers, as I noticed that the students were usually very eager to get to know about the volunteers, but they were often too shy to do so. This activity created a perfect occasion for them to start a conversation, break the ice in the early phase of a volunteer program.

The 8th letter asked about the students' least favorite volunteer teachers (Figure 4, left). I designed this letter to collect negative feedback from the students. It would help me to understand their true feelings towards the volunteers, whether they felt respected and comfortable in the classes or not. It would also help me to understand the relationship between the volunteers and the students and direct me to design the penpal program to avoid the students' dislikes and protect them in the process. It might be intimidating for the students to share their genuine opinions with me, so I designed the "invisible letter" to help them. The participants were directed to use the invisible pen to write the letter. No one could peek at what they wrote on the letter except me with the UV lights.

already connected through two weeks of the volunteer program, they were much more likely to agree to participate in Pen Neighbour after the volunteer program ended.

Other letters included a variety of activities such as drawing a self-portrait, writing a letter to my future self, drawing myself in my dream job, my favorite teacher is..., writing a letter to anyone in the world (from past to future). The cultural probe kit invited the participants to draw, write letters, do crafts, which imitates the experience of being a penpal. These tasks were designed to be lighthearted and playful so that students would feel inspired and easy in completing them. It was not only a cultural probe kit but also a penpal introduction kit that would engage the students to experience the joy of drawing and writing, sharing ideas by crafting, sending, and receiving a letter.

2. Cultural Probe Study Results

There were two major findings from my cultural probe studies, as well as my observation as a volunteer from the field trip in the summer of 2018. The first was that the students lack of imagination in their creative expressions. They often felt the need to copy another drawing when they were given an open prompt. It was also almost impossible for them to draw a self-portrait for them because there was no reference artwork they could copy from. I received many incomplete or even empty pages on their drawing prompts from the kits. I could understand how it was difficult for the students to work on the drawings. As an art teacher on the field trip, I have noticed that the students were generally shy to express themselves through drawing. They were often insecure about their drawings even though I told them that the drawings did not have to be realistic nor perfect. Most of the students would try to cover their drawings when I was walking around their desks during the art classes.

Their insecurities could come from the art education they receive at school. Growing up in China, I have experienced that my art classes have always focused on technical skills rather than promoting creativity. The students are taught that good art has to be realistic and perfect looking.

In one of the Art class activities, I asked the students to create their name tags with any materials they could find at home. I even gave them a specific list of materials as examples.

“Bring anything you can glue on the paper: toilet paper, plastic bottles, wrapping paper, old books, leaves, sand, rocks, etc.,” I wrote on the blackboard. On the next day, they still only brought regular art supplies. Throughout all the art classes, when they were supposed to have fun with their creation process, I sensed that it was as if the students were taking a test given by me. They were nervous and scared to make anything out of the ordinary. This happened more to the students in the older class (5-6th graders).

On the other hand, however, I have noticed that the students were much more creative outside of the classes. They made their own memes on paper, handmade toys out of recycled materials, and created and engraved cartoons on their desks. Later in the program, when they wrote personal letters to the volunteers, they did wonderful drawings on it and folded them in creative and complicated origamis that I have never seen before. I learned that they do have creativity in them, but regular classrooms and formal prompts suppressed it.

Through reading the cultural probe results and my observation, I have also noticed that the students expressed themselves very differently in different environments. Their writing on the cultural probe sounded similar to how they wrote in a Chinese literature class. Their phrases were not original. They copied from the writing samples and phrases they learned in classes. The tone of their writings was usually more artificial than genuine, which made them all sound similar from one to another. In the prompts where the students had to write letters, especially when writing to volunteers, their writings became even more formal and dull. They built the paragraphs with phrases after phrases they borrowed from textbooks and readings rather than communicating their true feelings. This came from how they were taught to write in school. In Chinese schools, we are taught to memorize as many sample phrases as possible and use as many as we can in our writing. The more “good phrases” we put in our writing, the more polished they become, and the better grades we will get from teachers. When writing to volunteers, whom they perceived as their teachers, they tended to use the same mode of writing. This explained why they wrote to us as if we were going to grade them on their writing like a literature class.

When the students messaged us through the Messenger app, on the other hand, they sounded much more casual. Compared to the way they interacted with us in person, which was shy and extremely polite, they sounded much more relaxed and treated us like their friends

instead of teachers and authorities. “Hey, what’s up,” was what I got the most from my students. It was much easier to communicate with them through messenger apps. They seem to have no filter and forget about the “nice phrases” they learned from their class. However, one thing I noticed was that our casual and fast conversations never went deeper. After telling each other “what is up,” it seemed that it was difficult to share more with each other through short messages.

What surprised me the most was to see how the students express themselves on social media. Every student in the class had a QQ account. They showed bold personalities in their QQ Space. QQ Space is similar to a personal blog page that links to their QQ account. They posted things that sounded so mature and cool that I never imagined children like their ages would say (Figure 5). Even though many of them still copied images and captions from online, I saw that they were eager to express themselves, show their personalities, and share events in their lives with others. Online profiles, social media seemed to be their favorite outlet to do so.

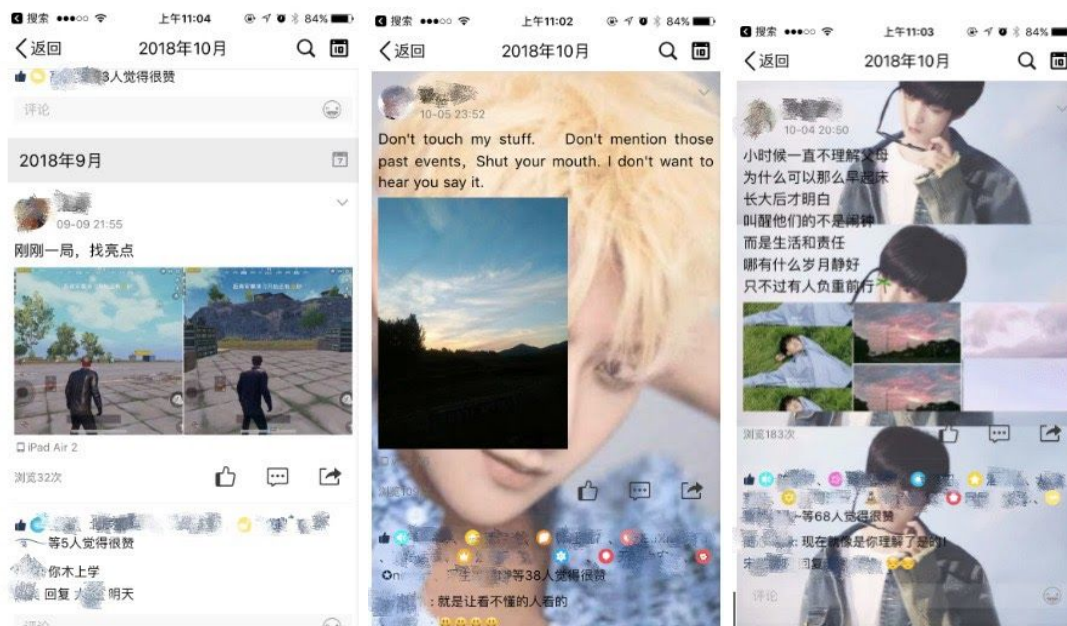


Figure 5: Screenshots from my students’ QQ feeds

In conclusion, the cultural probe kit itself was not a successful research method in terms of learning students’ true feelings individually. Some students did share their personal stories from the creative prompts, but only to some extent. The open-ended questions and prompts left

the students too much freedom for creativity, which made it difficult for them to start sharing. Also, perhaps the students knew that I, a volunteer teacher, would be reading their answers. This limited their creativity and made them even more careful with their answers. The casual and game format of the cultural probe kit did help the students to have fun and be more honest with their answers. However, they still treated it more like a test that was going to be graded by me, a teacher.

Besides, as for my own reflection as a researcher, I found myself biased as I designed the kit. I assumed that the kit was fun and simple. However, it appeared that the students found it difficult to complete, especially with the open-ended art prompts. I learned that, once again, cultural awareness is essential not only within the volunteer programs but also throughout my research and design process. Even though the cultural probe kit was my first study with the students, it was never too early to learn about the participants and design my study that would work the best with them. If I could design the kit again, I would understand the students' art and writing habits and design the kit accordingly, before I had the students participate in the study.

Fortunately, when combined with my observation result from the field trip, the cultural probe kit did help me to notice how the students created and wrote differently in different environments. This was extremely helpful information when I designed a digital version of the penpal program in the next phase of Pen Neighbour. The game-like design of the kit also built a positive association for Pen Neighbour. I received such positive feedback from the students who participated in the cultural probe kits. Towards the end of the program, I had 20 students signed up to become penpals with ten volunteers, which exceeded the number that I planned for. The director of the organization also suggested that I make more cultural probe kits to other locations they operated in and start the Pen Neighbour program with more students. However, I decided to keep a smaller number of participants since it was easier to monitor and I was personally more familiar with the participants from the volunteer program.

3. Research Method: Participant Observation

In August 2018, I took a field trip to a village in Shandong province to join a two-week volunteer program as a teacher at an elementary school. My two key objectives of the trip were,

first, to conduct participant observation as a volunteer at the school. The second was to drop off the cultural probe kit to ten student participants. My plan for my participant observation study was to gain first-hand knowledge and build connections with the potential participants of the Pen Neighbour program, as well as to validate the research findings in the case studies in Chapter 1. The following are the notes from my observation as a volunteer teacher in a two-week volunteer program in rural China.

The School: The elementary school was a village located in Shandong Province, Northern China. The primary income of the village was mainly from agriculture and tourism. It was the only school in the village. Through my conversation with the school principal, I discovered that the school was always in need of instructors. There were only three teachers, including the school principal, who also had to teach mathematics and music. There was a total of about 60 students in three classes instead of six grades in the school. The school admitted students every other year, combining every two grades into one big class: the “young class” (1st to 2nd grade), the “middle class” (3rd to 4th grade), and the “old class” (5th to 6th grade). Only the “middle and old class” participated in the volunteer program every summer.

The Organization: The Volunteer program was led by a Chinese non-profit organization that also ran short-term volunteer programs in four other schools in China every summer. The elementary school had a long and positive relationship with the association. It had been three years since the volunteer program first came to the school. The computer lab at the school was donated by the organizations a few years ago. From interviewing the program director of the NPO, out of all the schools they partnered with, the Shandong location was the easiest to work with because the school principal was highly supportive of the volunteer programs. Their positive relationship had also helped me to introduce the penpal program with the principal’s help later in the volunteer program.

The Volunteers: The volunteer group consisting of twelve members in Shandong Province was the smallest out of all other locations in China. Out of the twelve members, four of them were returning volunteers. Two of them had volunteered in another location through the same organization. Two of them had now subsequently become the leaders of the group, who were in charge of housing, transportation, class management, after-school meeting, and

coordinating between the organization and the school. Out of the twelve volunteers, there was one graduate student (myself), four undergraduates, and the rest were all high school students. The youngest volunteer was only sixteen years old. Most of the high school students were seeking service hours and polishing resumes for college applications through volunteering. Most of the volunteers were studying abroad or planning to study abroad in the U.S., Australia, and Canada at the time.

The Curriculum: Before the volunteer program, all the volunteers communicated through a Wechat Group. The group leader asked everyone to pick class subjects they would like to teach: English, math, science, art, cultural exchange (where volunteers talked about their experience studying abroad), PE (physical education). Chinese and acting classes were later added by the volunteers. Throughout the two weeks of classes, the organization gave absolute freedom to the content and style of teaching of the volunteers. Though they gave universal teaching materials to the volunteers, the volunteers quickly realized that the course material did not match the academic level for the classes. The course materials were also on Powerpoint slides while the classrooms were not equipped with a projector. The volunteers had to draw everything on the blackboard during the classes, which added difficulties to teaching.

Teaching Quality: Through my observation, the volunteers had a positive attitude toward teaching and interacting with the students. They were generally very patient and attentive to the students. In the daily meetings, the volunteers took time to evaluate several students in their classes and discussed class management skills. The returned volunteers also shared their experience with managing the students. They were quite flexible with their course plannings. The class contents were usually decided and prepared the night before. Getting to know the students better had helped them to design the classes better with the students' academic levels and interests. They noticed the subjects that the students were interested in and changed their teaching style and content accordingly. They also added new subjects, acting and Chinese, after the first day of school, to make the program more entertaining for the students.

The Issues: Despite the positive attitude of the volunteers, I observed many problems throughout the program. As the case studies in Chapter 1 reveal: the short-term volunteer programs lack of supervision and sufficient training were problematic. Unfortunately, I found the

same issue within the program I attended. Even though the two group leaders had previous experience with teaching at the school and were responsible for reporting to the hosting organization, there was no supervisor from the organization to work on-site for the volunteers. The group leaders took many responsibilities, but they were still not sufficient for the volunteer program. One of the reasons was that they were at the same age as other volunteers, and they were both first-time leaders in the program. When the group leaders pointed out the mistakes of the volunteers, the volunteers were reluctant to listen to them because they believed that the group leaders were unqualified. These conditions resulted in arguments between the volunteers and the leaders, which drained energy that they could have used on working. There would have been fewer unnecessary conflicts had a supervisor been able to arbitrate, someone with experience in leading volunteer groups, who knew how to manage and communicate with a young group.

Besides, no one examined the teaching content for the volunteers nor observed their teaching quality in the classes. I sat in on some other classes when I was not teaching and noticed several mistakes that the volunteers were teaching to the students. False information, misspelled words and incorrect grammar were taught to the students. These could be prevented if each volunteer had taken more time to verify their teaching content or have a supervisor to examine it before bringing it to the class. However, there was no one to take that responsibility.

While having no one to control the teaching quality, the volunteers did not spend enough time preparing for the courses. It was helpful that the volunteers were willing to design their course plan instead of using universal course materials given by the organization. However, designing a new course plan required much more time than had been provided by the volunteers. The volunteers were usually confident in their knowledge. I observed that most of the volunteers usually spent no more than 30 minutes on their course planning every day. A few of them even chose to “wing it” in the class, teaching without a script. When they were unsure about what they were teaching, it was difficult for them to verify their information because there was no internet at the school. This meant that the entire course planning had to be done in our dorm at night after our daily meeting. However, with the Wi-Fi available, most of them chose to spend their free time playing games and streaming movies than utilizing it on course planning.

In addition to inefficient course planning, I also saw unfair treatment to the students by the volunteers, which was problematic. As mentioned before, the volunteers were generally patient and attentive to the students, but they could also be too nice to the students sometimes. Some volunteers asked their favorite students to hang out in the teachers' room during breaks just because they liked them more than other students. At the same time, the naughty students had a much tougher time in the classes. On several occasions, I saw volunteers publicly yelling and insulting individuals in the classes when they were not obeying the class rules. Yelling and insulting worked on the students temporarily, but also exploited their self-esteem. Later in the program, these students became immune to the yelling and punishments. They made the class chaotic and, therefore, even more difficult for the volunteers to teach.

While the volunteer's favorite students were getting more attention, the students who had special needs did not get the attention and help they deserved. There was a girl in the younger class with studying disabilities. She was bullied at school and had no friends. Other students in the class would tell the volunteer teachers to ignore her because she learned very slowly and did not understand most of the things we said. As they told us, waiting for her to catch up in the class would only drag the rest of the class behind schedule. Unfortunately, even though the girl was clearly confused in the classes every day, I did not see that volunteers have stayed after classes to help the girl with the school work or even just to spend time with her as they did with other students.

Other Findings: From my interview with the school principal, I learned that he was well aware of the fact the volunteer programs did not improve students' academic performance. However, he was still in full support of collaboration with the organization every summer. In his words, "the volunteers open the window of the outside world that the village kids may never see in their lives." His goal in working with the volunteers was to "inspire his students to dream big and work hard." For him, the interaction that the students had with volunteers with a diverse background and introduced them to many things that they could not learn in their classrooms was the most valuable thing that the volunteer program could offer. He believed that ethical values and virtues were just as important as getting A's in school. In addition, he also hoped his

students would learn the courage and work ethics from the volunteers who went through the college application and studying in a foreign country.

The school principal's ideas about volunteer programs coincided with my goal of the Pen Neighbour program. We both hoped to bring fresh perspectives and open windows to the students' world through communicating with the volunteers. This made it easy for me to introduce my penpal program to him. He agreed immediately on my proposal and had assisted me in completing the Cultural Probe kit with his students.

Moving to a Digital Format: Pen Neighbour 2.0

Twenty students and ten volunteers who signed up for the Pen Neighbour program had been exchanging letters since October, 2018. As planned, both students and volunteers were happy to stay connected and share stories with each other after the on-site volunteer program ended. However, we ran into an unexpected obstacle. The letters had been taking much longer than I anticipated. It took as long as two months for a student in China to receive a letter from Australia. There had also been cases of the letters getting lost. The slow delivery and chances of letters getting lost discouraged both students and volunteers from continuing the letter exchange. Therefore, I started to explore a more secure and faster letter exchange method.

1. Objectives

Pen Neighbour 2.0 app prototype was my first attempt to create a traditional letter exchange experience through a digital format. From my previous research methods, I learned that the students acted and communicated differently in different formats. They tended to be shy and extremely polite with the volunteers in person because they saw us as teachers and authority. They could communicate more by writing, yet the tone was more formal with blocks after blocks of phrases borrowed from "writing samples." At the same time, what interested me was that students' way of communication on digital platforms was much more playful and easygoing. They did show their personalities when they messaged their volunteers (Figure 6). Therefore, I believed that writing letters on a digital platform would take the pressure off from formal writing on paper. This app was designed to set the tone of communication between serious letter writing and casual messenger chatting.

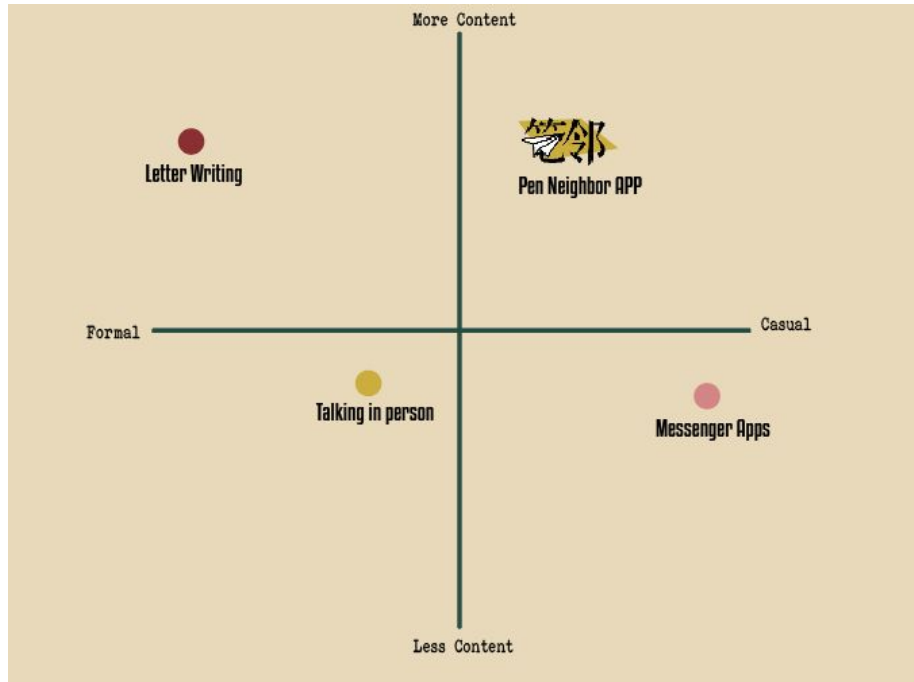


Figure 6: The positioning map of Pen Neighbour app in comparisons with other ways of communication

The positioning map helped me to design the app to be unique from traditional letter mailing and the messenger apps such as Wechat and QQ (Figure 7). Unlike mailing tangible letters, messenger apps and emails usually provided much faster and secure delivery. Pen Neighbour was designed to take a longer time for the letters to be delivered, so that students and volunteers would take the letters more seriously and write more content than what they would do with instant messenger apps. Compared to messenger apps, Pen Neighbour provided a more personal touch. It provided letter writing experience as the users got to customize their letters such as changing the colour of their pens and adding stickers on their unique letters.

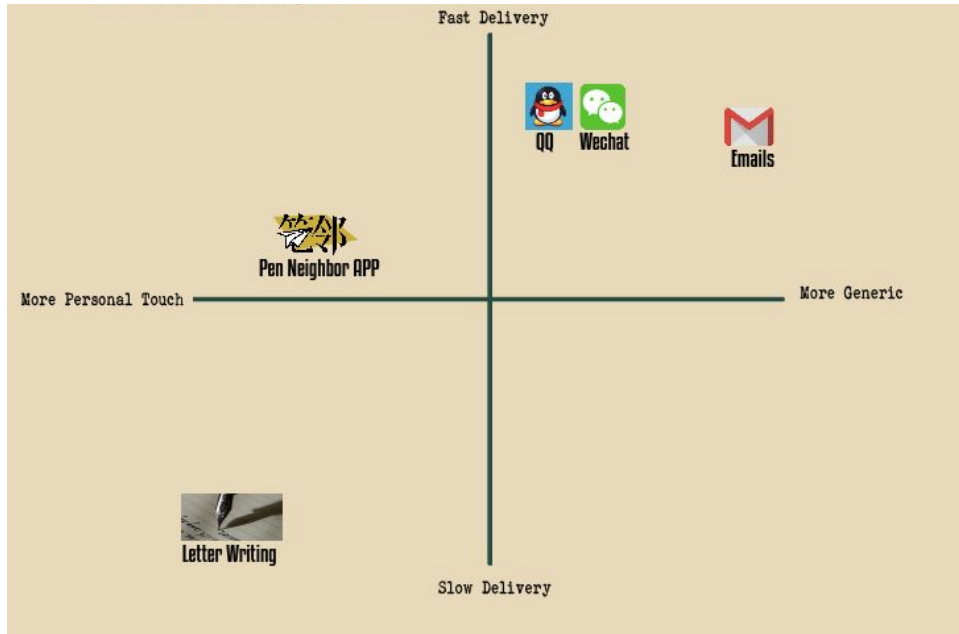


Figure 7: The positioning map of Pen Neighbour app in comparisons with letter writing and messenger apps

2. Key Functionalities

Profiles: Each user is directed to set up an account when they first open the app (Figure 8). They may do so by inserting his or her images, name, city, zodiac sign, birthday, interests, and Wechat or QQ number. Once their profile is completed, they can add the volunteer by researching his or her Wechat or QQ number, discovering nearby, or scanning QR codes. The latter two options are used when they meet in person. Students can also invite the volunteers to join the app by sending them an invitation. Once they find the volunteer, a profile card of the volunteer will appear on the screen. Students can add the person and write to him or her by clicking on the profile card.



Figure 8: Account registration and add contacts on Pen Neighbour 2.0

Letter Writing: The user can write a letter after clicking on another person's profile (Figure 9). In addition to the essential functions we usually see from a messenger app, the user can edit their letter as if they were writing on actual paper.

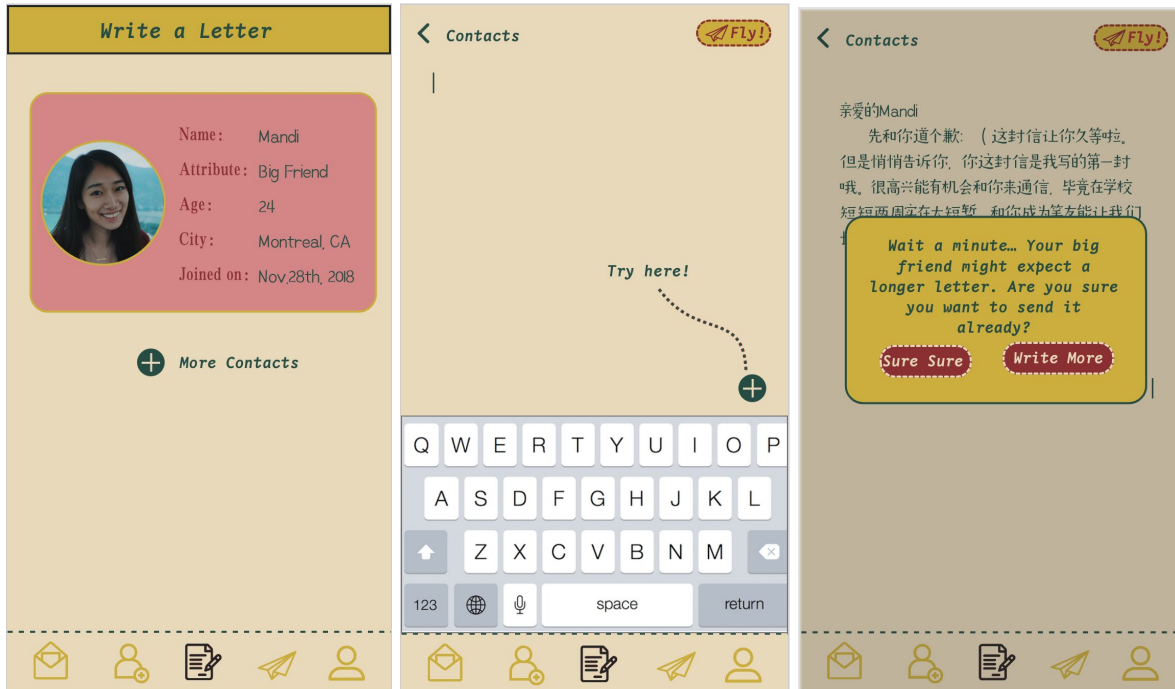


Figure 9: Write a letter on Pen Neighbour 2.0

Users can create their fonts by uploading pictures of their writing. Users are also able to choose crayons, pencils, colour markers, and watercolour with different colour options to write or doodle on the letter. Images can be inserted in the letters, as well as watercolour stickers to be used to decorate the letters. I am going to create a series of stickers with watercolour that is closely related to students' lives, such as the landmark buildings in Rizhao, students' textbooks, and other items that are familiar to the students so that they feel more personal.

A light restriction is designed so that both parties treat their letters more seriously. When the letters are shorter than 100 words, a gentle reminder will pop up on the screen: "Are you sure that you want to send the letter? Your big friend might expect a longer letter from you." It does not force the users to write longer letters but only communicates what a real letter should be like to them.

Once the letter is completed, users will be able to “fly-out” their paper planes or their letters to the volunteers (Figure 9). To imitate the real letters, paper planes will take a longer time to be delivered when they fly to distant countries. For example, for a students’ paper plane from Northern China to fly to me in Montreal, Canada, it will take five days for the plane to arrive. However, if the students are sending a paper plane from Northern China to Taiwan, it will take as short as 1.5 days for the paper plane to arrive. The delayed arrival times may build up the anticipation of the letters for the users. This may make the users take each letter more seriously since they are not able to send multiple letters in a short time as they can do on a messenger app.



Figure 10: Sending a letter on Pen Neighbour 2.0

Mailbox: A mailbox is a place where the users can store their received paper planes. Users can access older letters by scrolling through the thumbnails (Figure 10).

Treasure Box: Users can collect awards and unlock new functionalities through the Treasure Box option (Figure 11). For example, when the first round of letters is exchanged between the students and volunteers, both users get a little “trophy,” which, in this case, is a red paper plane. A new function, which now allows the user to attach two pictures on each airplane, is awarded to the user. Users can see that there are many more trophies in the treasure box

waiting for them to unlock. This function is designed to give users an incentive to continue using the app. Also, the reward system allows me to use positive reinforcement to direct the users to interact with the app in certain ways.

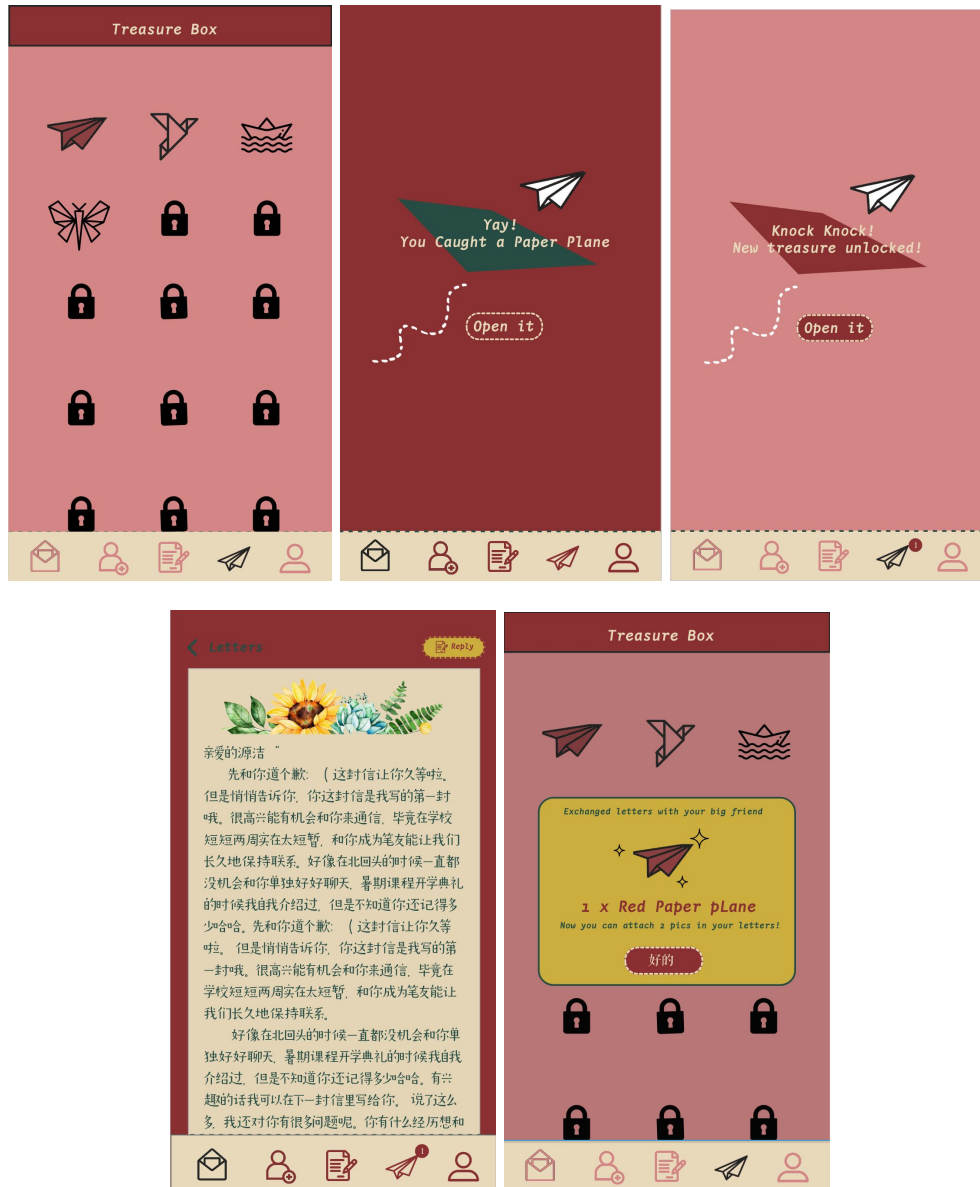


Figure 11: Unlock treasure box on Pen Neighbour 2.0

3. Graphic Design

The logo: The font of the logo incorporates the traditional serif typeface of old typewriters. The same serif font and another handwritten font are used throughout the app. There is a paper plane that is incorporated in the logo, which becomes the key theme of the graphic

design and repeatedly appears throughout the app. The paper plane is symbolic as it is able to fly anywhere in the world. The paper plane is consistent with the goal of the penpal program, which is, no matter how far we are apart from each other, we will still stay in touch as if we live close by each other (see Appendix).

The colour palette: The overall aesthetic of the app is friendly, playful, and vintage. The colour palette is muted, a lot less saturated compared to other apps designed for younger users. I decided to use a more mature colour palette because I found that the students (10 to 14 years old) tended to post images and graphics with more muted tones on their social media. Students tried to post things that sounded more mature than they actually were in real life. Likewise, the other half of the users were the volunteers who mostly came from high schools and colleges (16 to 21 years old), who also preferred similar aesthetics according to their social media postings. Therefore I chose to use a more mature aesthetics on the colour choices.

4. Language

The language in the app is quite essential since it sets the tone and deliberately directs the users to write more casually. To explain this, for example, the title of the users, which are the students and volunteers are called “small friends” and “big friends.” They are called this way so that they are designed to feel more equal with the volunteers, instead of treating the volunteers like the authorities. On the other side, the volunteers are also cued to write to the students in a more friendly tone, rather than educating them like a teacher. In addition, the overall tone of the language used in the app is quite friendly, just like a kid talking to them. Interacting with the app gives an entirely different experience compared to using a messenger app that is built for all age groups.

5. Reflections

Pen Neighbour 2.0 was only the beginning of the app design. To me, designing the first app prototype walked me through the process of designing an app interface, which helped me to construct a participatory design study in the next phase. By walking through the app design process, it became more clear on what specific questions I could ask from my research participants.

I have also realized that my app was not “embodied” enough. For example, when the users wrote too little, the reminder would show up to ask them to write longer. However, in real life, no reminder would pop up to tell someone when the letter was too short. People have the freedom to write as short as a few sentences, even just a doodle or a picture as a letter. Besides, even though I tried to be different from a messenger app, my mindset was still on the functionalities of traditional mobile apps. For example, the contact card which I designed in the app is a typical function existing in all the messenger apps. However, in the letter-writing experience, people would not give a standardized contact card for the other person to write to them. The students usually gave me a small piece of paper with not so perfect handwriting, along with some doodles or origami.

The first prototype design process also helped me to reflect as a designer. Most of the design decisions in Pen Neighbour 2.0 were made from my assumptions. I assumed that the students and volunteers would prefer a vintage colour, and childlike font, a reward system, etc. However, I realized that my assumptions could be far from what they like. Not to mention each individual had their unique preferences, the education I received for the past ten years in the U.S and Canada had profound influence on me in many ways. For example, recalling “Design for the pluriverse” in Chapter 2, I could be biased in my graphic design decisions. Wang’s article titled “Now You See It - Helvetica, Modernism and Status Quo of Design” pointed out the white supremacy in the graphic design industry today. Helvetica has been used as a neutral, most universal font in design. It is used as the default font, while other typefaces and aesthetics are considered exotic and cultural (2016). Through my design education here, I was taught to put the western aesthetics in the universal center of the design. Even though I am a woman of colour living in a developed country, I realized that I could find myself assuming that I knew what the “best” was for the students and designing with stereotypes and assimilation of them in my project. How do I put the western aesthetics and assumptions aside, and design from the most comfort, interests, and needs uniquely for the students? The answers will come from participatory design.

Designing Pen Neighbour 3.0

After the Pen Neighbour 2.0 prototype was completed, I surveyed the students and the volunteers as a part of the participatory design process. The goal of the study was to discover the students' preferences in the app's functionalities, aesthetics, and their vision for a penpal application. The ten minutes long study was conducted online through a Chinese survey platform called Jin Data on Wechat with 18 students and five volunteers.

1. Research Method: Survey

The first part of the survey included personal questions like participant's age and gender, as well as their favorite applications and websites, how they would like to describe themselves, and what they cared the most when they made new friends. These helped me to understand how the students made friends and started writing to a penpal. This supported me in creating an alternative design than the original "add contact" feature in Pen Neighbour 2.0.

The second part of the survey gave the participants a series of colour schemes to select their preferred colours from, given different prompts. I also provided ten mood boards of distinct aesthetics for them to choose from. These would teach me about their aesthetics, which would help me with the graphic design choices on the application. At the end of the survey, I also asked the participants to submit any images of their hometowns and their own favorite items or toys. This helped me to see the students' village in their eyes. Receiving images like these would also help me to create relevant stickers, paper patterns that were relatable to the students' and volunteers' lives.

2. Survey Results

There are several interesting patterns that I noticed in the survey results analyses. More than half of the students answered QQ as their favorite mobile application. Some of them answered WeChat as their least favorite application. According to their explanations, they liked QQ because it allowed them to make friends, play games, socialize, and they could decorate the interface to their preferences. Some hated WeChat because "it is not fun."

The colour card and mood board selections were also informative (Figure 12). Out of 22 participants, eight people associated #3 as their "happy colour," and it reminded them of the feeling of writing to a volunteer. #14 and #7 were also a popular "happy colour." #21, #10 and #16, received opposite opinions. Half of the participants saw them as "happy colours" and half thought they were sad. Besides this, darker and less saturated colours were usually unpopular with participants. I have also put the colour scheme from Pen Neighbour 2.0 as one of the colour cards. It did not get much attention from the participants at all. Most of the participants liked lighter tones, more saturated, macaron colours.

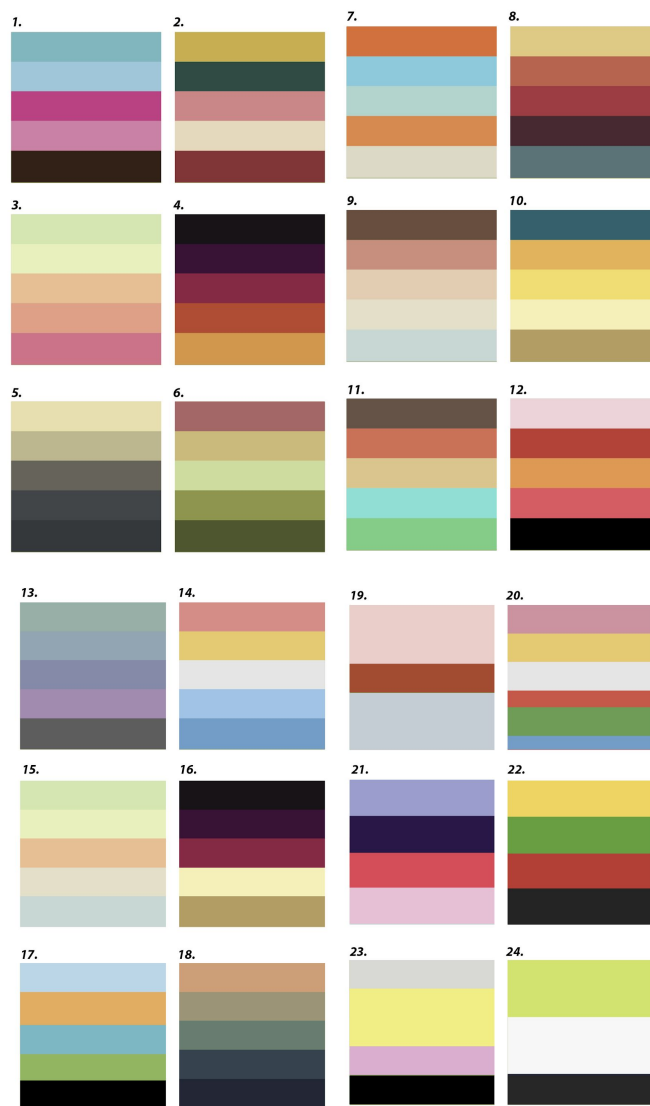


Figure 12: 24 colour cards used in the survey

The mood boards generated even more disagreement from the participants (Figure 13). Five participants chose #2 as their favorite because it looked chill and dreamy. Two participants thought #2 was their least favorite because “it is sad” and “too girly.” Similar answers went to #4. Six Participants put it as their favorite mood board because it was “relaxing,” “reminds me of beautiful springtime.” Two participants believed it to be “too girly,” while three participants chose #6 as their favorite because it looks magical. Eight people did not like it as the graphics were too busy and futuristic.

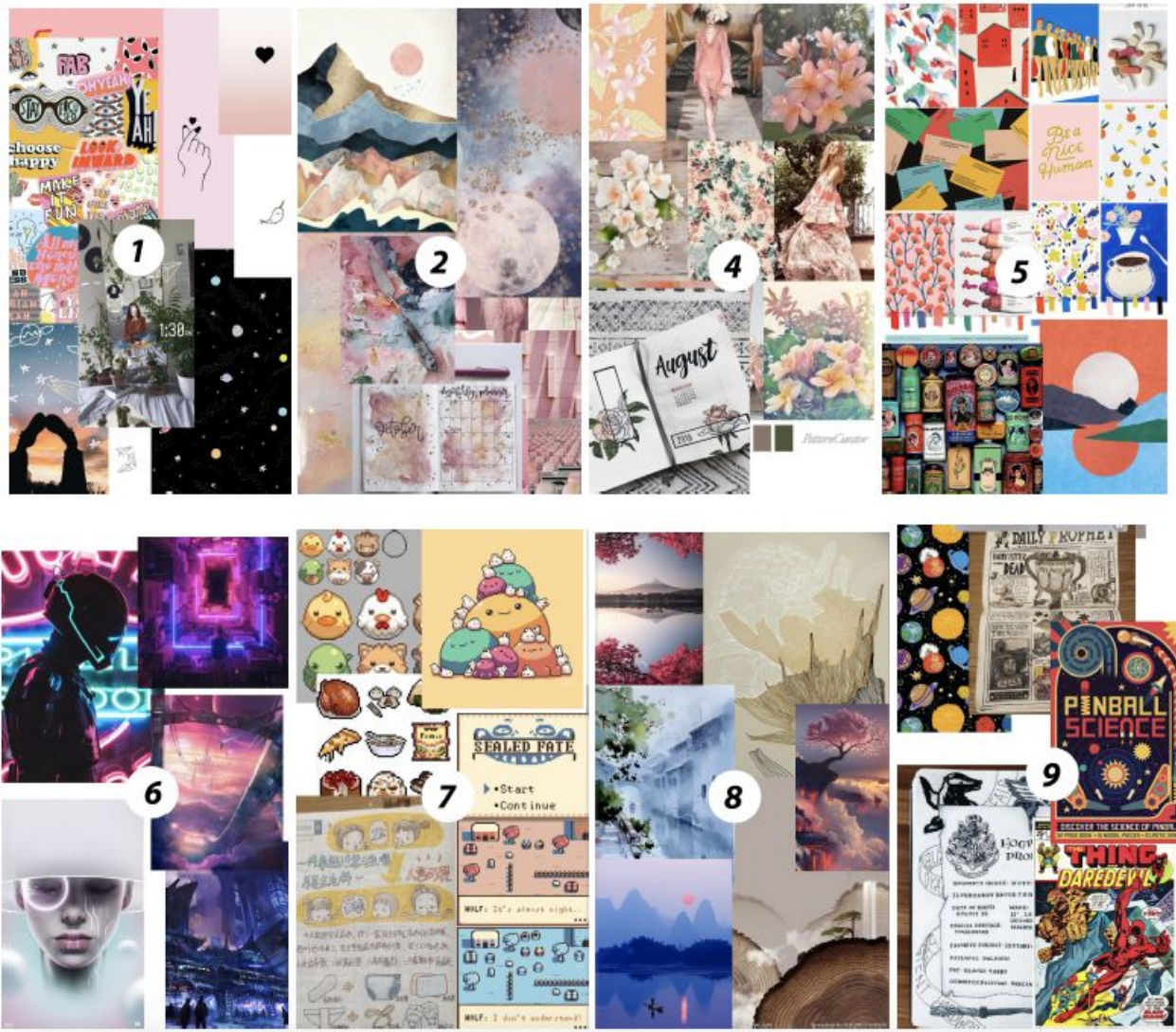




Figure 13: 10 mood boards used in the survey

3. Pen Neighbour 3.0 Design

In conclusion, the sample was too small, and the choices on the survey were too numerous to generalize the preferences as a large group. However, since the target users of the application at this stage were the students and volunteers from this particular school, the unique aesthetics and preferences from each participant inspired me to give them more freedom in customizing their own interfaces.

The Backpack: The most significant change from the previous version was that Pen Neighbour 3.0 narrative all started from the users' personal backpack. D Travers Scott's painted a picture of all the possibilities we could explore in an interface in the article: "Imagining a Faggoty Web." He wrote, "I want to zoom, rotate and manipulate the screen image with pinchy-strokes-snappy-finger-motions on a touchscreen or touchpad"(2012, p.9). His writing inspired me to reconsider the necessity of the default traditional interface design and the potential of a new interface structure.

With the idea of embodiment, I returned to the students' daily lives. How could I embody the experience of writing a letter onto a digital application? What was it that they saw, touched and used when they wrote a letter to someone? They were tangible belongings, such as their backpacks, pens, pencils and toys. They were their belongings, their attachments and the things they took care of and cherished. The idea of using a backpack in the app then emerged. All the activities in Pen Neighbour evolved from the backpack. Through the app, users were given their

own backpacks with their names on it (Figure 14). They would have to use the zipper on the backpack to slide it open. Entering the backpack, they would see different items on the bottom of the backpack. Having their backpacks gave users a sense of ownership and add another layer of the embodied experience.

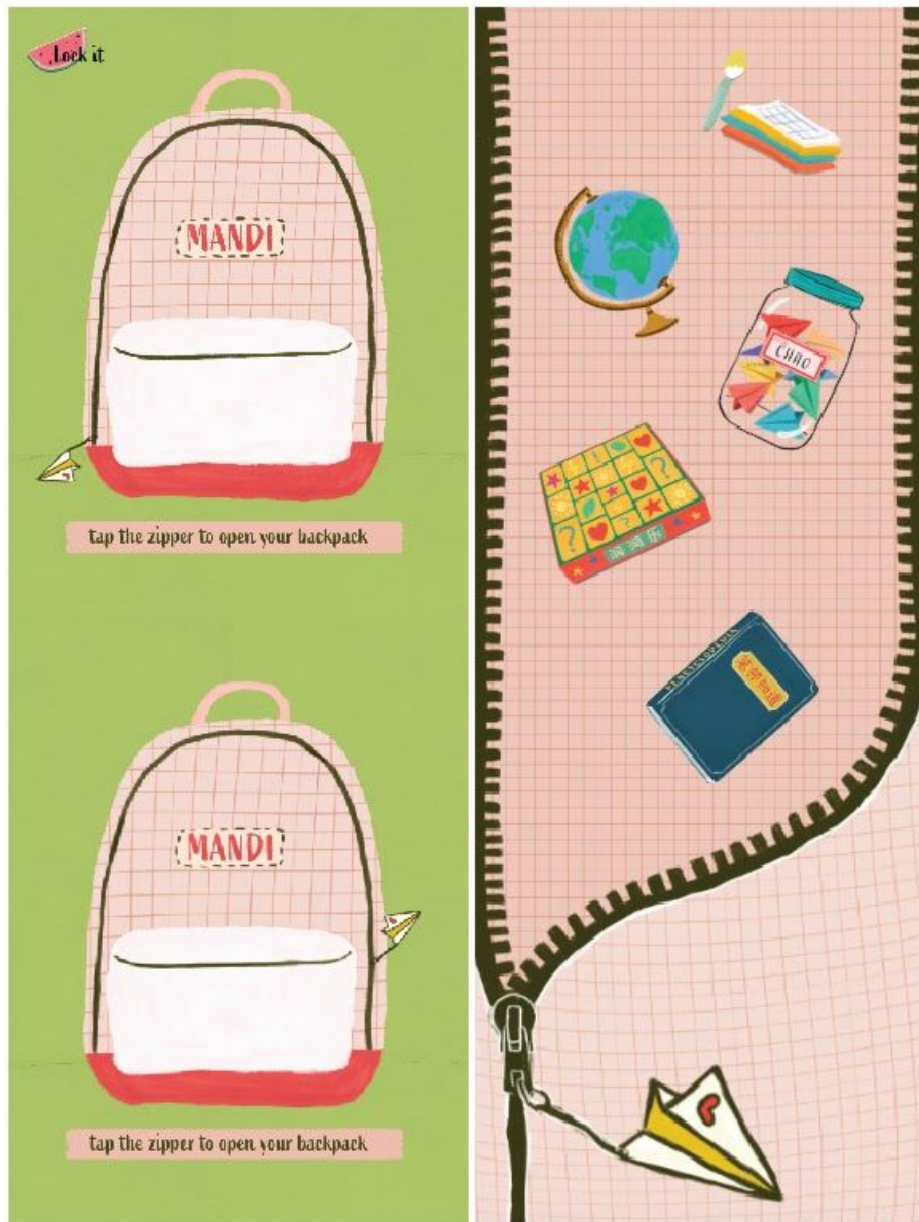


Figure 14: Before and after opening the backpack in Pen Neighbour 3.0

The Pen and Paper: Writing a letter is the essential function of the Pen Neighbour app. From the stationary box on the top, the users can delete, change paper, draw or paint, paste a photo, add a sticker, and type text. The stationery, such as the stickers and washi tapes, were inspired by the photos and drawings submitted by the cultural probe and survey participants from the previous studies. Figure 15 is a letter mockup utilizing the items in the letter-writing toolbox. With stationeries provided, the users can create a variety of letters as they could make with hands. After completing a letter, they may choose to fly their airplanes, which means sending out their letters. The letter sending step expands from the previous version. It incorporates a game-like process of folding and fly out an airplane. The user will be directed to a four-step paper plane folding task before they fly the airplane off the horizon. This adds more playfulness and novelty to the app and once again enhances the embodied experiences (Figure 16).



Figure 15: Writing page on Pen Neighbour 3.0

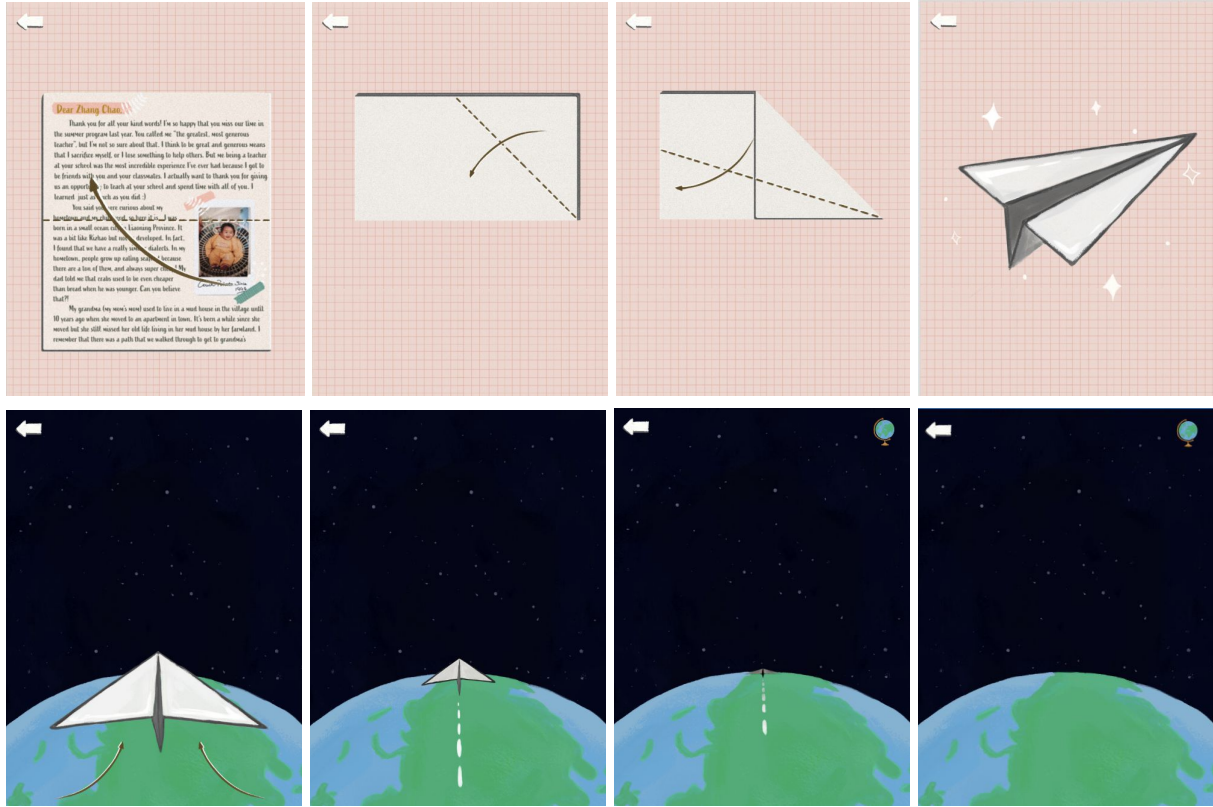


Figure 16: Folding and sending letters on Pen Neighbour 3.0

The Globe: As the paper plane disappears from the horizon, the users can go back to the backpack to use the globe to track the paper plane (Figure 17). Like the previous version of Pen Neighbour, the paper planes can take up to five days to arrive at the other Pen Neighbour's location. Having the paper plane slowly flying across the globe gives the user a more visual understanding of the delayed delivery than giving them verbal messages in the previous prototype.

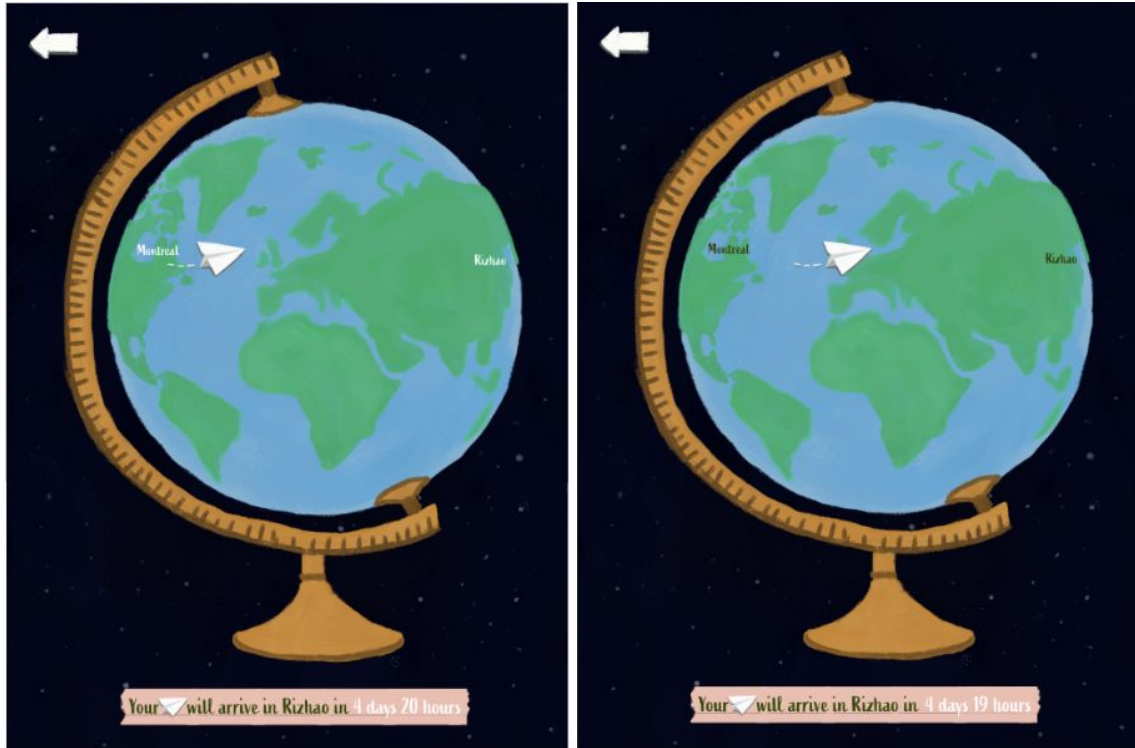


Figure 17: The globe page on Pen Neighbour 3.0

The Paperplane Jar: To read all the past letters from the Pen Neighbour, users can find them from the jar in the backpack. Users have to use their fingers to pull the cap to open the jar. I saw that some students tend to store their origami in a glass jar to keep them safe and look pretty at the same time. So I used the glass jar concept in the app for letter storage instead of a virtual album or folder in a traditional application (Figure 18).



Figure 18: Letter jar page on Pen Neighbour 3.0

Mystery Box: There is a well-known lottery box for kids that has been popular for as long as I can remember. The original mystery box is a giant flat box with multiple mini boxes inside, covered by a thin paper on top. Prizes like small toys, candies, or even cash are usually hidden in each mini box. The players usually have to pay money or tokens to poke open one of the mini boxes. Children, even adults in my age, love this game. It is easy, fun, and people of all knowledge and educational levels know how to play.

The mystery box replaces the reward system in the previous version. The mystery box is more interactive and engaging than the reward system in the last prototype. It utilizes people's positive association with a mystery box and applies it to the app. After each round of letters exchanged between the pen Neighbours, the users will win an opportunity to play the mystery box (Figure 19). The prizes in the mystery box can include new stationeries and question stickers. The users can use the question stickers when writing a letter to their Pen Neighbours. The question stickers will be helpful, especially in the beginning phases of letter exchange, when they may need a topic to start a conversation in the letters.

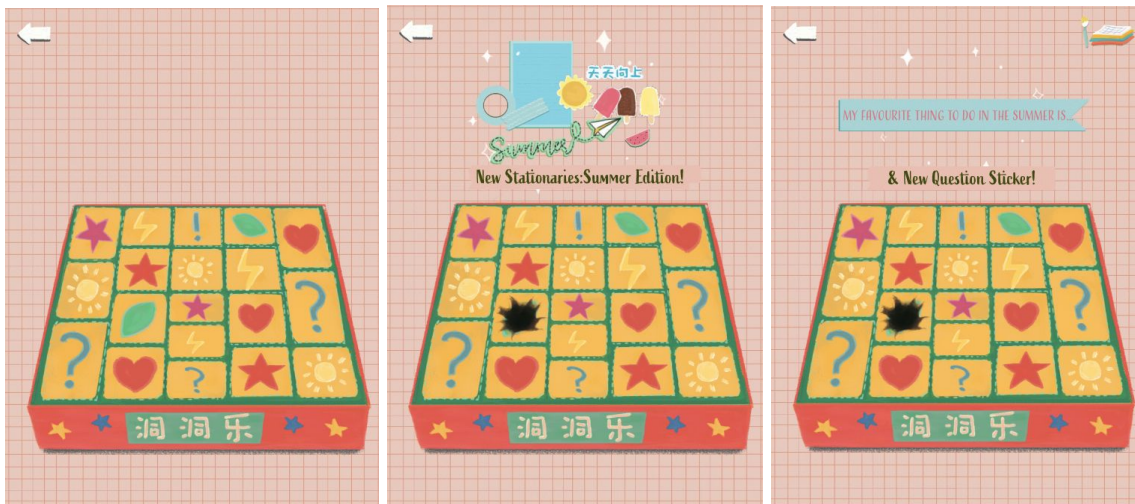


Figure 19: Mystery box page on Pen Neighbour 3.0

Pencyclopedia: Pencyclopedia is the Encyclopedia of Pen Neighbour program that educates the users about Pen Neighbour (Figure 20). Pencyclopedia serves two needs of the users. First, it provides information on how to use the Pen Neighbour application itself. For example, the users may need to learn how to set a new password, how to delete a sent or received a letter, or how to give feedback to Pen Neighbour application. It serves the same purpose as the

Q&A section of a website or a printed user manual of a product. Second, Pencyclopedia instructs users on how to protect themselves and their pen Neighbours. For example, Pencyclopedia educates the users on how to be respectful to their pen Neighbours, what to do when a pen Neighbour writes inappropriate content and language in their letters, or the legal procedures to take in a situation when they find out that their pen neighbour is abused at home.



Figure 20: Pencyclopedia page on Pen Neighbour 3.0

A Combination Lock: The lock is designed specifically for student users since most of the students will use their parents' phones or tablets to access Pen Neighbour. To protect their privacy, a combination lock is designed to lock up their backpacks when the users are not currently using the app (Figure 21). Like a real combination lock, users can unlock it by sliding the numbers on the lock. I designed a combination lock to align with the embodied experience in the app. Password locks are usually in a digital or electronic device, versus a combination lock is usually a tangible item that we use in school or at home. Besides, sliding the combination lock adds interactivity and playfulness to the app.



Figure 21: The combination lock in Pen Neighbour 3.0 (right) can be accessed by tapping the “Lock it” option on the top left corner (left)

The Customizable Interface: From the survey, I learned that many students loved the messenger app, QQ because it had a customizable interface, which allowed them to express their individualities. Therefore, I decided to design the Pen Neighbour 3.0 with a customizable interface feature. In Pen Neighbour 3.0, users not only will be able to customize their letters, but they can also edit their interface, from colours to patterns, by choosing different colours on their backpack, the key chain on the zipper and the combination lock. The entire interface reflects the colour of the backpack, since all of the functions of the app are the items placed inside of the backpack (Figure 22).



Figure 22: Customizable interface in Pen Neighbour 3.0

Illustrations: From the survey results, even though the users all had different aesthetics, I found everyone selected a macaroon colour palette (Figure 23). Thus, a lighter, less saturated colour palette became my major colour scheme when I designed the icons in the interface. In addition, the entire interface was hand-drawn with a drawing pad on photoshop. I specifically chose watercolour, crayon, and pencil brushes to recreate a handcraft aesthetics from the popular mood board choices in the survey (Figure 24). The hand made textures also help to carry an organic, genuine experience from real letter writing to the digital app and inspire the users to start creating with the app too.

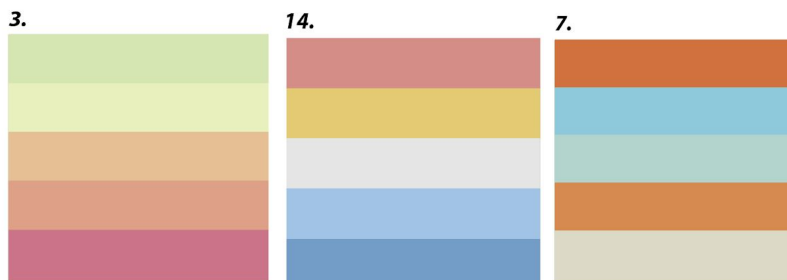


Figure 23: The popular colour options from the survey

app, and could navigate through the interface with ease; second, to learn if their aesthetics, which I learned previously from the survey, were successfully applied and well-received in the interface; third, was to find out if the users liked or disliked the app, and whether they preferred to use Pen Neighbour than the other options to write letters to their penpals.

The user testing was completed remotely through Wechat or QQ voice calls. In the user testing, I first went over the background of the study and asked them to speak out loud on their thoughts and made comments along with each task. After getting their basic information on their age and how many hours they spent on digital devices per week, I sent them the prototype and led them through the tasks one by one. Each task asked them to use one of the key functions within the app and followed with questions about their opinions on that function. Below is one of the tasks from my user testing script that I translated in English as an example:

- *Now you see the letter page, which already has my letter on it. What do you think of the look of this letter? Does it look fun? Are you interested in reading it? Is it too long to read?*
- *Ok, let's start with a clean sheet of paper where you can write your own letter. How would you delete the current letter?*
- *Imagine you are about to write your own letter. What colour and pattern of paper would you like to write on? Where do you think you can find this paper?*
- *What would you do if you want to start typing on the paper?*
- *What would you do if you wanted to draw something with your hands on the paper? What kind of things would you want to draw in your letter? What kind of pens/brushes/colours would you like to use? What are your favorite drawing media (crayon, watercolour, markers, colour pencils, etc)? Do you use any drawing apps?*
- *Where do you think you can find the stickers? Do you like these stickers in my letter? If I can make any kind of sticker and paper you want in this app, what kind of stickers/paper would you like (cartoons, flowers, animals, funny memes, your own DIY stickers, etc.)? Feel free to describe it or send me some picture references if you like. It's ok if you don't like colour paper or stickers.*
- *Would you also like to add some photos to your letter? Where do you think you can do that?*
- *What else would you like to add in your letter?*

The participants were asked to complete seven tasks, exploring letter writing, folding and sending paper planes, using the globe (tracking letters), Mystery Box, paperplane jar, Pencyclopedia and the watermelon lock. Each major task was followed by smaller tasks and questions to find out whether they could comprehend and utilize sub-features, such as changing

paper colours or adding images to the letter. After the seven tasks were completed, participants were asked to evaluate the overall experience of Pen Neighbour. Below are the questions translated to English:

- *From 1-10, how difficult would you rate this test today? Any particular difficulties?*
- *From 1-10, how likely would you recommend this app to your friends?*
- *How would you describe this app to your friends? What words would you use to describe the app?*
- *After you went through the app, from 1-10, how likely would you like to use it?*
- *Would you say that this app would make you want to write a letter to your penpal more, or less? Or it makes no difference.*
- *Would you prefer writing to your penpal on paper, text on WeChat/QQ, or write on this app? Why?*
- *Do you like the aesthetics of the app? How would you describe the aesthetics? What do you think of it? Any graphics you find appealing or confusing?*
- *What do you think I should add to this app? New functionalities or any functionalities you don't like?*

5. User Testing Results

After six user testing sessions, the results showed that users generally understood the concept of the application. All of the participants were able to navigate the application with ease and quickly completed the major tasks. However, some of the students had difficulties recognizing the icons used on the writing page. For example, they were confused about a sticker icon with the picture uploading button. One student thought the type button looked like a bus. The other student confused the trash can button with “some kind of basket.” Some of the other students also thought that the brush button on the main page was a fire torch.

On the other hand, volunteers who were high school and college students understood each icon much more accurately. Two of them indicated that the star-shaped sticker button would mean “save.” It was because they were used to having a star symbol as a save button on other applications they used. For the rest of the icons, they were able to perceive the functions with the icons fairly easily. Compared to the young students, the volunteers had much more experience with other applications, which made it easier for them to navigate and use the app. For example, they assumed that there would be a trash and keyboard option on the letter-writing page. It was because they had obtained a higher computer literacy through their experiences

using digital devices. The different levels of recognition of icons and symbolism between the students and the volunteers were cultural differences that I did not recognize nor address in the user interface design.

Overall, I received quite positive feedback from the participants despite some confusion concerning the icons and graphics. They all agreed that they would use Pen Neighbour instead of the other messaging applications to write letters to their penpal. The design of the Pen Neighbour made them want to write the letters to their penpals more often. This means that Pen Neighbour fulfilled my initial goal, which was to attract the participants to choose to use this application rather than other messaging applications available.

Even though both the students and volunteers had positive feedback, the younger students enjoyed the design of the application much more than the volunteers. They commented that it was a “fun,” “game-like” letter writing application where they could write and fold paper planes to their penpals. They sounded surprised and excited throughout the user testing sessions and asked me when I would have the real app ready for them to use. They did not mind multiple steps they have to take to fold the paper plane and wait for four days to deliver a letter. This process actually made the application more organic and playful for them. They also found the design of the application to be very appealing. They commented that they liked the style and aesthetics of the application and would not change its design.

The volunteers, however, had different opinions on the app. One of them gave similar comments as the students on its functionalities and design. She wanted an even longer delivery time to resemble the real letter delivery process. She said that the waiting time made the moment of opening the letters much more exciting. The other two volunteers commented that they wished the paper plane folding steps were less time-consuming and wished there were a button to fold the planes for them instantly. They also believed that the letter delivery time was too long and they might have already forgotten about their letters after sending them. One to two days would be a more acceptable delivery time for them. They also thought the illustration style was a bit childish for them, but they would still use the app if their penpals used it to write to them. Since they did not quite like the style of the current prototype, I showed them my second prototype images and got much better feedback (Figure 8 to 11). They loved the vintage theme and thought

it was “trendy,” “cool” and “less flowery.” One of them suggested having different styles of the interface for the users to choose. They still liked the concept of the layout on prototype 3, which was to open the backpack and to access different functions of the app by opening each item in the backpack. However, they wished to see less flowery and childish aesthetics.

Although some participants were not enthusiastic about the current colour combination, all of them liked that the interface (the backpack) was customizable. With their customized colour scheme applied to the overall interface, the volunteers would be able to see a better colour combination that they preferred, even though the current icons within the app could not be customized.

6. Reflections

In conclusion, the key takeaways from user testing are:

1. Some of the graphics and icons, such as the brush, trash bin, keyboard, and sticker button, can be redesigned for better recognition, especially for the young students.
2. As per volunteers requested, I will explore smoother and faster options to fold a paper plane while keeping the embodied experience at the same time.
3. The question sticker in the mystery box seemed confusing for the users. Most of them did not understand what it was used for. In the next design, I should add a brief description on how to use the question sticker. They also suggested adding more backpack and lock options as prizes from the lottery box.
4. I would explore more media options for the paper plane. A couple of the participants wished to add music option in their letters. A volunteer suggested adding videos in their letters. The initial design of Pen Neighbour was to mimic a real-life letter exchange experience on digital devices, so it did not include sound and video options in the letter like other messenger apps do. However, since the participants demanded it, and it surely would add more playfulness to the app that traditional letters cannot achieve. I could take advantage of the ability to send sound and videos as an app but apply it in a more novelty and magical way. For

example, the sound can be attached as a cassette and a video can be attached as a CD, or even adding a little movie projector in the backpack to play the videos.

5. Considering that some volunteers might have more than one student pen neighbour, the app design should be adjusted accordingly. One example is adding multiple paper plane jars within a bigger container. Each paper plane jars would belong to letters from each pen neighbour.
6. Is there an aesthetics that can be a positive compromise between the volunteers and the students? The volunteers preferred a more sophisticated and mature UI design while the students loved the current design. Where can I find a middle point for both parties? This question requires more participatory research with the users to find out. At the same time, referring back to designing for the pluriverse, more options to customize the user interface may be the direction to take in order to address individual users' unique aesthetics.

With the user testing sessions, it was encouraging to see that the participants generally liked the new concept of a more organic digital letter exchange experience. The overall concept of the app was well delivered. It was a good start as a product design but surely needed more participatory research and redesign on its current user experience and interface.

Aside from the insights from user testing, the safety features of the app also need to be redesigned. Unlike the Chinese messenger apps like QQ and Wechat that are designed mainly for adults, the safety content of Pencyclopedia is extremely important for the underage users' safety. According to Dr. Jia, a former Computer Science Professor at Northeastern University in China, the current technologies would not be able to filter the content and images on the letters completely. He said the app might be able to filter some inappropriate languages and detect nude images in the letters, but it could not guarantee that the content in the letters was entirely safe and appropriate for the users.

I also considered having real persons monitoring the content of each letter exchanged between the users. However, this will completely sacrifice the privacy of the users and may discourage them from sharing freely on the platforms. In this issue, professor Jia gave me several recommendations. In addition to educating the users on the application itself, with tips on how to

protect themselves and others from “Pencyclopedia,” he suggested adding a real-name registration and age-segmented parental monitoring system. Instead of registering with an existing Wechat or QQ number, new users would have to provide their National Identification numbers, legal names, and contact information. Users may not add other people as pen neighbours on the app without providing and verifying their identity information first. This procedure could filter out people with criminal and misdemeanor records and provide valid contact and reference information of all the users. Registering with real names would also imply that there would be legal consequences on what the users wrote to their penpals.

As Dr. Jia recommended, the student users will also have to gain their parents’ permission to register with the application successfully. The app would provide different levels of parental control, depending on the students’ ages. For example, with younger students from 1st to 3rd grade, the app may send a regular reminder to their parents’ contacts to ask them to check in with their children. The app may also restrict images and other media attachments in the letters to prevent inappropriate content delivered to the younger students. With older students, such as high school students, they may have more freedom on the app and less parental check-ins and abilities to send and receive photos with the letters.

In addition, knowing that Pencyclopedia will not be able to provide education and solutions for all the unpredictable situations, I wanted to add a “help” button on the app. It could offer live chat if the users had any issues with their pen neighbours or at home or school. The live chat allowed the users to send text messages or voice messages, considering it would be difficult for the students to type on a digital device. It provided an easy and interacting solution if the users were unsure about what actions to take in their situation. The live chat would be able to help them and direct to the right resources or even contact the legal departments in China for them if needed. The people working on the live chat would have to be trained by education experts and given a handbook so that they know the relevant information to provide to the users.

Chapter 4: Conclusion

The goal of my thesis was to research and design an alternative volunteer method than the existing short-term, non-government sponsored volunteer programs in rural China. From my

research, I learned that those programs often do not offer sufficient supervision and training while recruiting unqualified volunteers to teach the students. Without training and putting efforts to communicate and learn from the local communities, those programs fail to address the cultural differences between volunteers and the local students. In addition, the service period is also often too short to improve the student's academic performances, which, ironically, are usually the main objective of those volunteer programs. Further, these programs create academic and emotional burdens to the students when the volunteers lose contact with the students after they build such a strong emotional attachment with each other during the program.

To fill in the gaps that the current volunteer programs are missing, Pen Neighbour takes a fundamentally different route than a traditional volunteer program does:

1. Pen Neighbour focuses on relationship building between the volunteers and the students, instead of the academic improvement of the students. This takes the pressure away from having to train the volunteers to be a good teacher, which the traditional short-term volunteer programs cannot provide. Instead of spending time to learn to be a good teacher or a good student, the participants will only need to take time to learn about each other and become good friends with one another.
2. Pen Neighbour addresses cultural differences between the volunteers and the students. Traditional volunteering programs usually have the volunteers lead a classroom and impose their knowledge and culture to the students through classes, although they usually come from different cultural, social, and economic backgrounds. Pen Neighbour, instead, provides a knowledge and opinion exchange process where both the volunteers and the students get to have their voice heard by the other party. This process respects the pluriversity of each individual, promotes cultural competency of students and volunteers, and allows each other to express, understand, and respect each others' differences.
3. The traditional on-site volunteer programs are usually too short to be effective. The short-term volunteer programs usually last from a couple of days to a month. This means that after the students and the volunteers get adjusted to the programs,

the program is already coming to an end. In Pen Neighbour, participants have all the time they need with each other. Their communication is not limited by time and space. With the application installed on their phones or any digital devices available, they are able to stay in touch with each other at any place and time for their convenience.

4. The short-term volunteer programs sometimes can leave emotional burdens to the students after the volunteers leave them and slowly lose contact with them. Pen Neighbour does the opposite. In Pen Neighbour, when both parties are willing to continue contacting each other, the relationship between the students and volunteers grows stronger and stronger, one letter at a time. It transforms from fractured, casual online chatting to a more meaningful communication through writing. Pen Neighbour program is not a one-time volunteer experience. It is a much more steady, sustainable, and genuine commitment. This long-term penpal experience can be much more meaningful and valuable to both the students and volunteers than a traditional volunteer program over a short period.

In addition to the challenges that the short-term, non-government sponsored programs themselves are facing, I also found that those programs lack design justice for the students. The stakeholders, notably the students, are usually overlooked throughout the design stage of the volunteer programs, even though they should be considered as the most important group in a volunteer program. In the design of the traditional volunteer programs, the power is always given to the privileged, which are the volunteers and the hosting organizations. They often assume what the students need and impose universal teaching materials and methods for the class. While traditional volunteer programs do not involve the students in the planning and design process, as I observed, Pen Neighbour is designed with a collaborative effort from all the stakeholders, especially the students. Participatory research and design are used in all aspects of Pen Neighbour. From cultural the probe kit, interviews, surveys to user testings, both the students, volunteers, and other stakeholders, each individual had the power to make an impact on the design decisions.

Both the students and the volunteers got to exercise their power not only in the research and design stage of Pen Neighbour, but also through participating in the program with their pen neighbour. Both students and the volunteers are able to “customize” their experience. Each user gets to express their unique individualities under the customizable colour schemes, and a great variety of options to DIY their own letters. More importantly, Pen Neighbour emphasizes one-on-one communication between the students and the volunteers. This shifts the role that students play in a traditional volunteer program as they no longer sit quietly in the back of the classroom and are taught by the volunteers under the spotlight. In the same way, the volunteers are no longer the leaders, the authority, nor the top of the pyramid. In Pen Neighbour, students are just as important as the volunteers. They get to design their own experience of Pen Neighbour, which makes both parties (the students and the volunteers) get to take initiatives, as well as to direct where the conversation goes and build their own memories.

Implications:

Pen Neighbour is a complementary volunteering approach in the service of the underprivileged students in rural China. However, the significance of Pen Neighbour is beyond that. The idea behind Pen Neighbour is to empower the students, who are neglected in many existing short-term volunteer programs. As volunteers who often come from the privileged group in society, it can be easy to assume that we know what the best is for the local community and only consider them as passive receivers of help. I used to volunteer to “give back” to society as I naively believed that we would help the community to become better. However, despite the right intention, the phrase “give back” is rather problematic. It implies a dualist relationship between “us” and “them,” which marks a hierarchy that we, the volunteers, own the power and knowledge to change the community’s life for the better. In fact, having an educated and privileged background does not mean that we know what the community needs.

I found similar issues working as a designer. Designers do not necessarily know the solution to the problems until they work with the community collaboratively. Whether it is to volunteer or design, the key is to stand with the community and learn humbly from within. When we no longer consider ourselves the authority of the subject and put in continuous effort with the community, we will be able to learn how we can better service them.

In the future, by promoting the idea of Pen Neighbour to more organizations and volunteers, I hope to raise awareness of “mindful volunteering.” Like Ms. Teng, director of a volunteer program based in the U.S. and China, said: “Volunteering should not be a one-time transaction.” She was more than disappointed to see that many college students joined her program to “volunteer” just to polish their resumes or obtain scholarships; they do it for themselves, and sadly not for the children. Some people even left the program before it ended just because they already received their volunteer certificates from the organization and felt no need to stay in the village any longer. Even though these people do not represent the majority of the volunteers, I do wish that more people would respect the local community and be more mindful and genuine of becoming a volunteer. Pen Neighbour project exposes some of the current issues around short-term volunteer programs in rural China that deserve much more attention. The fact that Pen Neighbour promotes a long-term, one-on-one relationship building experience, also makes the volunteers aware that volunteering is a commitment rather than a one-time experience.

Limitation

Pen Neighbour is designed for the volunteers and the students in rural China. However, not all students in rural China would be a good fit for the program. Unfortunately, Pen Neighbour is more likely to be used by the students from wealthier villages in China, where either their family members or their schools own digital devices. The first reason is that Pen Neighbour is a mobile application, which only runs on digital devices. The more important reason lies within the different needs of the students from different socioeconomic backgrounds in rural China. Pen Neighbour fulfills the needs of friendship, sense of belonging, and even boosts the self-esteem of the students and the volunteers as they express themselves and build connections with their pen neighbours. However, for the students living in extreme poverty, the primary physiological and safety needs will need to be fulfilled first. Maslow’s hierarchy of needs states that a person’s basic needs start from the fulfillment of physiological needs such as food, shelter and clothing, and then the safety needs such as security, health, and property (Figure 25). A person is only motivated to pursue a higher level of needs, like love and

belonging, esteem, and self-actualization, when physiological and safety needs are satisfied (McLeod, 2018).



Figure 25: Maslow's Hierarchy of Needs

Source: Maslow's Hierarchy of Needs, Saul McLeod, 2018

Teng, the program director, told me that she tried to stay connected with some of the students after her volunteer trips in China over the years. These students were in extreme poverty. Being friends with them and supporting them, telling them to be optimistic, could only help so little. With the students who do not even have their basic physiological needs satisfied, Pen Neighbour will not be an option. Those students need more attention from the public and receive more physical resources like food, clothing, shelter first than emotional support.

In addition to the limited target users of Pen Neighbour, I also recognize that Pen Neighbour does not solve the educational inequality issues in rural China. As discussed in Chapter 1, educational inequality is a social issue, a wicked problem. Wicked problems are unique, interconnected with other social problems, and have no perfect nor immediate solutions. Therefore, Pen Neighbour is not a replacement or a perfect version of the volunteer programs, but it proposes an alternative approach to volunteering. Pen Neighbour is not intended as a replacement of volunteer programs, but it is the beginning of a more multidisciplinary, collective approach to volunteering in rural China. Pen Neighbour will continue to evolve with

collaborative efforts from the stakeholders, the students, the local community, the volunteers, and others on board.

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Appendix:

Identity Design of Pen Neighbour

I designed the brand, Pen Neighbour, for the cultural probe kit given to the students in the volunteer programs. It helps to build brand recognition for Pen Neighbour and get the students interested in participating in the Pen Neighbour trails. The name of the penpal program is called “笔邻” which means “pen neighbour” or “like neighbour.” The word is taken from a famous Chinese poem: “if you were true friends with each other, wherever you go, you would be connected like if they were neighbours (海内存知己, 天涯若比邻). The logo incorporates a paper plane. Paper planes are a typical craft by children. It means that it has the quality to take the children anywhere they want to go. On the back of each letter, students will find the paper plane flying through different parts of the world, taking their messages to their Pen Neighbours.



Figure 26: Pen Neighbour logo design and its tagline

Followings are the print design for everyday tasks from the cultural probe kit (front and back).



Figure 27: Day 1- Take pictures with a film camera on different prompts each day

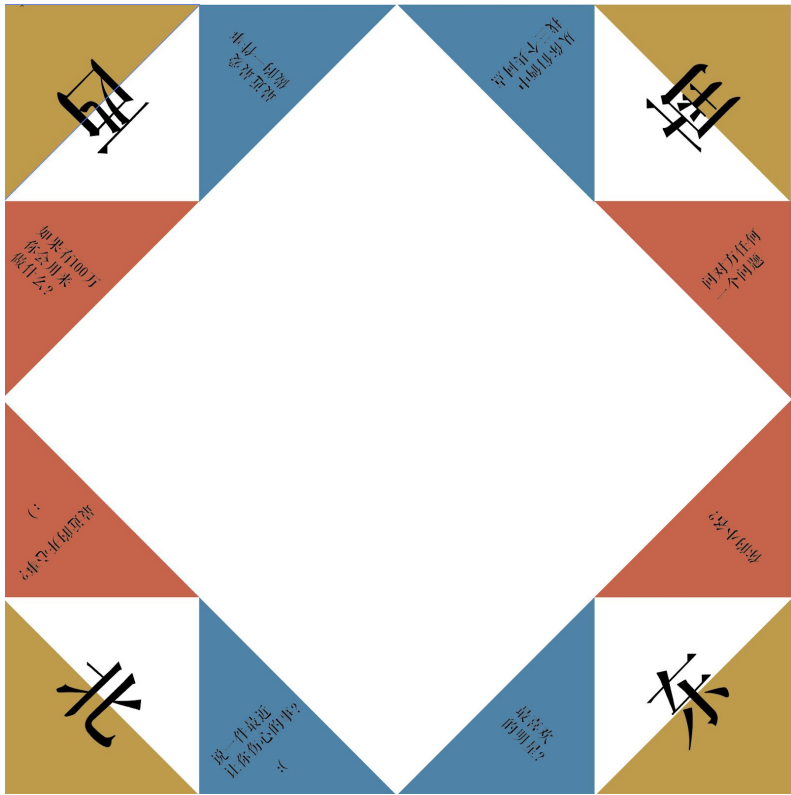


Figure 28: Day 2- Fortune teller ice breaker with a volunteer teacher and the fortune teller print design

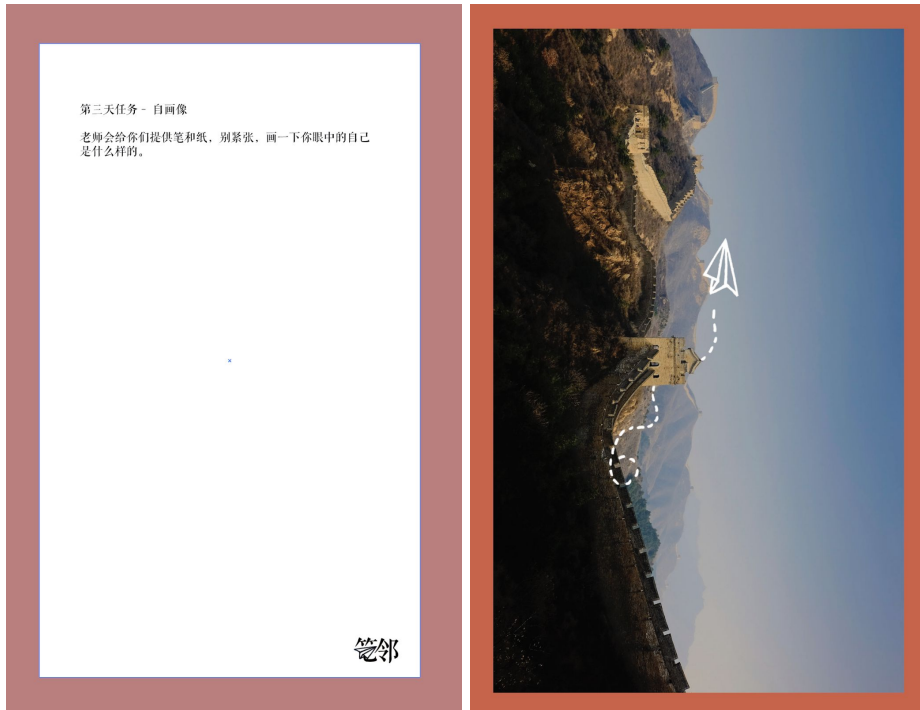


Figure 29: Day 3- Draw your self portrait

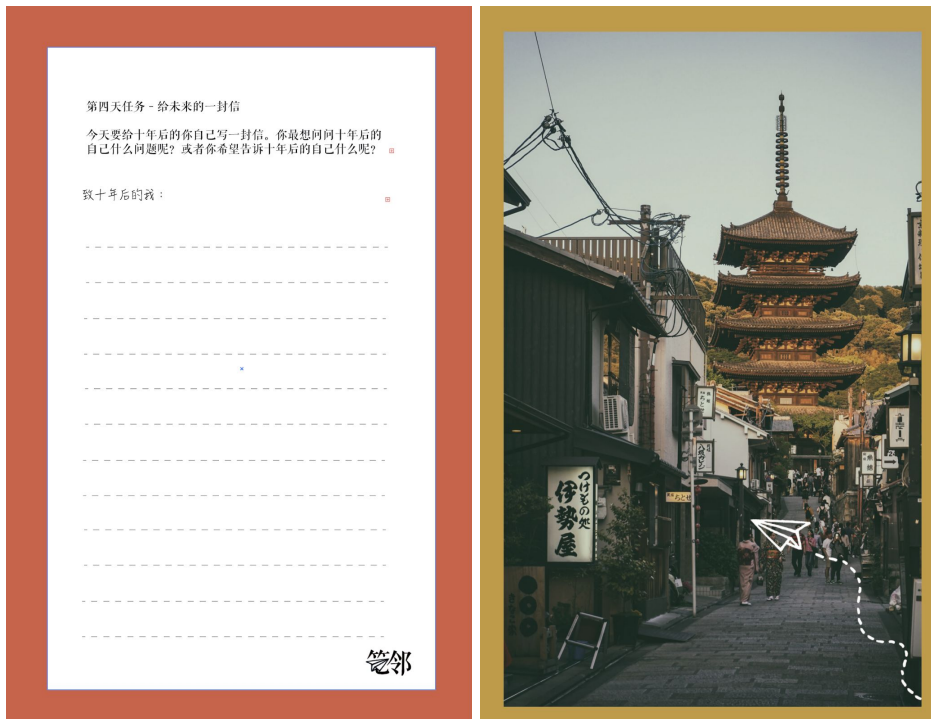


Figure 30: Day 4- Letter to your future self



Figure 31: Day 5 - Write or draw about your dream career

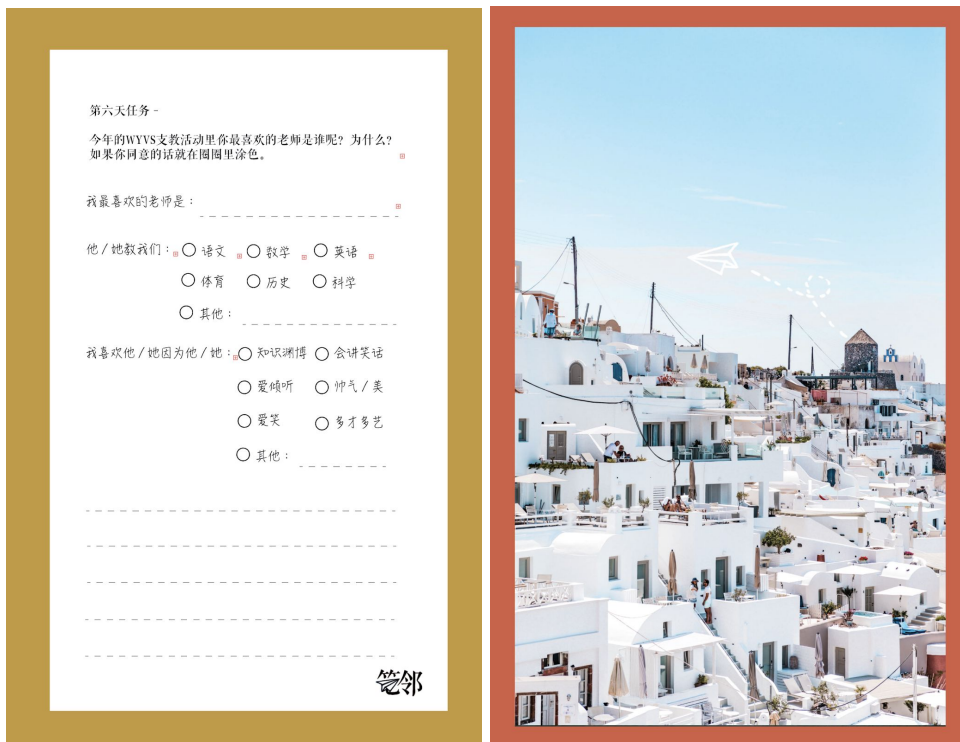


Figure 32: Day 6- Who is your favorite teacher and why?

第七天任务 - 写一封信给任何人

从古代到现在，再到未来，从中国到世界各地，你最想给谁写一封信呢？你可以联系任何一个人，这个人可以是中国人、外国人、明星、普通人，你认识的人、不认识的人、已经过世的人、或者还没出生的人。你可以问任何问题，或者告诉他/她关于你的故事。你会说了什么之后你的心情是怎样的？

亲爱的_____：

笔邻




Figure 33: Day 7- Write a letter to anyone

第八天任务 - 我最不喜欢的... (嘘)

WYVS支教活动里你最不喜欢的老师/课程/或者活动是什么的？在上课过程中，你是否有感到无聊，没兴趣？为什么？和老师的沟通中，你是否感到不被尊重，别担心，这个答案只有我才能看得到。这个盒子里有一个神奇的隐形笔，写出来的东西只有我的隐形线下才能看到，而且我也会将答案保密！现在诚实的表露你的想法吧

我最不喜欢的老师是：-----

他/她教我们： 语文 数学 英语

体育 历史 科学

其他：-----

我喜欢他/她因为他/她： 上课无聊 不爱和我玩

不爱倾听 太严肃

不尊重我 说话声音小

其他：-----

补充说明：-----

笔邻



Figure 34: Day 8 - Who is your least favorite teacher and why?

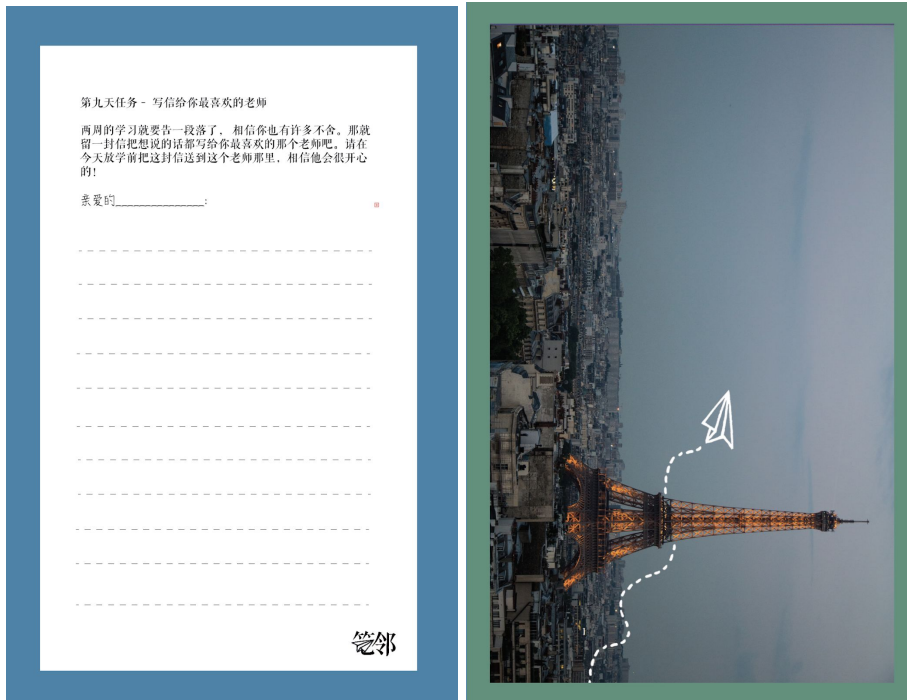


Figure 35: Day 9 - Write a letter to my favorite teacher

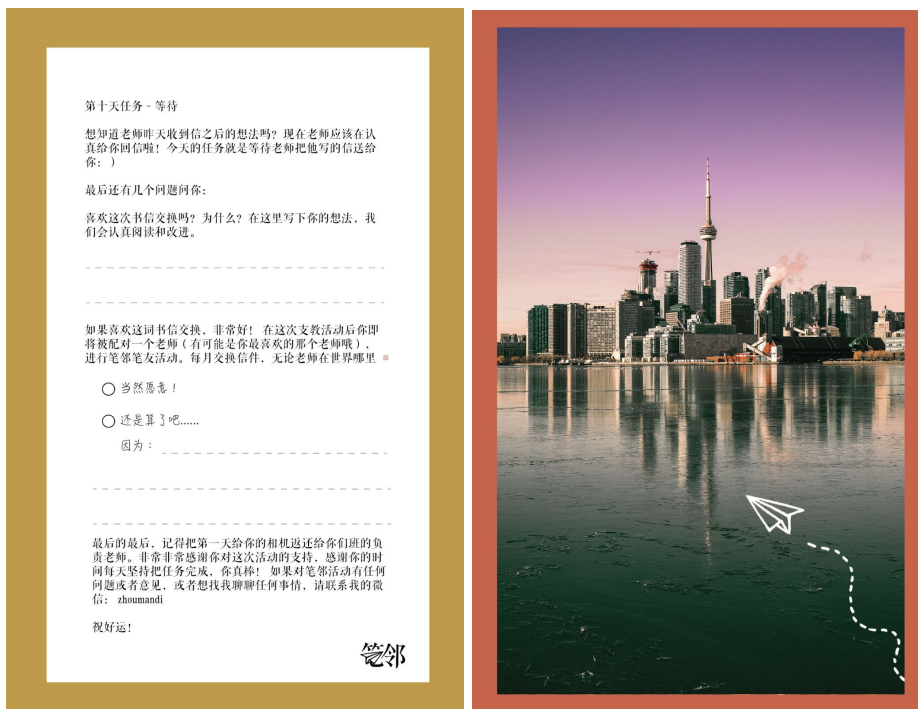


Figure 36: Day 10 - Receive a letter from my favorite teacher and sign up for Pen Neighbour!



Figure 37: Extra paper available if the students run out of paper

Year-End Show Reflection

At the beginning of May 2019, I joined with other cohorts in the Master of Design program to exhibit a final showcase at the 4th Space at Concordia University. The goal of the exhibition was to show my research process and create a letter exchange experience for the visitors. There were four components in the Pen Neighbour exhibition.

The Pen Neighbour clock exhibited six letters explaining my journey in creating the Pen Neighbour project (Figure 38). The clock on the Pen Neighbour sign pointed towards each letter by the order. The moving pointers on the clock symbolized the time and my journey in the project. Pen Neighbour is about letter exchange, so I chose to showcase my research in individual letters that people had to take out from the envelopes glued to the wall physically. I hand wrote each letter in the first person to the visitors of the showcase because I intended to build a personal experience with the person reading it. It was just like Pen Neighbour, which was designed to build a one-on-one connection with another person. I also put images printed out from my previous prototypes in the envelopes, the cultural probe box, and other materials I used for my research that the visitors can interact with.

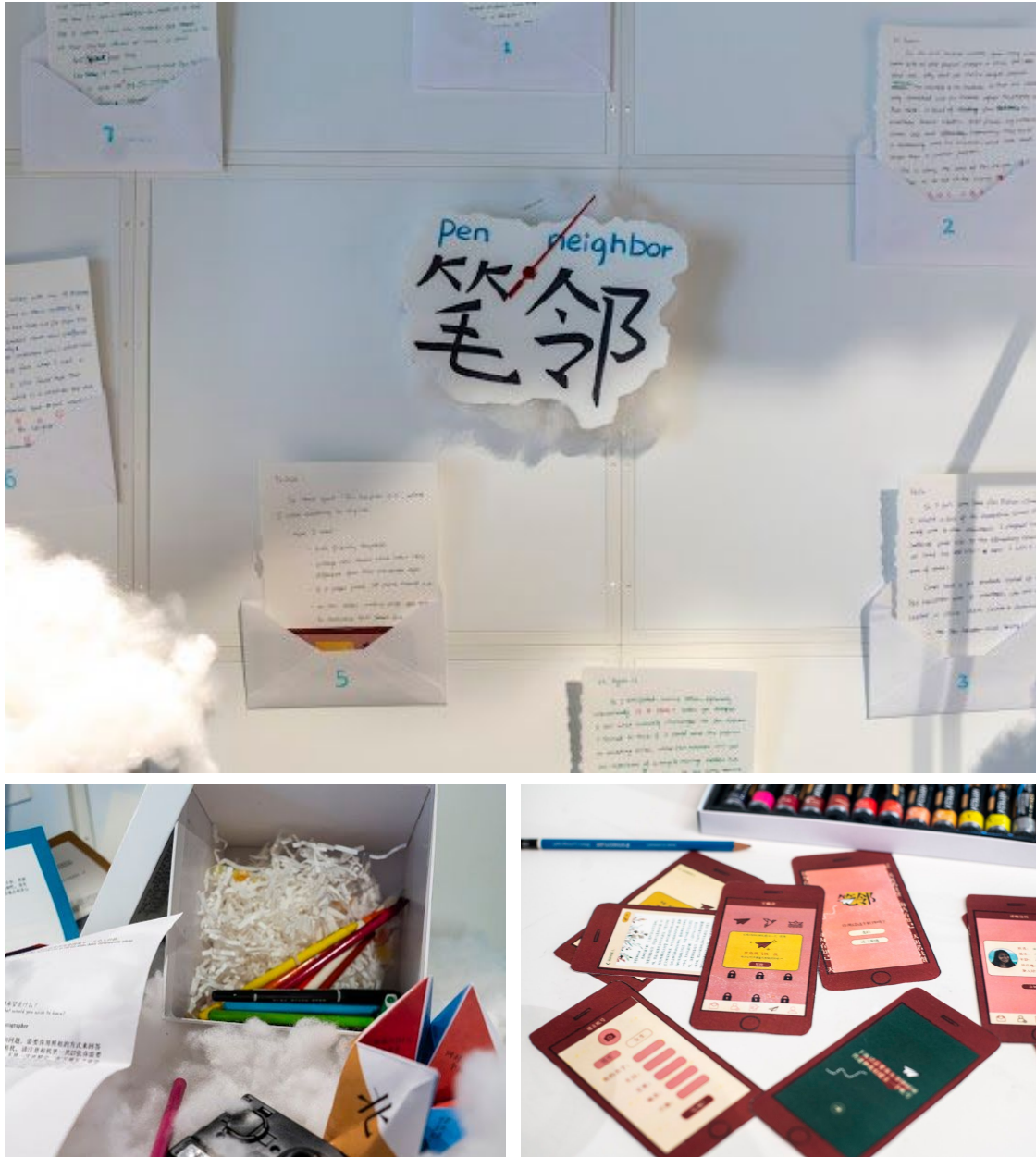


Figure 38: The Pen Neighbour Clock

Source: Shaney Herrmann

The video was a 2.5-minute commercial for Pen Neighbour to help the visitors to quickly learn about the app (Figure 39). It was a stop motion video composed of more than 1500 photos I took with my camera (Figure 40). I chose to use a stop motion video made with colour papers and drawings to give a playful and genuine impression associated with the app.



Figure 39: Video screenshots of Pen Neighbour demo

Full video: https://www.youtube.com/watch?v=kI3P2dAIZ_4&t=2s



Figure 40: Behind the scene of Pen Neighbour stop-motion video

Pen Neighbour app prototype displayed on the iPad was placed right by the video. It showcased the 3rd Pen Neighbour prototype (the latest version) that the visitors could interact with (Figure 41).



Figure 41: The Pen Neighbour 3.0 prototype display on iPad

Source: Shaney Herrmann

The letter-writing station is an additional component that I added just for this exhibition. Pen Neighbour project is designed for the students and volunteers in China, which may not be a topic that the visitors, who are mostly students at Concordia, feel personally connected with. However, Pen Neighbour also promotes building a genuine relationship by writing letters with pen and paper that I believe a broader audience can be impacted and benefit from. Therefore, I decided to offer writing materials, such as pen, paper, watercolour and brushes, envelope, and free stamps right by the Pen Neighbour wall (Figure 42). Visitors can take a moment to sit down and use the supplies to write to someone they care about and mail to them today. It creates an opportunity for visitors to appreciate writing by hand and connect with people off their digital devices, which can be overly consumed in today's world.



Figure 42: The stationery provided at Pen Neighbour exhibition

Source: Shaney Herrmann

The Pen Neighbour exhibition was also decorated with cotton-made clouds and the paper airplanes that float in the air. The clouds and paper planes are the key elements of Pen Neighbour identity. It creates a dreamy and comfortable environment for the visitors to learn about Pen Neighbour (Figure 43).



Figure 43: The Pen Neighbour Exhibition decorated with clouds and paper planes

Source: Shaney Herrmann

Overall the Pen Neighbour exhibition was a success. I have observed that many visitors took their time to read the letters on the wall, sat down, and wrote small letters with the materials and stamps I provided. People were also interested in the app design as it is different from the traditional messenger apps in the market. It made me imagine the possibility of promoting Pen Neighbour to broader demographics, seeing that people enjoyed creating things by hand at the exhibition. Perhaps the embodied writing experience idea can also be used in app design for adults to build a genuine one-on-one connection with others.