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PolyPlay War & Toys - Play to Heal project

Design to provide solace for children affected by war

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Abstract

The paper discusses the value of a creative toy design framework for ideating toys and play patterns that support the coping skills, give solace, strengthen resilience, and healing in children living in war zones who are affected by post-traumatic stress disorder (PTSD), and the work of expressive therapists involved in supporting them. Structured around a series of workshops, the experiment was introduced to undergraduate toy design students and facilitated by the authors.

Keywords : Children in war zones, Post-traumatic stress disorder, Expressive art and play therapy, Transitional objects, Toy design, Empathy in design, Product-service system, Social design, Research through design

1. Design now

Garland's 1964 1st Things 1st Manifesto declared designers' skills would be called on "for worthwhile purposes" to produce "a new kind of meaning". Where are we now?

Design has shifted its focus over the years from a form-giving business to human and environmental- and social-centred service systems (Diehl and Christiaans, 2015). This empowers designers to 1) establish design strategies to define desirable, feasible, and viable long-term value propositions; and 2) harmonize tensions latent in complex stakeholder groups, including users, manufacturers, marketers, NGOs, or government organizations to facilitate co-creation experiences; while 3) articulating coherent communication visualizing culturally transformative problem-solving processes and outcomes; that 4) address broader concerns, inclu-

ding education, sustainability, and social service (Manzini and Vezzoli, 2002).

Koskinen and Hush (2016) distinguish three forms of social design, underlying its aim, strategic, and knowledge dynamics. *Utopian social design* is derived from convictions that give meaning to design outcomes (e.g. peace). Highlighting projects' scale of ambitions, *molecular social design* addresses incremental changes rationalized by the specifics of focus issues (e.g. designing toys that promote healing of children in war zones with PTSD). *Sociological social design*, informed by theory, gives "insight into the social structures that produce and maintain the situations they try to change" (e.g. referring to psychological theory to construct play therapy product-service systems (PSS)).

Design is an agent of sociocultural transformation. What of toy design? Should playthings fulfil worthwhile purposes? Can toy play's developmental agency promote psycho-emotional healing of children in war zones affected by PTSD?

2. Children in war zones

Approximately 1 in 6 persons on the planet live in conflict zones. Among the most vulnerable are children, who are bombed and starved; watch their schools and hospitals destroyed; denied food, medicine and vital aid; have experienced close shelling; see someone sexually assaulted, tortured; and their friends and families die before their eyes or buried under the rubble of their homes; are torn apart from their families and friends as they flee the fighting; and lose everything they hold dear. Every year their situation worsens as they are victims of violence committed by all sides. As of February 2018, there were 357 million children living in areas affected by conflict globally (Kirolos et al., 2018). In every war zone and refugee camp, their stories go untold, locked behind the anguished faces of the boys and girls who have survived. These children are the ones most affected by the fighting yet least heard from when discussing the costs of war.

PTSD

The consequence of war violence and brutality against children is multiple and long-lasting, negatively affecting their psychosomatic, cognitive, emotional, social, and sensory development, and holistic growth. Children in war zones are most at risk from the conflicts and suffer toxic stress, or PTSD, which manifests in various unspoken symptoms.

Symptoms of children affected by PTSD include:

- Depressive syndromes: loss of appetite, energy, or interest in enjoyable activities, severe apathy and passivity, constant sadness, social withdrawal, lack of confidence, shame, survivor guilt (especially in older children), suicidal ideation, refusal to attend school, learning difficulties, declining school performance, concentration difficulties, worry, hurt, fear of darkness, loud noises, anger, aggressive behaviour, revenge feelings, obsession with violent movies.
- Regressive behaviour: loss of achieved skills, pathological dependency on parents and siblings, clinging, thumb sucking, baby talking, temper tantrums, bed wetting, separation anxiety (preschool children)
- Psychosomatic problems: stomach aches, headaches, constipation, irregular sleeping, and nightmares.

In one report, when children living in war zones were asked about their feelings (Kirolos et al., 2018), they replied:

"I always feel angry, all the time." Aboud, 12–14, Idlib

"I'm afraid of going to school because a plane will bomb us." Rihab, 8–11, rural Aleppo

"I get really sad if I cannot get education and I cannot build a future." Haya, 15–17, rural Aleppo

"I would be confused if I didn't hear or see airstrikes, because they happen so often." Ala'a, 12–14, Eastern Ghouta

"I feel sad when we have a (public) holiday but my parents are not here because I have already lost them, and I am alone because everyone is dying." Zeinah, 15–17, rural Aleppo

"I'm angry because my neighbour's child is in hospital because he got blown up and is hurt." Khaled, 12–14, Idlib

Trauma's multidimensional effects on children and their families are compounded by forced uprooting, immeasurable losses, and myriad changes brought about by migration. As the world's civil wars affect entire populations, attention to the mental health needs of children in these populations is urgently required.

Expressive therapies

As the segment of the population most at risk, children in war zones suffer from many trauma-induced symptoms. On the road to healing, children's first step is to open their hearts and minds and express feelings. To do that, it takes a subjective approach and a willingness to speak their language - to play. Observing and participating with a child in play helps uncover the truth behind their behaviour. Expressive therapies, including art and play therapy, allow children to broaden their communication skills, reveal themselves, and externalize worries through symbols and metaphors. Play supports development of the whole child, including social, emotional, cognitive, and physical development. Play therapy helps counteract mental health problems, regenerate emotional literacy, and promote resilience. Through laughter and play, endorphins are released, triggering a positive feeling in the body, and feelings of well-being emerge. Igniting creativity, they promote resilient energy, a powerful agent for insight and change.

Hall et al. (2002) list three main play therapy criteria:

- (a) to include an extensive variety of play approaches (e.g., sensorimotor, art, fantasy, and game play),
- (b) to focus on techniques appropriate for 4–12-year-old children, and
- (c) to present techniques that are enjoyable, inexpensive, and easy to implement.

Schaefer et al. (2010) explain how children show a natural tendency to cope with trauma through play, listing 25 therapeutic factors to inform play therapeutic strategies:

1. Self-expression - Use of Symbolic representation and expression through dolls and puppets to distance children from emotionally charged experiences, thoughts, and feelings.

2. Access to the unconscious - Play with therapeutic, neutrally stimulating playthings and materials, for children to reveal unconscious conflicts via projection, displacement, and symbolization defence mechanisms.

3 & 4. Direct and indirect teaching - Narrative play to join in interactive fantasy play with therapists and adults to organize fragmented memories and experiences into cohesive, meaningful story.

5. Abreaction - Repetitive play re-enactments enable children to gradually mentally digest and gain mastery over horrific thoughts and feelings.

6. Stress inoculation - Playing out exactly what to expect with miniature toys,

using a doll to model coping skills, the strange can be made familiar and less scary to children.

7. Counterconditioning of negative affect - Two mutually exclusive internal states, e.g., anxiety/relaxation, or depression/playfulness, cannot simultaneously co-exist. Thus, hide-and-seek in the dark helps conquering fear of the dark. Fantasy and dramatic play facilitate children's move from a passive to an active role; and expression of several defence mechanisms such as projection, displacement, repetition, and identification.

8. Catharsis - Emotional release is a critical psychotherapy element. Catharsis allows affective release via emotional expression (e.g., crying) or activity (e.g., bursting balloons or punching a ball).

9. Positive affect - Play's potential for mirth and laughter becomes an antidote to negative affects such as anxiety and depression.

10. Sublimation - Sublimation may redirect unacceptable impulses into socially acceptable substitute activities, e.g., repeating alternative means of expressing negative feelings by using 'warlike' toys.

11 & 12. Attachment and relationship enhancement - Playing together facilitates children's and parent/caregivers' emotional bonding, creating positive affective experiences.

13. Moral judgment - Game play helps children move beyond early moral realism stage, where rules are seen as external restrictions arbitrarily imposed by adults in authority, to the concept of morality based on principles of cooperation and consent among equals.

14. Empathy - Roleplay to develop children's capacity for empathy, increase altruism and social competence.

15 & 16. Power/control - Contrasting play with helplessness experienced during disasters, to afford children a strong sense of power and control.

17 & 18. Competence and self-control - Skill-building creative, constructive, narrative, or game play fosters self-efficacy, self-esteem, and self-control through thought and behaviour stopping for planning ahead.

19. Sense of self - Play as a mirror empowering inner self-awareness and self-realisation.

20. Accelerated development - Play beyond ordinary children's age thinking and function accomplishments realised only later in life.

21. Creative problem solving - Novel combinations and discoveries aiding

children in solving own and social problems.

22. Fantasy compensation - Immediate substitute gratification of children's wishes e.g., fear-to-courage, weakness-to-strength.

23. Reality testing - Frequent engagement in pretend play for better reality/fantasy discrimination.

24. Behavioural rehearsal - Rehearsal of socially acceptable behaviours, such as assertiveness versus aggressiveness.

25. Rapport building - Empathetic therapist/adult engagement through child-centred play interactions.

Play therapy in war zones - overcoming limitations

The United Nations Convention on the Rights of the Child states that every child has the right to play, which supports holistic development. However, play is denied to children in war zones – those who need it most. Compounded by the tragic effects of war on their psychological health, most children live with trauma in isolation. Mental health care workers, if posted in their area, are scarce and too often overwhelmed, and do not have the time to care for them. Also, psychotherapy is taboo in many communities, parents may not understand it, and hence are weary of it. Desperate to provide care for their children, parents (who also need therapy) are more concerned with visible symptoms than cause, which leaves out most children, whose silent suffering goes unaddressed.

Conscious of such limitations and the need to consider informal contexts, Betancourt et al. (2013) have identified five immediate “essential elements” as principles for “trauma interventions, which need to promote (1) a sense of safety, (2) calming, (3) a sense of self-and-community efficacy, (4) connectedness, and (5) hope.”

When families in pain play together, communication is accomplished in less direct ways, perceptions of each other change, and individuals experience decrease in resistance to connect. Structuring and guiding parents to play with their children enhances attachment bonds and establishes or renews positive connections. With therapists scarce, and trauma unnoticed, there is a need to create play patterns embedded in easily available toys that allow children to address some of their emotions themselves, with their siblings and other children, or with parents.

With millions of traumatized children in need of care left on their own to deal with their feelings, there is an urgent need to consider alternative means to im-

prove their overall wellbeing. Transitional objects (Winnicott, 1953) are special objects used as a positive defence and coping mechanism, providing solace and comfort, soothing children facing anxiety or depression. Transitional toys facilitate the “development of the self as the product of a changing interaction between an infant’s inner (subjective) world and an external (objective) reality” (Van Leeuwen and Westwood, 2010). Toy play is an expressive strategy to explore, try out and create relationships between inner and outer worlds using the entire vocabulary of human emotions and behaviour, thus recreating the meaning of the world. “Designing opportunities to maximise this requires under-specification rather than over-specification of objects with regard to their potential meaning. Instead of trying to design for specific preconceived meanings, design should aim for a highly diverse range of possible actions, the specific meaning of which is actually not the business of the designer but of the user.”

3. Toy design for children in war zones

As agents of sociocultural change, designers propose what could be. Working at the crossroads of the humanities and science, they harmonize often-conflicting factors to address needs of diverse stakeholder groups. How does one appropriately assess the needs of children afflicted by PTSD? How does one design playthings for children affected by war – let alone when remote from the realities of armed conflict? While geographically, politically, culturally disconnected from their context, Hong Kong design students are in fact uniquely positioned to positively influence children, particularly those that have been traumatized by war. Even in areas of conflict that are underserved or inaccessible to humanitarian organizations, inexpensive toys continue to be sold every day. Most are Hong Kong-designed and manufactured. The prevalence and established distribution of these toys provide opportunities for those in the industry to purposely shape the play patterns of boys and girls who have been affected by war – strengthening resilience, promoting recovery, and ultimately fostering inner peace.

Early investigations

This project builds upon and further establishes a principled philosophy in the authors’ practice of promoting play design for children with special needs, including those affected by war, whether in controlled therapy environments or in everyday play. The Solacium project (Figure 1) aimed at demonstrating how appro-

priate product service-systems deploying play props in sessions could facilitate the healing of PTSD in traumatized school age children refugees (say, 7 to 10). In concert with child development specialists, psychotherapists, and NGO refugee representatives, it investigated how manipulating objects could assist children survive crisis trauma and facilitate psychosocial and emotional healing.

Deploying education and art therapy to survive violence and loss, the online PTSD play therapy PSS is intended to help children refugees gain resiliency, flexibility of response, ability to choose a course of actions and resolve conflicting moral values for future development, including the ability to feel joy. Therapists can download a number of prop templates they can print and assemble with children, using easily found materials. The props are to be manipulated in group or individual sessions following a 4-step PTSD play therapy protocol facilitated by therapists in temporary shelters or inner-city centres. An app guides prop usage and protocol application. Protocol steps include Ice-breaking, Re-exposure, Cognitive Reframing, and Future Hope. While the steps follow a progressive narrative sequence, they may be deployed individually on a needs basis or be re-ordered to suit individual child's needs in healing from PTSD.



Figure 1. Solacium project, DIY props for specialist-guided play therapy.
Design Ingrid Ho Cheuk Ying.

4. Play to Heal project

Approach

The issues and contextual needs identified in this research and in previous pilot studies inspired a novel creative toy design framework. Informed by a product development and distribution strategy focusing on children in war zone affected by PTSD playing alone, with peers, or with parents, it enabled exploration of opportunities to positively influence and shape play patterns with a view to offer solace and promote healing.

The experiment was carried out in March 2017 over a two-week period as an experimental assignment in an undergraduate toy design elective subject. In seminars facilitated by both authors with specialists in Beirut (through videoconference) and in Hong Kong (in studio presentations), students were introduced to play theory, and principles and practices of expressive art, and play therapy. Students were introduced to the realities of children facing war, to the types of toys currently available and sold in areas of conflict, and the typical play patterns of boys and girls exposed to war, both as firsthand survivors and removed observers. They were made aware that while realities on the ground means there is little in terms of access to care, most children affected do not exhibit visible symptoms, and hence are ignored. Consequently, the designs needed to allow play with toys purchased in shops, possibly involving peers, siblings, and parents. Students were encouraged to trust their intuition and empathize with children in their design approach. They were required to leverage play so that designs counteract negative feelings, lead to insight, strengthen resilience, regenerate emotional literacy, and lead to change.

The authors facilitated the creative development of students' design proposals in workshops and tutorials over a period of 10 days. Interim concepts were presented to expressive therapists Chloe Martin and Lillian Yuan of The Justice Centre in Hong Kong, and a final presentation was made a few days later through videoconference with expressive therapy Artichoke Studio founder Myra Saad in Beirut. Following this, the first author curated refinement of designs, which were showcased at the Hong Kong Polytechnic University in November 2017 in an exhibition alongside the second author's photographic work.

Project brief

Students were sent ahead of the workshops a comprehensive project brief introducing them the following contextual, theoretical, and creative guidelines.



Figure 2: Children in war-torn Syria. Photos Save the Children 2017.

Conceptual framework

1. Realities on the ground means there is little in terms of access to psychosocial care.
2. Majority of children affected do not exhibit visible symptoms and are ignored.
3. Much can be done with toys purchased in shops to play with or without parents.
4. Play should counteract negative feelings, lead to insight, promote resilience, regenerate emotional literacy, and lead to change.
5. Designers should trust their intuition and empathize with children in their design approach.

Intervention elements to define

1. Therapeutic issues and goals
2. Treatment modality: who is involved in the intervention (group, individual, child, family, therapist, etc.)
3. Materials: toys, art supplies, audio-video, smart device, etc.
4. Activity description/rundown/play pattern
5. Rationale/expected therapeutic outcomes

Respecting children's transformational stages, from

1. Engagement/assessment of therapeutic needs; to
2. Treatment of needs; to

3. Treatment closure/issue resolution/resuming emotionally balanced life.

Collaborative therapy network

Therapy does not happen in a vacuum. Support networks of people facilitate it.

- Family: parents & siblings, extended family, acquaintances
- Therapist: psychotherapist, child counsellor, social/aid worker
- Community: school, auxiliary services, community resources

Play therapy environments

In war zones

- Bought in local markets and played at home: with parents in line with cultural traditions
- In war zone schools: with teachers, carers, social workers
- In safe child centres: with social and aid workers, therapists

On the road

- In temporary shelters with parents
- In transit camps with parents
- In resettlement countries
- In refugee health clinics with trained specialists
- In community centres with trained specialists

Note that in war zones, aid and social workers, and psychotherapists are overwhelmed and lack resources.

Play Types

- *Sensorimotor*: Active/body/gross motor play/playful movements/ perception disruption
- *Manipulative*: Playful handling of objects/fine motor/construction/manipulative play
- *Creative*: Making, narrative, role play, cosplay
- *Imagination*: Imaginative/pretend/fantasy
- *Social*: Nurturing, attunement, social/friend, success & team play, competition
- *Cognitive*: Mimicry/emulation play, learning play, mastery play, chance/strategy play, collection play

Play types may overlap and combinations can be moved on a continuum between Free Play and rule-governed, skill-requiring Game Play to determine formality of play patterns.

Play pattern and toy design tactic suggestions

In the workshop brief, students were invited to consider the following guiding design principles:

Self-expression

- Encourage expression: art, music, drama, etc. to 'ex-press' intangible, repressed, tangled, complicated, negative emotions
- Create narrative, social, emotional play, messages to send out as in sharing a visual diary
- Foster recognition of self, identify/communicate core emotions
- Project self onto totems (symbolic objects representing characters, emotions, personality traits, etc.) to act out various good/bad scenarios with distance/control

Communication

- Manipulation of puppets, role play games
- Utilization of 'gifts' as wish list/hopes for better life
- Visualization/expression of past, present, future (to foster hope and perspective)

Creativity

- Create safe spaces, even imaginary (girls: homes, boys: forts)
- Create protectors/heroes to save children/loved ones, and outlet for bottled-up feelings, i.e. 'killing bad people'
- Explore family roles/dynamics, often with animals or other non-human characters, in play (alone/with family or therapists)

Activity

- Design outdoor gross-motor/body/active play as physical outlet of pent-up emotions

Product systems

- Facilitate play patterns through downloadable game patterns
- Piggyback everyday objects/activities to allow expression and communication of negative feelings
- Design feedback/questionnaires for parents & children, embed in play

patterns and toys

Available toys in War Zones

Students were referred to the types of toys easily available in war zone markets. Many of these are cheaply manufactured in China and are often counterfeits of famous brands and licenses. Students analysed toys and playset affordances to inform alterations with a view to embed subtle play therapy patterns in familiar toys.



Figure 3: Toys and playsets available in war zones. Photos McCarty.

Workshops

28 undergraduate toy design students participated in the workshop, in 14 teams of two. The project started with a project briefing from the first author and an introductory seminar by the second author on his experiences of the reality of the field and his interpretative art work. A videoconference was organized with Myra Saad in Beirut on the principles and practices of play therapy in war zones. Both authors then worked closely with students over a half-day period as they completed a series of group assignments in the studio.

To verify assimilation and spark creative contextualization of play therapy knowledge frontloaded online and in the introductory seminar, students played 'Think Pair Share' (Table 1). Each pair member pondered for a few minutes over a question before consolidating their interpretation in a provided template and sharing it with the class. Prompts included:

- List 5 PTSD symptoms and classify them along their level of severity
- Identify 5 play therapies to address each of the 5 PTSD symptoms
- Pick basic toys available from toy shops and add/transform their design to fit a play therapy pattern
- How can parents assist in play patterns?

War Toys Workshop - Think Pair Share

Prompt/Question	Tee What I thought	Gi What I thought	What we will share
List 5 PTSD symptoms and classify them along their degree of severity	① Loss of 5 senses. ② Emotional. ③ ESTEEM. ④ Fear. ⑤ Can't speak.	① Nightmare. ② Anger. ③ Lost skill (basic). ④ Healing.	① Loss of appetite / Energy. ② Anger / Worry. ③ make nightmare. ④ Loss of skill / ⑤ Survivor Guilt.
Identify play therapies to address each 5 PTSD syndrome	① Encouragement. ② Expressive Toy. ③ A toy that can learn Truth behind behavior. ④ Greater encouragement / Engagement in Play.	STEAM TOY ↳ Learn through play. ↳ make it cute. → healing. ↳ Skill.	① Social Work. ② Parent. ③ Truth behind behavior. ④ Healing effect.
Pick basic toys available from toy shops and add/transform their design to fit a play therapy pattern	① Doll → Healing. ↳ Talk, functional. ↳ STEAM. ↳ Learning through play.		① Doll - skill development. - Healing. - learn through play.
How can parents assist in play patterns?	① play with them. ② Encourage their kids to play.	④ Encourage	① Encourage. (play with them).

Pair Member names Tee & Gi

Table 1: Play to Heal Think Pair Share sheet. Tee Chiu Yu Hsuan and Gi Hsiao Yung Chih.

Following the Think Pair Share assignment, students 'playboured' in a two-step divergent-convergent creative workshop (Table 2), contextualizing theoretical therapy and play knowledge introduced in the brief and the introductory seminar on the realities of war affected children.

In *Step 1 - From assumptions to ideas* (45 mins), each team was paired with another to form a group of four students, and expanded on the Think Pair Share prompts to identify a specific trauma, define therapeutic goals, ideate multiple propositions, deploy associative creativity, form and reform patterns, identify paradigms, move to most basic assumptions, challenge these (e.g., 'is a toy an object?'), create new ideas, map, and report to group and tutors. The intense group play creative/divergent endeavour meant to open the scope for solutions, challenge assumptions on the issues to address to eliminate any sociocultural obstacle and ensure radical confrontation with these issues, and accumulate ideas before adjusting focus to select appropriate solutions.

In *Step 2 - Toy + Issue + Whack = War Toy* (60 mins), Step 1 groups split to converge on individual teams' selection of ideas, choose toys to inspire design application of concepts, and empathize with children's feelings. Students then reviewed selected toys' play patterns to propose improvements serving therapeutic goals, and reviewed and assessed ideas, in order to choose a concept to develop. Details, including symbolic meaning, play patterns, and feasibility were assessed in implementation scenarios. Students performed an elevator pitch to convince the entire group of the value of the concept, before exhibiting visuals for informal group

feedback.

Workshop step 1 - 45 mins From assumptions to ideas	Workshop step 2 - 60 mins Toy + Issue + Whack = War Toy
01. 2 teams (4 students) 02. Issue identification 03. Definition of goal 04. Throw ideas 05. Associate creativity 06. Form, reform patterns 07. Identify paradigms 08. Move to most basic assumptions 09. Challenge most basic assumptions 10. Create new ideas 11. Map ideas 12. Report to group	01. Individual teams (2 students) 02. Choose a toy 03. Empathize with child's feelings 04. Review toy play 05. Propose improvements 06. Review ideas 07. Assess 08. Choose 09. Detail assessment 10. Implementation scenarios 11. Elevator pitch 12. Convince value of concept 13. Exhibit for feedback

Table 2: In-studio 2-step creative workshop rundown brief.

Students were encouraged to refer to Von Oech's Creative Whack Pack cards (Figure 4) to inspire creative processes, and role play as an 'Explorer', an 'Artist', a 'Judge', and a 'Warrior' to benefit from lateral research, creativity, decision-making, and rationalisation tactics.

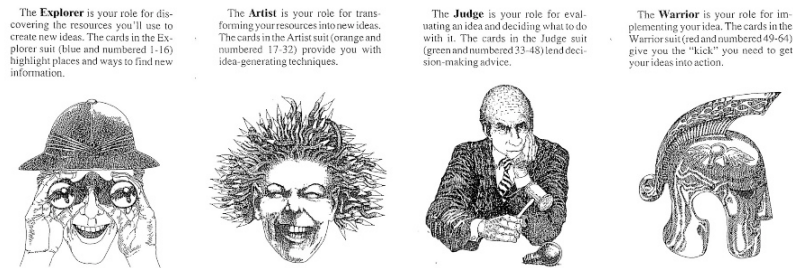
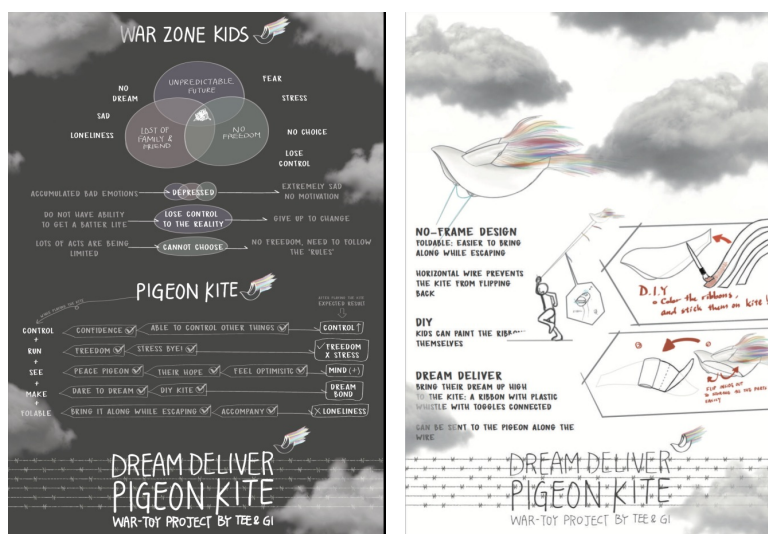


Figure 4: Creative Whack Pack introductory cards.

Among designers' most essential skills is the ability to visually map data, information, needs, concepts, or solutions as a matter of mental gymnastics, and contextualize knowledge. Prompted by the brief, introduction seminar, and Think Pair Share, students diligently mapped fundamental information and propositions in iterative steps (Figure 5). Based on facilitators' and students' comments, teams quickly harmonized conceptual work to focus on a single toy design solution supporting play therapy. Early concept development iterations were presented in stu-

[illegible]

During the 10-day period of the project, the authors facilitated informal tutorials to guide student teams' concept development and integrate interim presentation feedback from Justice Centre's therapists. At the end of the 10-day period, students presented final designs (Figure 6) to the authors and expressive therapist Myra Saad in Beirut through videoconference.



The Play to Heal project assignment was embedded in a toy design elective subject. The experiment over, students were able to focus on their main individual projects with stronger awareness of socio-emotional and developmental principles, design feasibility constraints, and how empathy nurtures creativity. Later the same year in November the first author held a supplementary round of tutorials with the students to refine concepts for presentation (Figure 7) at a public exhibition.

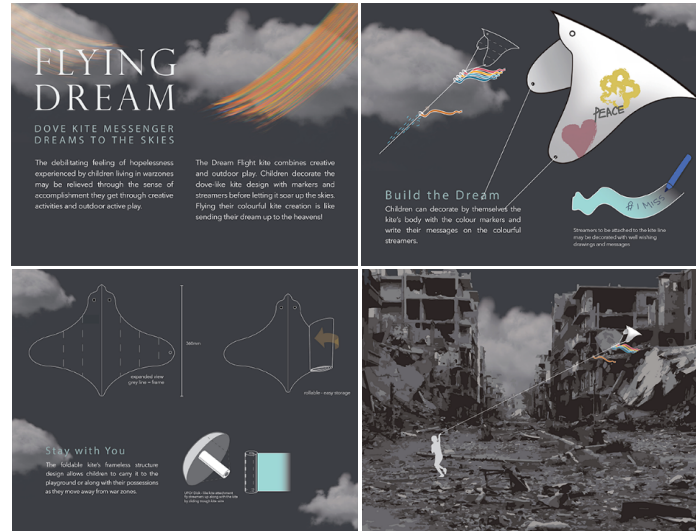


Figure 7: Exhibition presentation poster elements (Flying Dream concept). Design Tee Chiu Yu Hsuan and Gi Hsiao Yung Chih.

Outcomes

More than playthings supporting expressive play therapy

Students integrated therapeutic factors to produce 14 toy and play pattern concept designs, to positively influence and shape play patterns of war-affected children, with a view to providing solace and promoting healing. Designs were generated for possible development and production. The play types students typically deployed in their designs include:

- *Imagination play*, to project fantasies of solace and hope, and reconstruct meaning;
- *Manipulation play*, to construct objects and structures to nurture a renewed sense of control over one's environment and foster empowerment;
- *Creative play*, including arts, crafts (with several concepts upcycling found materials to complete the toys), music, and dance, so as to express feelings and ideas words cannot communicate;
- *Narrative play*, to recount, express, share, confront, and interpret traumatic experiences; and
- *Action play*, to release pent-up emotions, frustrations, and psycho-emotional blockage

Works include:

My Friend Huggy (Figure 8) is informed by Brokenleg and Brendtro's Circle of Courage model of positive youth development and promotes belonging, mastery, independence, and generosity to foster emotional resilience. The hand puppet is a friend to talk to, converse with, hug, cuddle, role-play narratives, and if a peer owns hers/his, expand the cast to play out multi-character fantasies. Playing with Huggy brings friendship, warmth, solace, comfort, safety, or spiritual sustenance; to counter loneliness, depression, fear, anger, resentment, lack of energy, and loss of interest in life. The lightweight bag-like plush fabric DIY puppet is designed so that agencies like the UNHCR can distribute Huggy flat-packed in aid boxes. Children bring Huggy to life by filling it with found materials like paper or fabric patches and play hand puppet. The puppet's secret belly pouch contains a marker pen to allow children to personalize their play companion's face and other body features. The pouch also allows children to keep personal treasures.



Figure 8: My Friend Huggy hand puppet. Design Niki Leung Mei Yin and Erica Yeung Pui Lam.

Octoplus (Figure 9) takes inspiration from the Chinese concept of 'Overcoming hardship with softness', a metaphor for adaptability and resilience in the face of adversity, and Octopi, which are highly intelligent masters of change and adaption. The character's amenable, fun persona makes it a friendly, enjoyable companion to play with. The toy materials' flexible and elastic features highlight Octoplus's versatile character, exemplifying its ability to adapt to different environment situations. The pocket toy allows children to carry it with them, release tension through active and character play, and adopt a positive attitude in order to adapt to new contexts.

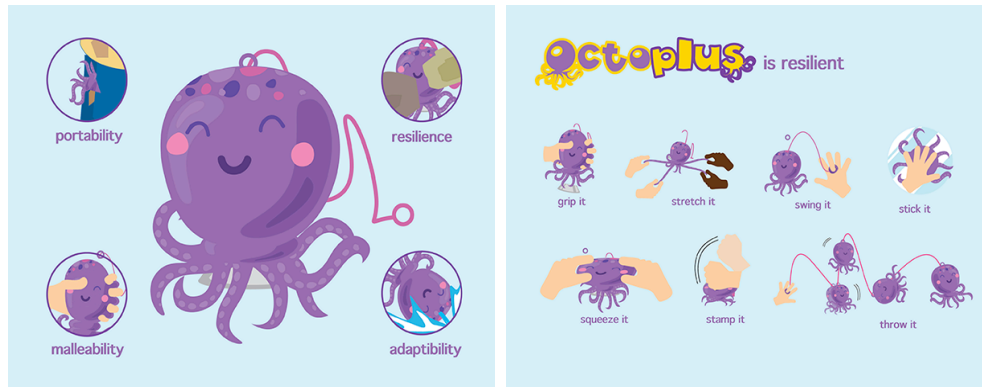


Figure 9: Octoplus bouncy pocket pal. Design Jackie Lee Chun Kit & Wong Ruohi.

Heart Share Family dolls (Figure 10). Children who are separated from or have lost their families can use the dolls to come up with stories, recall memories, and rewrite their history to express their feelings and work through their grief. A loving family can bring hope to the child that times can be better than the present moment. The dolls come in a variety of looks based on religious clothing and different skin tones. Children choose that which they relate to, adding comfort in having a companion who is like them. Mouths are adjustable to mirror the child's feelings or act them in the stories played out. A secret pouch in the tummy keeps heart-shaped gems to share with loved ones or holds treasured items. Hearts representing love remind the child that it exists. As they project their heart on that of the doll's, sharing it and expressing gratitude creates a physical and emotional connection between them and those they trust.

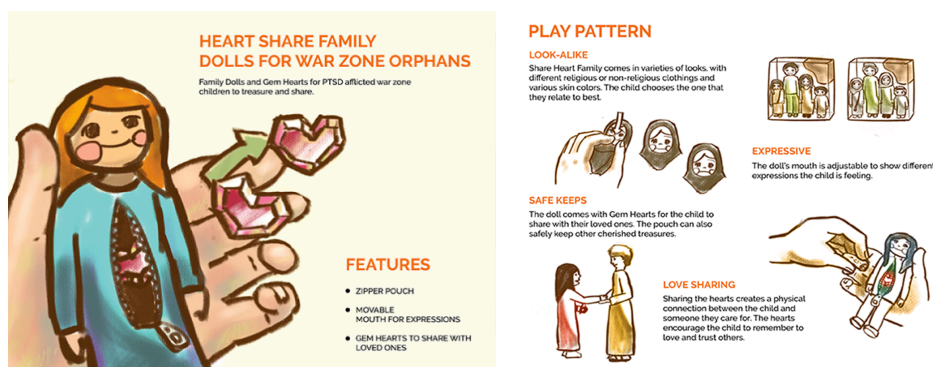


Figure 10: Heart Share Family dolls. Design Cindy Chan Ho Yee and Shana Farkas.

Feedback from experts in the field

The expressive therapists involved in the project were overwhelmingly positive and complimentary about the toy and play pattern concept designs. They noted that while the students did not have direct experience of war, they were able to empathize with war-traumatized children and fully utilize the information given to them. They found the designs thoughtful and appropriate for children exposed to traumatic events, as these could help to reduce the detrimental effects of war through providing solace, promoting resilience and building supportive social relations, all of which are important for reducing the risk of PTSD or increasing the likelihood of coping and recovering from PTSD.

5. Discussion

Implications for design research and exploration

This project was part of PolyPlay's STEAM and social/civic education research through design initiative – a focus of design interest which researches the appropriateness of deploying play's whimsy and design in the development of curricula and learning aid product-service systems to supplement education of critical social issues, including environmental, equality, health, and identity.

Investigating the mutually beneficial relationships between design, play, and education, its research through design practice is anchored in the exploration of conventions of play and interactivity, and draws on traditional and contemporary objects and technology to develop experimental product-service systems for evaluation and development. This approach harnessed: 1) the design school studio as a purposeful creative environment to generate pertinent solutions in response to a politically-sensitive brief, and 2) how the inherent whimsy, humour, poetry, and nonsense of play serves as an appropriate medium to advocate social issues with a network of NGOs and institutions.

Neither design method nor art movement, critical design “uses speculative design proposals to challenge assumptions, preconceptions and givens about the role products play in everyday life, mainly to make us think. But also raising awareness, exposing assumptions, provoking action, sparking debate, even entertaining in an intellectual sort of way, like literature or film.” (Dunne 1999). This experimental research through design project (Frayling 1993) produced knowledge on the field for further practice and reflection discourse on the value of design.

Design content analysis generated further knowledge for toy design educa-

tion and speculative social design. Toy design, as it artfully plays with semantics, metaphors, interactions, and meaning, reimagines everyday life, and hence lends itself easily to speculative practice. Yet apparently free of constraints, and playfully creative, toy design is not art. It is however the closest one gets to art while retaining its feet firmly planted on design ground, as its artefacts fulfil needs and support life functions.

The exhibition staged in November 2017 at the Hong Kong Polytechnic University showcased the toy designs from this project. The selection of proposals demonstrated the value of the approach to produce creative, imaginative, narrative, poetic, active, and social object play patterns designed to support psycho-emotional healing. Presentations described how these could be adopted by children for individual or group play and healing or deployed in controlled therapeutic venues. The design posters were displayed alongside the second author's WAR-TOYS project photographic work. The project invokes principles and practices of expressive art therapy to safely gather and articulate children's unheard accounts of war. Drawings produced by children in interviews guide the art direction for his photographs of locally found toys (Figure 11), recreating their experiences through a deconstructive, playful filter, and were presented alongside the photographs they inspired.



Figure 11: Drawing produced by a child in an art therapy interview and artistic photographic interpretation. Photo McCarty.

The juxtaposed display of toy design concepts, children's drawings, and photos (Figure 12) presented visitors a multi-perspective account of the plight of children with PTSD in war zones, its expression, its artistic interpretation, and response to as a design solution. This offers a novel platform for the appreciation of war's psychosocial effects on children, while opening new perspectives for innova-

tive therapies.



Figure 12: War & Toys exhibition poster and setup. Photo Catherine Fung.

Implications for design education and practice

Working with students removed from the realities of war presented some challenges, particularly in conveying the extent of limited resources available to children in conflict areas. However, students were able to process and use the information given to them, gathered from experiences of expressive therapists in the field and the authors, demonstrating design's capacity to contextualize information and quickly propose appropriate solutions in response to sensitive, complex issues. Using empathy as the basis for their designs and accepting the limitations and requirements of these harsh play environments, all students produced work that was appropriate for the target audience. Effective design is always based in empathy – understanding users – taking it to extreme situations to address special, complex needs will only produce more empathetic students and overall better designers.

Based upon the results of this brief pilot program, we foresee the benefits of a longer course specifically designed to challenge students to design for children with special needs, whether they are affected by war or other factors.

6. Conclusion

"The toy industry embraces in industry and whimsicality the best of all crafts combined", suggested toy historian Léo Claretie in 1893. In the broader context of design education, practice, experimentation, and research, toy design should be appreciated as means to an end, enriching broader curricula with an optimal way of knowing, applicable to social product-service system (PSS) design. An integration of toy design processes encompasses: 1) An empathetic approach to user-(as-

player)-centred sociology (cultural trends) and psychology (individual development and behaviour); 2) Superlative creativity and invention; 3) Know-how in a broad scope of technological processes, including materials, mechatronics, interaction, and manufacturing; 5) Semantic and affordance literacy; 6) Creative trans-media communication; and 7) Awareness of the implications of globalized markets.

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