



# Bukas: Material Messages for Filipino Migrant Workers and Their Transnational Families

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**Abstract.** This paper presents findings from a design research project that looks into the phenomenon of communication and expression in the diasporic family relationship, particularly between Filipino domestic workers and their kin. The research also looks into material culture and the meaning of the “*balikbayan box*” metaphor as a design prompt, leading to the creation of design guidelines and a concept development for *Bukas*, a tangible product linked with a mobile interface that facilitates meaningful daily communication for migrant Filipina workers and their families through a material artifact. The design inquiry consists of immersive human-centered qualitative methods including semi-structured field interviews, cultural probes, and participatory workshops to deepen the understanding of the stakeholders’ mindsets, behaviors, and expressive needs. These methods reveal migrant workers’ latent needs for self-identity expression and communication. The research endeavors to explore migrant workers’ self-identity and results in a coexisting spectrum of values consisting of positive achievements and negative feelings of sadness, from which we posit a set of criteria and develop a design concept that tests these guidelines .

**Keywords:** Migrant worker · Domestic intimacy · Family communication · Augmented reality · Tangible interaction · Physical artifacts · Routines · Materiality · Overseas Filipino Workers (OFW)

## 1 Introduction

The Philippines has a long and storied history of labor export in Hong Kong. As early as 1988, former President Corazon C. Aquino had already been using the term “Bagong Bayani” (modern heroes) to refer to the remarkably large group of Overseas Filipino Workers (OFW) working in Hong Kong. According to the Hong Kong Immigration Department’s official data, there are around 219,073 Filipino migrant domestic helpers, comprising around 54% of the population of foreign workers in Hong Kong [1]. Transnational labor is widely accepted as an alternative strategy for social and economic mobility among low to middle-class Filipino households, especially for families living in lower-income provinces in the Philippines. Filipina migrant workers in Hong Kong are typically domestic helpers aiding Hong Kong families in their daily home life, cleaning the house, buying necessities, cooking, and taking care of children, pets, and the elderly. They are

officially engaged in these routine activities for six days and are given the Sunday of every week as a day-off. Since the early 1980s, migrant domestic workers have congregated in Hong Kong's public spaces every Sunday and for public holidays [2]. The Statue Square in the Central district of Hong Kong, for example, can be seen every Sunday populated by Filipina migrant workers gathering and relaxing. Another noticeable activity held in these public spaces is the frantic packing of goods inside large cardboard boxes, commonly known as the '*balikbayan box*'—a package of items sent back home to the Philippines containing gifts and various household items. The *balikbayan* box is embedded in the socio-cultural psyche of the modern Filipino family and is one of the most recognizable artifacts of the Filipino diaspora and the transnational worker's life. In an ethnographic study by Clement Camposano, he argues that the preparation of a *balikbayan* box "is a performance of intimacy, a way for migrant women to bridge the Hong Kong and Philippine segments of their diasporic and fragmented lives, which enables them to sustain coherent narratives of the self" [3].

In the design space, not many projects and studies have been made to address the relationship between migrant workers and their families. However, many anthropological studies have already studied the negative effects of an extended absence in the relationship on the elder workers and the children left behind. On the side of the migrant worker, there is psychological stress, depression, anxiety [4], loneliness, and feelings of inadequacy leading to overcompensation. As for the children left behind, this absence of a parent has been known to breed miscommunication, materialism [5], and a sense of dependency leading to a loss of initiative to work [6].

The nature of the design problem deals heavily with the performance of intimacy and the preservation of the domestic relationship in a transnational context. The economic circumstances of the migrant Filipina worker create a situation of physical and emotional distance that causes her many complex and conflicting feelings. She must juggle multiple roles as she is relegated from being a homemaker and caring mother in her home in the Philippines to the role of a breadwinner, separated in a foreign land. The problems of distance in relationships have been widely studied in HCI (human-computer interaction) and tangible interaction design, but most of the literature and design products produced address romantic intimacy [10] and even sexual intimacy, not familial relationships. This research aims to address the gap in design and HCI literature that pertains to the specific context and relationships of the migrant worker and her transnational family that go beyond the expected value of intimacy and domesticity.

## 2 Related Work

While there is a large number of studies dealing with computer-mediated communication and design for relationships and connectedness, this research project particularly shares its domain knowledge with several earlier endeavors in HCI that look into technology mediation in the context of the family and distance relationships. In this section, we will briefly discuss three related research projects and a framework for the critique of family phatic communication technologies.

## 2.1 Habitat

Habitat is a project consisting of a series of networked furniture (coffee tables) that studies awareness of Life Rhythms over a distance. The goal of the research was to see if the usage of this technologically-enabled furniture could simulate between distanced people the same rhythms – conveying the same reassurance and intimacy as physical proximity. The study notes the importance of the following considerations: maintaining continuity, seamlessness with the original function of the furniture, and the ability to access past states of the product. Habitat shares a similar premise to our work in the sense of connecting distanced people with the goal of supplanting physical presence through shared items [7].

## 2.2 FamilyPortals

The researchers of Family Portals (FP) deployed an always-on multifamily media space among six families for a period of eight weeks. The media space consists of a targeted portal for sharing of live videos of the remote family, and a shared portal for common information and to be displayed to all remote families connected by the portal. These portals have different features such as writing on shared whiteboards, enabling “blinds”, etc. The study discusses how domestic awareness systems such as FP perform when there is a visual medium that affords an explicit sharing of daily moments through writing. This work makes the case for the importance of writing, verbal and written communication in familial spaces [8].

## 2.3 MemoryReel

MemoryReel deals with the special moments of online social interactions. It is intended to nurture connectedness for people with long-distance relationships through positive reminiscence. It enables people to capture, select these special moments and restore them as memory cues, which potentially will invoke reminiscence later. These memory cues include three modes of contents: text, audio, and animated images, which correspond to text messages, audio messages, and moments of video calls respectively. The design and study of MemoryReel provide design implications and strategies regarding designing for reminiscing, scaffolding relationships at a distance, as well as designing meaningful interactions [9].

## 2.4 Strategies for Designing Technology for Intimate Relationships

Hassenzahl et al. provide a useful set of guidelines in designing for the mediation of intimacy. They have outlined six particular strategies: awareness, physicalness, expressivity, gift-giving, joint action, and memory collection. Awareness is when ambient information about the individuals involved is shared among users of the product, creating a sensation of continuous presence. Physicality is the simulation and transmission of gestures or physiological effects among users. Expressivity is when partners can articulate their feelings and emotions to each other through words, symbols, language, or any other mode of communication. Gift-giving is self-explanatory as intimate experiences enable

partners and individuals to express appreciation and value in the form of a given artifact or experience. Joint action is the strategy that allows partners to fulfill tasks and actions together through a product or service. Lastly, memory collection is a strategy that fosters intimacy by keeping a record of past moments that partners can fondly look back on. These strategies provide a helpful basis, design inspiration, and cross-reference for the design criteria formed for this work later on [10].

### 3 Theoretical Framework

Three main theoretical frameworks have significantly informed the research and concept development of Bukas. Firstly, the ethnographic study by sociologist Clement Camposano has provided an added depth and understanding of the phenomenon, given the limited timeframe of this research. In our online interview with Dr. Camposano, he discusses in great detail how he has tapped into Daniel Miller's theories of materiality in investigating the role of physical objects in meaning-making in social, cultural, and political relationships. He further pushes the inquiry by studying the box-sending behavior of OFW's and frames it as a manner of self-making. This particular insight was further reinforced by this research's qualitative study to be discussed in the next sections. Camposano's interpretation of how through the box, the traffic of goods in this material culture "gives form" to the migrant worker's identity coherence and meaning-making [11].

Our intention with this research is to directly draw an extension of Camposano's discourse on the role of the *balikbayan* box in material culture by studying it through the lens of interaction design and HCI. As an interaction artifact, the box is an interesting medium that carries a myriad of meanings, co-constructed by both the senders and the receivers, imbibing a relational and social meaning symbolically when they are collaboratively packed and opened. It has a physical presence and is bound within a specific and finite space and time between foreign and domestic dimensions. Lastly, these boxes also have a performative dimension that involves shared activities performed by specific parties – in the Central district of Hong Kong, one will likely encounter Filipina workers gathering around open boxes of varying sizes, engaged in the collaborative activity of filling in packages. One may ask a friend for a favor and hitch a small item back home. It is interesting to note that these boxes are usually packed as a group and opened as a group back home as families literally gather around the box. In an activity that mirrors Christmas mornings in western media, names are called and items are distributed as they are taken from the package.

Secondly, we are looking into the conceptual metaphor of *containment* and how this image schema makes the physical and mental model of the box effective and intuitive as a tangible and graphical interface. Johnson in his defining 1987 work, "The Body in the Mind" defines image schemas as the "continuous structure of an organizing activity", as dynamic and flexible conceptual structures [12] that evolve with the changes in how we experience and embody things in the physical world. Hurtienne also [13] writes in his 2009 dissertation that "Image schemas are multimodal and can be instantiated in different ways. This suggests that they are applicable to hardware and software user interfaces alike" and that ".. metaphorical extensions of image schemas to structure

abstract concepts allow designers to convey abstract meaning in the user interface using the available spatial and physical means for input and output.”

The containment image schema is one of the most common and fundamental metaphors derived from physical experience. Johnson describes containment as having these properties: an in-out relationship, boundary, and transitivity. Containers have definite boundaries that determine whether items are either inside or outside the receptacle and there is a finite limit to the amount a certain container can hold. Transitivity is how we come to conceptually understand that specific contents can belong in sets that are part of a bigger set. A pair of shoes inside a box that a person is gifted with means that that person is now in possession of the pair of shoes. Transitivity in containment can also be exemplified by a person keeping valuable belongings inside a safe located inside their house [12, 13].

These properties of containment seem mundane but in the context of the *balikbayan* box, we propose to use these principles to interpret its interactive significance. These aspects make a material artifact more effective, intuitive, and embedded in the users’ daily lives.

Thirdly, we use the Family Phatic Communication design sensibilities as criteria for articulating and discussing the product attributes as a cross reference. The authors of this study identify six different sensibilities: Temporality, Expression, Connectivity, Reciprocity, and Perceivable Volume [14].

## 4 A Design-Led Research Process

The goal of our research is to build a deep understanding of the transnational familial relationship of Filipino migrant workers, which can shed lights on how to design for supporting communication and intimacy for this unique group of audience and, by and large, for any families who have members living far away from home. Inspired by the rich meanings and impact carried by *balikbayan* box, the research focuses on how to achieve self-expression and empathetic family communications mediated by *material objects*. Not only will the form of communication be investigated, but also the content and matter of empathetic messages in the context of a migrant family. Specifically, we are interested in what emotions and feelings are meaningful and evocative to a migrant worker employed as a domestic helper in a Hong Kong household. Likewise, we are also interested in the two-way communicative relationship as we also consider the domestic family’s sentiments as the beneficiary party in the Philippines. Our research inquiry is initiated with the following research questions.

1. What problems do Overseas Filipino Workers (OFWs) face in their familial relationships?
2. What are the OFWs’ experiences and feelings in packing the *balikbayan* box?
3. How do OFW mothers perform intimacy with their distanced loved ones?
4. What are the meaningful interactions performed with the items sent and received?
5. How are transnational familial relationships mediated by artifacts?

Due to the nature of the inquiry and the levels of access available to the research, qualitative methods have been the primary mode of obtaining data and insights about the

problem and phenomenon. The research process went through field observation, cultural probes, semi-structured interviews, and participatory workshops in a span of 8 weeks. The first phase of the research (field observation, cultural probes, part of the interviews) aimed to broadly investigate the issue by divergence. As certain points of focus emerged, the second phase (interviews, participatory workshops) focused on convergence, culminating in the determination of certain design criteria to be used for concept development. In all research activities, we have obtained oral or written consent from our subjects and participants. For cultural probes and participatory workshop participants, we were also given permission to use their photos and drawings in our publications. To protect our subjects and participants' privacy, all names used in this paper are pseudonyms. Most conversations were done in Tagalog and some in a mix with English. All the Tagalog quotes used in this paper were all translated into English by the lead author.

#### 4.1 Field Observation

The objective of this first engagement was to explore and make initial conversations about the behavior of packing boxes. This observation was broad, looking at the general crowd of workers gathered in the Central district of Hong Kong, as well as five separate small groups of OFW women (see Fig. 1). Some members conversed casually in the middle of packing or while relaxing within their own friend groups. One notable learning was the current service systems already in place that operate well to assist the OFWs in storing and sending their items. Being members of a foreign culture, there was also the existence of a specific vocabulary: "*Pag-iipon*" translated as "collecting" refers to the act of accumulating items for placing inside the box; "*Storage*" refers to the various warehouse and freight services that keep their accumulated items since it was rare that an employer would allow the Filipina worker to store the items in the household given Hong Kong's notorious space issues; "*Raket*"—a Filipinized version of the English "racket" referring to an informal or illegal scheme of obtaining money is a common term used for a secondary means of income, usually a buy-and-sell business.

The prime reason for sending the box is that, in these Filipino families' eyes, imported items are superior and more novel, regardless of the items themselves. Another significant observation that eventually hints at a critical point of the research insight is the existence of an informal buy-and-sell "*raket*" culture. The women engaged in these activities are particularly proud of their capabilities, talking at great lengths about the items they have sold and how this practice has saved them from the stickiest financial situations. More field observations made in a different district in Kowloon, Hong Kong also suggest that OFWs become highly engaged when they are able to pick up new skills in their daily work; for example, they would converse proudly about what they cook for their employers and sharing their cooked food to their friends in their Sunday gatherings.



**Fig. 1.** Field observation in the central district of Hong Kong.

## 4.2 Cultural Probes

The field observations not only gave us basic knowledge of the OFWs' general situations, details of their *balikbayan* box practices, as well as the highlights of their daily life, but also enabled us to get acquainted and build trust with a group of five domestic helpers. This allowed us to deploy a small set of cultural probes to the group to loosely but intimately study the deeper psyche and emotions of the OFWs. We followed the spirit of Gaver's [15] original method of cultural probes but with practical adaptations in terms of the deployment. Five different probes were designed to collect open-ended insights and raw information (see Fig. 2) about (1) their problems, experiences and feelings in Hong Kong, (2) the places that are memorable to them, (3) the items they purchase and pack, (4) their special memories in the Philippines and in Hong Kong, and (5) their daily routines and contacts. The probes aimed to collect not only texts but also images, locations, and spatial information. The cultural probes were deployed to the five Filipina domestic helpers as mentioned above: Sharon, Nora, Maricel, Vilma, and Nadine. They were a group of friends from the Ilocos region of the Philippines who spent their Sundays relaxing and chatting together. There were five types of probes given to these participants. Probes 1–4 were completed during an intensive 3-h session where the participants went through each task's instructions facilitated by the researcher. Probe 5 (Daily Diary) was left with the participants for one week, with each question to be completed as a day-to-day activity. In the following we will discuss the findings of the returned probes.



**Fig. 2.** Cultural probe sets



The first probe is a simple photo album intended to gather some of the most memorable experiences of our participants and the moments they choose to capture and look back on. Most of the favored images are taken in Hong Kong locations featuring the participants posing in front of aesthetically pleasing backdrops such as flowers, greenery, and other special locations wearing their Sunday best. Through this probe we found that the favorite moments of migrant workers are when they are showing themselves in fashionable, sophisticated, and beautiful ways (see Fig. 3).



**Fig. 3.** The images also feature themselves engaged in fancier activities – Maricel uploaded an image of herself picking out wine, while Nadine sent a photo of herself in Disneyland wearing fall clothing (whereas their Filipino counterparts at home would not be able to wear due to the all year round hot weather).

The second probe was a small, empty cardboard box and a set of paper cut-out with visuals of common gifts and items that simulate the experience of packing a box. This probe affirmed us the typical rationales of what OFWs choose to send: chocolates and coffee were always featured inside their boxes. The same colonial value of appraising “foreign” goods noted during field observation is also reflected here. However, the most critical finding is how they also yearn to make routine choices for their families: Maricel chooses to send polo shirts because she wants her children to specifically wear things that she chooses for them. Her maternal decision-making is also imbibed when she chooses to send underwear because she notes that “*panties are important for women*”. This shows us the latent need to engage in intimate decision-making in domestic affairs.

The third probe was a set of small cards for the participants to write about their conversations everyday. While many of the conversation cards featured routine “checking-up” dialogues and personal conversations that did not disclose many details, there was a lot of conversation about problems with their perfectionist employers. The most notable finding is how commonly migrant workers talk about their investments and goals back home such as land and house repairs/construction with their friends and families. Money is an important point of conversation as they speak a lot about the side-business they engage in to supplement their income.

The fourth probe was a set of maps where the participants were asked to mark specific memorable locations such as their home, favorite places, and locations they want to go to in the future. This probe’s objective is to ask about where they came from, where have their treasured memories, and where do they want to go next. Many of them value their



residing areas in Hong Kong as their favorites, which are specific and treasured spaces of togetherness in Hong Kong. They also have many treasured places in the Philippines and provinces that they have not yet visited. While they miss home, the most interesting finding to come forth from this probe is a desire to go even farther to countries like Australia, Japan, and Canada, citing the better wages and quality of life they might attain there. This rattles the common perception that OFWs only feel homesick and yearn only to go back home to the Philippines.

The last probe was a small written diary with daily prompts that aimed to broadly obtain information about their daily lives. The diary probe revealed that their daily lives, once thought to be rote and repetitive, was actually filled with many different activities. During their working week, OFWs get to learn how to do many things, particularly upgrading their cooking skills. The returned diaries also reveal that even if they perceive their life in Hong Kong as a life of self-sacrifice, they choose to side with and be comforted by thoughts of positivity.

### 4.3 Semi-structured Interviews

Before and after the cultural probes activity, we conducted two rounds of in-depth interviews. Impressed by the rich meanings and practices relating to the *balikbayan box* we observed in the field, the first round of interviews was initiated to gain a deeper understanding of the box-sending and receiving behaviors of transnational families. After we collected back the cultural probes and uncovered a wider range of findings as described above, we felt the need to conduct a second round of interviews, this time focusing on the self-expressive activities of migrant women workers and their emotions in order to build deeper insights.

Our first round of interviews, done in video calls or emails, involved six OFWs (box senders) and five additional subjects who are relatives of OFWs – either their children or extended family (box receivers). Previously, the same interview questions were also asked to five different OFW groups in Central during the field observation. Each of these interviews lasted for around 30 min to an hour. The goal of this first round of interviews was to gain in-depth information about the transnational family dynamic and their relationships, as well as how they perceive the act of *balikbayan* box sending. The interviews also intended to draw out current problems and issues within the relationship. It is necessary to point out that white-collar OFWs were also involved among the 6 interviewees, contacted through personal connections and calls-for-interview posts on Facebook.

We gathered data from conversations with all the above 16 interviewees during both rounds of interviews and grouped them into two sets: those views from the OFWs and those from the family members back at home. The key findings of the interviews showed that through the package, there is an intention to physically demonstrate where the migrant worker has been and the “imported” good things they are experiencing. These boxes are typically sent not more than twice a year. It is referred to as a “token of remembering” and a “symbol of generosity”. The participants were also aware how the *balikbayan* box is an embedded part of the Filipino diasporic culture and somehow the practice of sending it has already become an unsaid expectation for the mother in a foreign country. Along this thread, a few OFWs expressed their feelings of deep burdens

in the same way: “*all these [financial and material expectations] are all on me.*” Yet, they avoid passing on this feeling to their families whom they sometimes disdain if they are only approached when money is needed. On the other hand, for the OFWs, this “burden” is interestingly coupled with a newfound sense of freedom and power in the new land where they control their decisions and finances. This power is liminally expressed in how they remain consistently attuned and engaged to the routines and quotidian matters of the Philippine home, as well as how they insist on only showing their best selves in their daily interactions with their kin. They feel the need to play out their various mindsets through the objects they send and the memories they collect and send to their family. A participant noted that the box’s significance was that it “showed that we are thinking about them” while another has mentioned that “it kind of gives me peace of mind knowing that they have enough supplies to last for a year.

On the other side, the families back home also expressed a two-fold relationship with the package sent. The key findings reveal that they highly enjoy the surprise factor of receiving the box – not knowing when it will arrive and its exact contents. They enjoy how the opening of the box is always a collaborative family affair where *unpacking* becomes a systematic procedure of undoing tape, taking out stuffing, and removing items piece by piece. Meanwhile, the appreciation of the receiving family is coupled with a sense of guilt and curiosity of how difficult it was to put together the package. The family members have a desire to know the struggles of the parents, but do not know how to bring the matter up without discomfort or awkwardness as one participant said: “I wish I knew what their problems were...in video calls, we never talk about problems, video calls have to be “feel good” because, the image is that you’re doing well.”.

#### **4.4 Participatory Workshop (with OFWs)**

At this point, we have developed a more mature understanding of our migrant Filipina workers and drawn one key insight, which is that they seek to communicate and perform not only domestic intimacy, but also self-identity in their transnational familial relationship. Self-identity is a topic not easy to talk about openly, given its personal and abstract nature. We thus considered conducting a participatory workshop to look into what constitutes self-identity for OFWs, as a workshop can provide a more intimate setting and use activities to enable participants to concretize their thoughts with visual aids. We invited three migrant Filipino workers: Bea, Angel, and Kathryn. Bea and Angel did the workshop together in person for a session of 2 h, whereas Kathryn’s workshop was conducted online via video call and lasted for an hour. In the first part of the workshop, participants were invited to talk about problems and successes in their current life, as well as their difficulties in communicating certain issues with their families back at home. In the second part of the workshop, they were invited to envision for themselves an ideal future scenario and sketch it down on paper.

Bea reflected similar themes of achievement in her narrative as she recalled the proud moment of being able to purchase her child a new phone. Kathryn also derives pride from being the chairperson of a major workers’ union and that she is able to help and represent her fellow OFWs. Meanwhile, Angel mentioned that she was proud of “growing her mind” with the new skills she has learned to do in Hong Kong – including cooking and house repairs. However, all three participants brought up difficulties in

communicating more difficult feelings like loneliness, homesickness, the confusions they encounter at work, the fatigue they experience that does not get recognized, and the personal yearning for prioritizing themselves for once. Bea says *“that’s why I work hard here so that my children don’t become like this. I know this is still an honorable living, but I still don’t want this kind of life for them.”*

Kathryn had a poignant and unique perspective of being aware of the societal factors affecting her personal circumstances as a domestic worker in Hong Kong and the importance of outspoken activism in the union as a method of her self-expression, despite her parents’ worries about her engaging in this activity. She says *“My mom and dad are concerned about me being an activist and union member, but I explain to them that who else will speak up for us if not ourselves?”* She also touches on her different roles as she engages with her parents’ apprehension with her being a union leader. Her parents tell her *“You are not a hero... You can just be Aberdeen’s mom, but you cannot be a hero.”* to which Kathryn replies *“I’m not trying to be a hero, my point is just speak up! This is not just my own struggle but everyone’s struggle as well”.*

Kathryn’s strong sense of role assignment and achievement is always paired with her deliberate choice to remain an activist despite her family’s qualms. When asked if they felt empowered being the breadwinner in a foreign land, able to go to more developed places, Kathryn says *“For me, we are all victims of poverty, no domestic worker will ever pick being away from family but we were forced to leave. As for me, I was a painter back home, but why did I leave, I never wanted to be a domestic worker at all.”* She agrees that she feels proud of her achievements but also keenly points out that the OFW’s display of a glamorous selfhood especially during the Sunday holiday is also a pretension or *“pagbabalat-kayo”*. Kathryn powerfully states that migrant workers don their best clothes and do whatever they want on Sunday to mask the less appealing sides of their migrant lives and especially to show their families that they are doing well, even if they are not.

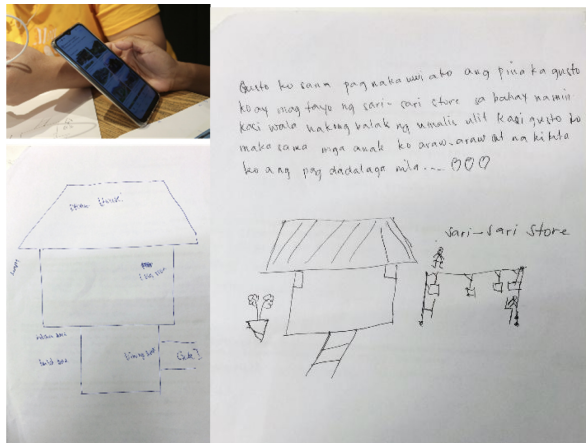


Fig. 4. Workshop sketches

When facilitated to think about and visualize the current situation and an ideal future scenario, Bea and Angel both instinctively drew house structures (see Fig. 4). Bea illustrated her long-term goal of a “*sari-sari store*” (a small corner shop selling dry goods in the neighborhood). She meticulously drew the inside of her shop, with sachets and plastic packets dangling from the structure. Angel illustrated a similar structure, a “dream” house with specific divisions and floor plans. She laughed and smiled as she planned out the inner rooms and gates of her dream house, even searching on the internet for inspiration photos. This activity affirmed the significance of the containment image schema and how the container can also allude to a long-term goal. Kathryn, on the other hand, emphasized the importance of open communication.

## 5 Analysis, Conceptual Framework, and Final Design Criteria

### 5.1 Analysis

The salient findings collected from all qualitative methods are summarized in eight coded themes grouped into three major groups that form the conceptual framework of the research. These eight code themes inform and give weight to the set of design criteria and guidelines for designing with and for migrant workers. The three major groups and eight themes are illustrated in Table 1 below:

As discussed, the design research transitions from looking into domestic intimacy to the formation of self-identity and self-expression in this inquiry about the migrant workers’ communicative and phatic needs. Based on the results of the qualitative research, it can be said that self-identity consists of the positive dimension – achievements, skills, freedom, happiness, and the negative dimension – failures, frustrations, shortcomings, and vulnerabilities. A good balance of addressing both positive and negative facets in familial communication over a distance ensures the well-being of all parties involved, particularly the migrant workers’. There is transparency in the relationship and their mental states are more managed. Our inquiry also brings to light many pertinent insights about recommendations for the form of the design.

This idea of multiple facets in identity is also supported by existing work on self-identity in HCI. Henrik Åhman identified four main approaches to the self: the instrumental self, the communicative self, the emotional self and the playful self. These different dimensions are dynamic and shifting and also extend or critique the idea of the “stable, coherent, individual self found in much of HCI discourse” [16]. This is also supported by many sociological studies on migrant women workers that emphasize the importance of various role affiliations in their self identities.

### 5.2 Design Guidelines and Criteria

Table 1 summarizing the analysis above also serves as the basis for the following design guidelines and criteria for design addressing migrant workers’ phatic family communications, in relation to their identity formation and self-expression. The guidelines are divided into criteria for design matter and design form.

The criteria for design matter concerns the meanings and values the proposed design should be able to communicate. The concept should be able to convey a sense of pride.

**Table 1.** Major themes and findings from research methods

|                                      |  |  |   |   |
|--------------------------------------|--|--|---|---|
| Pride and Goals                      | Pride in foreignness and financial freedom       | A desire to showcase where they've been and what they are enjoying       | Pride in newfound personal and financial freedom in Hong Kong, going to foreign, fancy places |   |
|                                      | Pride in achievements and gaining new skills     | Despite family pressure, they are able to thrive because of their skills | Pride in achievements, new skills gained, earning abilities                                   | Personal capabilities and skills have grown in Hong Kong  |
|                                      |  | Finding ways to supplement their income with side gigs and businesses    |   | The feeling of achievement gives satisfaction despite sadness/loneliness  |
| Long-term goals                      |  | The presence of long-term goals  | The ideal future is the accomplishment of a long term goal/a house or store                   |   |
| Sadness and Passive Miscommunication | The family's intention of empathy for the mother | The family back home has an intent to know the mother's struggles        |   | The family back home experiences some guilt, that they are a burden   |
|                                      |  | The family back home experiences some guilt, that they are a burden      |   |   |
|                                      | A migrant worker's sadness, struggle & sacrifice |  | They self-perceive their time here as a sacrifice   | There is sadness that the family does not seem to know their struggles<br>Feeling deep sadness but cannot tell the family |
| Themes inspiring the design form     | A small act of decision-making                   | Small acts of decision-making and hand-picking items are important       | A need to assert personal choices   |   |
|                                      | A constant and deliberate quotidian practice     |  | A need to engage with the family in quotidian matters   | A constant reminder of openness to family and employer is crucial   |
|                                      | Materiality & containment                        |  | Phatic engagement through objects and material things   | The house is a container of aspirations and dreams  |

Addressing the theme of “pride and goals” in our conceptual framework, the criterion of *achievement declaration* conveys that the features and functions of a design should afford some level of displaying achievements and celebrating good moments in text, audio, or image form. The system should also convey a sense of *goal-setting* - where it can afford for users the creation, planning, and maintenance of future goals. In the context of existing HCI research, Zimmerman also identifies long-term goal setting as a consideration in designing for the self [17].

Another criterion is that the system should be embedded with *catalysts for difficult conversations*; namely, it should have mechanics to accommodate and facilitate vulnerability through the occasional introduction of uncomfortable family topics to the users of the system. Addressing the second theme “sadness and passive miscommunication” in our conceptual framework, these catalysts can be also designed in a probing, inexplicit manner, stoking *empathy* with the choice of language, time context, topic prompts written and designed to be evocative and facilitative of emotions, mental states, and life experiences.

The criterion for design form deals with the formalistic elements and features that the system should possess. Firstly we suggest the design to be *tangible & material* so as to allow for a degree of physical and material transfer or interaction, referencing from realistic objects and surfaces that users interface with in their daily lives. The second property we suggest is to use the *containment* image schema which is effective in depicting physical presence and value possession.

Lastly but importantly, one of the most reinforced criterion for design is framing the system in a *constant and quotidian* time frame dictated by routine. The interactions with the system should be a regular experience with a certain level of predictability. However, despite the quotidian nature of the interaction, some attributes of the design system can account for some level of *surprise* and *irregularity*, such as the time of arrival and the hidden digital messages embedded in each physical piece, to support an enjoyable experience. Lastly, the performance of the interaction should hover in between the *private and the communal/interpersonal*. Some activities can be done individually and some can be performed as a group.

Our design concept development began with a co-design workshop, where we attempted to conceptualize the design based on some of the key insights, with the help of a group of design students. The goal of this workshop was to gain a designerly perspective and help the research inquiry articulate the form of the design concept. The co-design workshop was also planned with 6 designers participants. There was an effort to select those designer participants who were working mothers or wives, or in distance relationships. The limitation of this method is that the point-of-view might vary from the original stakeholders. Nonetheless, we were cognizant of this and limited the objective of the co-design workshop to be largely exploratory and not definitive. They were asked to share personal narratives about their achievements and failures and from their sharings, personas were developed to help frame the design context.

The two groups chose 1 persona each to design for and generated two design concepts emphasizing different aspects of a phatic communication space. The first group came up with a small nook or corner inside the home where mothers can project different moods, roles, topics, and interests during a regular and specific time, as a nightly ritual. The second group interestingly made a shared media space using a “floating bubble” schema to represent granular thoughts and topics that were difficult for a couple to bring up in regular conversation (see Fig. 5). Similar to Bea and Angel’s house metaphor, this group also used the house image schema to contain these piecemeal thoughts.



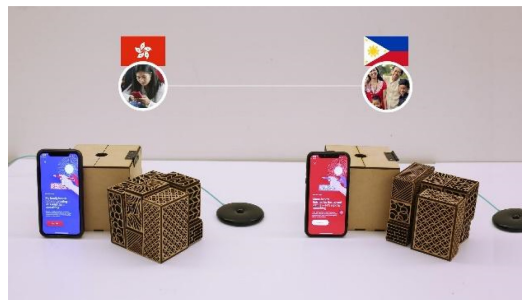


**Fig. 5.** Workshop sketches

## 6 The Design Concept of *Bukas*

The resulting design concept development is a prototype to embody the design guidelines set forth in the previous section. Five design concept variations were deliberated on, ranging from smart labels systems, smart mirrors, mobile application, physical remote devices, and the concept chosen is the current research inquiry's best attempt at a culmination of the aforementioned design criteria.

“*Bukas*” (from the Tagalog word meaning “to open” and “tomorrow”) is a tangible box artifact coupled with an augmented reality (AR) enabled mobile interface that aims to facilitate meaningful long distance family communication through a material medium. It is composed of two boxes containing seven graspable pieces each, two wireless contact chargers, and a mobile application (see Fig. 6).



**Fig. 6.** Components

The main idea of the concept is for the box to become a medium of slow technology [18] between the migrant worker and the distanced family by embedding messages inside the contained pieces to be created and collected during a routine of recollection that happens every night. At the end of each week, messages are collected and virtually sent through the AR patterns. OFW mothers and their families alternate the box sending and receiving process on a weekly basis.

## 6.1 Design of Tangible Components

The primary tangible component is a pair of box artifacts, one meant to be located with the migrant worker in Hong Kong, and the other with the family in the domestic home. Each box is designed to mimic the *balikbayan* box and is constructed with MDF board. It can be opened easily from the top with a hinged pair of lids. This box contains seven pieces of various quadrilateral figures, each with a different pattern laser cut on the surface (see Fig. 7). These pieces represent daily communication themes of the week and all seven pieces fit almost exactly to the box's inner compartment—like a 3D puzzle, with several ways to arrange them inside. The irregularity of the pieces provide variation to the experience of filling in the box and is meant to make the process of fitting in each piece more fulfilling.



Fig. 7. Tangible components

The different patterns on each piece are designed to be easily identifiable and meant to represent an abstract prompt for the family members to accomplish. The patterns also fulfill the technical function to be a unique, scannable image for the AR function to activate. The patterns are also dynamic in the sense that the topic prompt can change per pattern on a week to week basis. Moreover, the illustrated patterns are aesthetically symbolic and abstract, allowing for a degree of conceptual interpretation on the part of the user.

The smallest brick piece representing goal-setting is a special piece specifically meant for migrant workers and their families to set long-term goals that they can collaboratively contribute to over a period of time. This function is also meant to connect to an actual bank account to transfer a small amount of money to a goal fund to support this long-term goal. Each sent message using this piece slowly builds conversations around a chosen goal and enables the family to slowly build towards that target financially and cognitively.

A supplementary wireless contact charger is the secondary device meant to alert the two separated parties of one's physical presence, triggering the daily prompt to be sent to the message sender.

## 6.2 Design of Intangible Components

A mobile application with separate user flows for message senders and message receivers facilitates the prompt to write a nightly topic which is provided by the system. The application has 6 main functions: to answer topic prompts, to embed these answers into an AR-enabled pattern, to notify users of a receipt of a message box, to activate the AR-enabled patterns to read the messages, to connect to a bank account to transfer money, and lastly to save and re-access past received and sent message boxes. These 6 functions disclose themselves to the users in two main modes: Message Box Sending and Message Box Receiving.

Notifications deployed at different times facilitate and mark the contextual disclosure of these features. There is also a home dashboard for users to see their current status anytime, however, the main mechanic of alternative sending of message boxes week by week is fixed. Box receivers do not get to read piecemeal messages on a day-to-day basis and box senders cannot send messages without the physical piece, nor without completing all 7 topic prompts.

## 6.3 Interactivity

The primary physical interactivity consists of the user being able to represent messages through a graspable piece that one can hold and rotate. Another major point of interaction is the experience of puzzle-solving, putting all the pieces together to fit inside a box with finite space. Conversely, the piece-by-piece action of “unboxing” by the box receiver is also significant. This interaction takes inspiration from how the *balikbayan* box is packed to brim and is collaboratively unpacked—its contents distributed to different members of the family. There is no set order to read the messages embedded in the seven pieces. When the held message piece meets the AR-enabled mobile application, the interaction’s intention is to make it seem as if the user is holding the photos embedded in the piece (see Fig. 8).



Fig. 8. Boxing and unboxing

The trigger to enable the nightly prompt notification is powered by a wireless charger that detects physical presence. The assumption is that when the distanced family member is physically present and resting while charging their phone, the migrant worker, who is far away, is made aware of this temporality and is subtly made aware of the presence of their loved one. The augmented reality function is demonstrated with a simple prototype created in CoSpaces.Edu and used with the commercially available MergeCube (see Fig. 9).



**Fig. 9.** Augmented reality interactivity

## 7 Initial User Study and Discussion

### 7.1 Study Set-Up

We conducted an initial user study of three participants: Sarah, Joseph, and Kamille with our design prototypes. The aforementioned names used in this paper are pseudonyms. Three participants were recruited, one migrant working mother and two of the original box receiver interviewees. Each session lasted for 45 min to one hour. Each user study session consists of two parts. In the first part, the researcher introduced the concept of Bukas and its components to the user. In this introduction, the user was also given a scenario to illustrate the use context. The scenario was narrated over video call, after which a step by step on-camera demonstration of how the tangible product – the container box with its inner pieces – is used during boxing and unboxing (Fig. 8). In the second part, we invited the user to use our online UI prototype to perform 2–3 key tasks, such as sending messages and opening the box, depending on their role: the mother or the receiving family member. When performing these tasks, if a step involved the tangible product, we would perform the steps on behalf of the user. This protocol was in fact a special, less-than-ideal arrangement for a user testing session in the COVID-19 situation.

### 7.2 Study Results and Improvements

During the study sessions, little clarifications were needed regarding the main functions of the product concept, with the users noting that the structure of the application and product was very comprehensive and well-structured. The positive feedback centered around the construction and design of the tangible artifact as well as the UI. They also appreciated how the product is a catalyst for prompting uncomfortable conversations, Kamille commented: *“the design encourages an old style of communication in contrast to this age of instant messages”*. She also mentioned that the idea of the presence trigger was also interesting and promoted a sense of “being” with distant loved ones. These feedback can indicate that the guidelines have achieved a certain level of efficacy. The main issues in the feedback obtained from the testers centered around three key points of improvement. First, the users were quite perceptive in mentioning the need for the topic prompts to be varied and emotionally evocative enough to cover the time frame of a transnational family’s period of separation. The writing needs to be provocative and facilitative enough to address the challenge of coaxing certain emotions from stakeholders who had *“apprehensions to share deeper feelings”* according to one user. Sarah also

suggested the need to “*prepare a plan on how to write these questions and topics.*” This was addressed in our final design iteration by making plans on how to rotate and switch up the prompts. We also got help from a literary writer friend to rephrase the questions to be more effective. Another future plan of action is to consider the Filipino language in writing future topic prompts. In planning for the variety of topic prompts, we can divide the topics among different categories: Achievements, Identity, Loneliness, HK Culture, Availability, Problem-Solving, and Goal-Setting. We can also use McMaster’s family functioning model as a potential source for new prompts.

Second, a need to recall and save messages, to recap and use for future conversations. Joseph and Kamille had noted the need “*to utilize these diaries for future daily conversations*”. This was addressed with the addition of a bookmark feature in the revision of the mobile interface.

The third major issue is more broad as it points out the need for the design solution to be situated in a service process that provides onboarding for users about the objectives and functionality of the design product. As the product is involved with highly private and potentially sensitive information, there needs to be a system set in place to assure users that it is a “*safe medium and space*” for writing. In the future iteration, this product can be a part of a larger service system or a social service or campaign.

### 7.3 Discussion and Reflection

*Bukas* serves to extend the current body of knowledge that exists in HCI that tackles relationship-mediation in family bonds. This research hopes to add the underrepresented perspective of migrant workers in the realm of interaction design and HCI. There are many points of improvement for the research and product design, beginning with the recruitment of participants. A larger sample size and stricter criteria for participants would improve the findings of the research, as currently, blue-collar and white-collar workers alike were included in the qualitative study. A stronger, more concrete framework for identity-formation could also be used to improve the topics tackled in the design matter. In terms of the form of the box, further studies need to be made to verify more image schemas and metaphors that would also be effective. The choice of patterns also needs a stronger rationale in terms of its meaning, symbolism and visual design. The current study and design concept relied greatly on the idea of materiality and tangible form, and while it proved evocative in the initial user study, a more critical and thorough user test involving an actual working prototype installed in a transnational household for an extended period of time would be the true test of efficacy. Sending tangible messages is a matter of technology and concept. However, getting migrant workers and their families to truly tap into their thoughts and emotions, reflect and recollect their self-identities and expression is the bigger challenge.

## 8 Conclusion and Future Work

This design research and project aims to explore the largely untapped field of migrant worker research in design and HCI. This paper provides a set of guidelines to design for the communication of migrant workers and their transnational families. A demonstrable

product prototype was also produced to test the efficacy of the design criteria defined after a series of qualitative research methods. However, we are cognizant of the risks of the design research endeavor being naive. The issue of mass migration of workers from the Philippines to work as domestic helpers in other countries is not an ideal situation; it is a systemic problem with socio-political roots. *Bukas* has aimed to address a very specific need and has investigated the deeper sentiments of migrant workers, but its future direction can follow through from two distinct starting points.

First, further studies can be made in how to improve the deeper phatic communication between domestic family members and conduct experiments to verify the design criteria specified in the guidelines.

Second, a new direction can be opened transitioning from migrant worker family relationships to the larger society. Social computing and communal technologies have the opportunity to identify roles among connected individuals, highlight relationships and hierarchies. Social computing helps address and enhance the experience of connecting migrant workers towards a collective identity and goal. Further studies can move the scope to the larger community of migrant workers, promoting to individuals, a sense of inclusion in an active collective community of OFWs.

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