

Closing the Loop in Design Education: Surviving Disruption in A Digital World

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Abstract

Creative problem-solving, agile and analytical thinking, collaboration and empathy have become essential 21st-century skills required in the current workforce. The upheaval of a global pandemic has accelerated the need to adapt to the changes and disruptions society is facing. The role of future designers is not just to design for the world to be understood better but also to redesign tools and systems that are now obsolete and also to undesign and redesign these systems that no longer facilitate everyday life. Navigating through new paradigms and the ‘new normal today and examining issues that are closer to us, as such it becomes critical to negotiate proximities from different angles. Through the proposed framework of ‘design with’ and ‘design for’ social innovation, healthcare, circularity and participatory, this study seeks to negotiate to shift proximities with collaborators, participants, artefacts, systems, communities and places. In this paper, increased proximity leads to agency and behaviour change in learning/design making. The case studies draw on the complexities and varied social and environmental challenges in design learning and making. The insights presented will suggest how we can close the proximity as researchers, designers and citizens. The projects presented come from multidisciplinary, multi-lens, hybrid modes, IT-enabled, post-covid world, and how patterns of design processes come together and the eventual design frameworks used can help determine what methods we engage with for future projects.

Keywords: Multidisciplinary, Proximity, Learning Tools, Collaboration

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Introduction

Being able to work remotely is the new normal for businesses and employers today. The global pandemic in 2019 has shifted the way we work as well as the way we live. The term ‘flexible workspace’ allows different forms of mobile offices or on-demand meeting rooms. Employees adjusted their workspace setting according to their own needs and demands that come from their individual work commitments. However, not every industry can afford to ‘work from home’ such as health care and food companies. With that said, we see the advent of more industries that welcome this flexibility such as Technology driven companies like Meta or e-commerce giants like Amazon, LAZADA, and even traditional advertising companies that encouraged employees to work from home. Adding on to this, the production methods to create content, and conduct business and marketing communications have drastically been adjusted to online platforms, using digital tools like Zoom, Slack or Microsoft Teams. (Ministry of Manpower, 2021) With that said, the design education sector quickly adopted hybrid learning methods and pedagogies and embedded them into the curriculum in order to prepare students to be ready for future employment and abilities against the difficult landscape of the ongoing pandemic.

The pandemic felt like a reset with more streamlined logistics or processes. Businesses are responding through more efficient models and strategies that democratise access to sustainable education and lifestyles, paving the way to scale up ecological solutions. This has become intrinsically connected with consumers constructing sustainable actions and taking up more time with their mental health (Buzasi, 2021) The now purpose-driven consumer is empowered to transform negative emotions related to climate change into hope and action, making efforts to adjust their lifestyle to minimise their negative impact. These changes are evident as we see vast expressions of this on social media. Since everyone has been spending a lot more time at home, the removal concept of distance that was once about the commute, location and time has shifted. Proximity evolved as a concept, given the current pandemic regulations in the office space, conceded distance to have a different meaning (Boland, 2020).

An example was how international travel took a standstill and workflows have been reduced to having more meetings online as well as spending more time connecting to each other digitally. This also meant that we turned to local communities, to build and grow more local resources, and partake in activities that give us an excuse to breathe in the fresh air. One such example is when the ‘work from home’ mandate came into effect during the lockdown period. While work needs to continue, various methods of gathering data, having meetings and such were conducted in virtual spaces such as Zoom, Miro, Google Space, Kahoot, etc. While they are platforms driven by technology, it also changes the way we use our tools to co-create or collaborate. (Stepanov, 2021) Therefore, Proximity, which may seem like a barrier in the past, provided an opportunity for us to scrutinize what we have locally, drawing us closer to establishing a new human connection, to seek for a different type of collaborative work within a shorter distance and to become closer to a pool of local resources.

Empathy starts at home

For anyone that is based in Singapore, the location and geographical position, the multicultural environment as well as diversity are important considerations of what our students need to know in order to factor relevance into their ideation processes and project deliverables. Design education in Singapore focused on being a part of the international design industry, investing a lot in creating opportunities for students to work on a broader and

global scale. As a strategy, student projects in the Faculty of Design have always demonstrated the importance of cultural diversity, and relevance to topical issues with global currency through their projects' deliverables.

International partnerships, project collaboration and field trips were part of the out-of-class learning that drives softer skills like self-directed learning, picking up a more professional role in translating areas of interest, exploring through complementary research to identify and clearly articulate anticipated design challenges and building a strong portfolio of work. Opportunities to travel or engage with international counterparts empower the development and design processes. With that said, the upheaval of a global pandemic catapulted us to look more closely at our local environment, to both celebrate our own successes and also examine issues that Singaporean designers can focus on and help to solve.

We believe that Design serves as a new agent of literacy and a way of thinking about the 'new normal' that we are experiencing. It is when Design can trigger meaningful change, then it is the most exciting and impactful. (Interaction Design Foundation, 2022) As educators, our role has always been to equip our students with that literacy. It will be their greatest asset not only in the present pandemic but well into the future, no matter what path they pursue.

As we educate the global designers of tomorrow, they should be nimble, creative and inquisitive to solve problems and respond to emerging design issues, dig below the surface for interesting questions and their probable answers. Their work should create impacts of creation despite the erosion of proximity to social and cultural interactions, to lived experiences, to nature, to production, to knowledge experienced online or offline. This paper studies how increased proximity leads to agency and behaviour change and in what forms does this take place in design education? How can this framework be applied to project collaborations that blend online and offline modes of communication through interdisciplinary work?

The objective of paper

Design is ready to contend with societal challenges in that while many complex problems are approached from a technological/technocratic perspective, much of the complexity in today's problems stems from the human domain. Design is a natural bridge to consider contexts and agendas for today's complex challenges (Dorst, 2019).

To generate creative solutions to complex problems that involve multiple stakeholders. One of the defining characteristics of design thinking is the ability to work in cross-functional teams. The challenges that design has to tackle are referred to by scholars like Rittel and Webber as "wicked problems". These are problems that are very difficult to formulate, they do not have right or wrong solutions, they do not have a logical end and are often symptoms of other problems. (Rittel & Webber, 1973) Interdisciplinary, collaborative teamwork shows promise in taming such wicked problems because it advocates taking a systems view which can lead to more holistic solutions.

The cultural shift from "me" to "we" is extending not only to brands and organisations but also continues to transcend to people, places, social environments and such. As reported in the Advertising industry magazine, we see more Millennials taking opportunities to work not only in the areas they want but also in a style they want, by sourcing numerous income

streams that utilise their skills, talents and interests. (Al-Zaidy, 2019) Whether it is in Advertising, Art management or Filmmaking, it will always be a collaborative endeavour. Hence, demonstrating that change requires a collaborative effort. Such multi-hyphenated roles have become common today and designers are often entrusted with increasingly complex challenges. The paper seeks to question what are the tools, methods and materials that can support design researchers in their negotiation of proximities in a project. Although travel today has opened up, how can we maintain the ‘glocal¹’ nature of collaborative and participatory design research to continue to exist both online and ‘in the field’? The paper aims to break down the concept of proximity. It will collate the ideas of ‘Open Design’ in order to put forward a proposition for more collaborative and co-creation work to happen between designers and non-designers. Upon this, the review via case studies of past projects to discover commonalities and question how can these inquiries shape the way we think and work in the future.

Literature Review

Much effort has been applied to develop the converging areas of science, engineering, research and innovation. As well as there have been many contributions to interdisciplinary research that focused on barriers to such collaborations and strategies for overcoming these. We want design students to always look at articulations across borders as a common social awareness. The arts and creative industry need to stimulate new paradigms and play a more substantial role in providing vehicles of change. Therefore, design education has to play a transformative role in society. Proximity is crucial to overcoming barriers against interdisciplinarity, (Rekers and Hansen, 2014) given the integration opportunities and innovation, art and design can play a steering role to bring about a new facet to the creative ecosystem. Co-design and co-creation have established a pattern of the design process with designers playing a vital role in facilitating the conversations and discussions to design not just for an individual need but for a community need (Huppatz, 2020, p104).

The WGSN white paper titled “Create Better: innovating towards a sustainable future report 2021” provides insight for businesses and communities to take on vast opportunities that may arise post-pandemic and be certain of risks involved to shift the dichotomies of sustainable practices. The report serves as a toolkit for design industries to thrive in times of transition. Outlining the six pillars at the heart of responsible product development, such as sourcing, design, manufacturing, distribution, consumption and post-consumption. One of the key insights was how the pandemic has increased awareness of the fragility of the globalised system and accelerated a shift in preferences from global and centralised, to local and decentralised. (Buzasi, 2021) Steadily colliding with our concepts of proximity, this also means looking inwards to local communities and sourcing materials internally or thinking about sustainable practices in alignment with local produce or local artisans.

Naohiro Matsumura has a design method called ‘Shikake’, the Japanese Art of shaping behaviour through design. It was conceived to address and tackle challenges in our homes, our public spaces, and our social interactions through the use of design. For example, how we encourage students to take on design-led approaches that exert influence on us through subtle nudging, rather than direct command. (Matsumura, 2021) This system of thought encourages a particular behaviour without telling its users the primary purpose. Some of Matsumura’s

¹ Glocal - of or relating to the interconnection of global and local issues, factors, etc.: a glocal conference on community development. (Dictionary.com)

examples are symbols of movement in-store to guide shoppers and keep users socially distant; a basketball hoop placed over a trash can to encourage children to tidy up their rooms, or a staircase painted to look like piano keys prompting exercise for better motor skills through play (Matsumura, 2021).

An online article written by Dr McLeod explained that the Zone of Proximal Development (ZPD) was a key construct in Lev Vygotsky’s theory of learning and development. Cohesively with collaboration work, as defined by Vygotsky (1978) as “*the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers*” (Vygotsky, 1978, p. 86). ZPD is the space between what a learner can do without assistance and what a learner can do with adult guidance or in collaboration with more capable peers (McLeod, 2019). This succinctly ties in with how this ‘assistance’ is provided by scaffolding, supportive activities provided by the educator, or a more competent peer. Although Scaffolding introduced by Wood, Bruner and Ross (1976), consists of the activities provided by the educator, or a more competent peer during group work, to support the student as he or she is led through the zone of proximal development (McLeod, 2019).

Research Questions

What role do designers, individuals and communities play in driving adaptation? This question looks outside of systematic, top-down solutions and how disruptive situations set constraints for creative solutions. What do holistic and inclusive approaches look like and how effective/scalable could be? This will enable the examination of projects through interdisciplinary design and find ways to empower learning. Hence, how does the need for adaptation impact design and the role of designers?

Proposed Framework

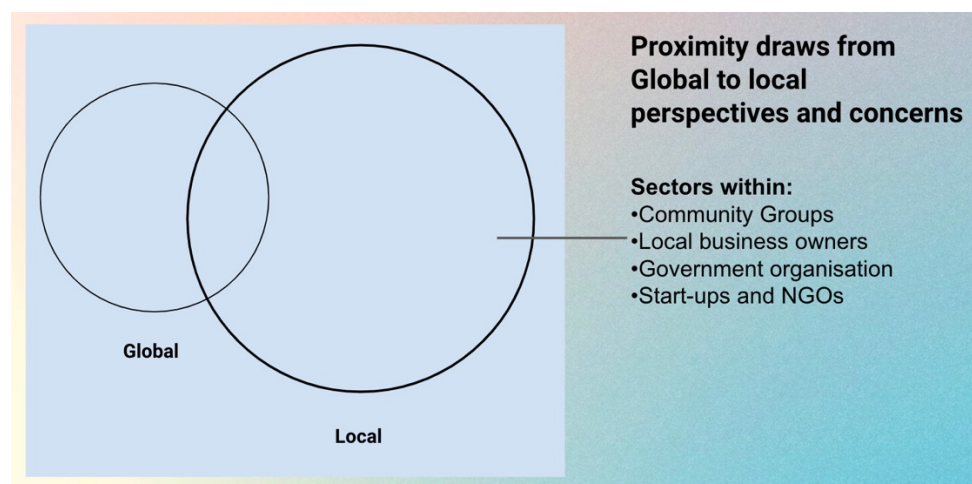


Figure 1: local and global perspectives

Inspired and borrowed from the Gestalt Principles of Proximity, the framework (Figure 1) identifies with the idea of students working in groups to collaborate and co-create the briefs. The methodology also engages with the idea of proximity from global perspectives to local concerns. It is evident from case studies that design problems are non-design and design sectors. These design-related sectors were introduced for students to uncover possible

social/cultural issues that occur in settings that are relevant to the current context. This can be achieved through visual research, news trending, pertinent social and cultural issues, etc. (See Figure 2)

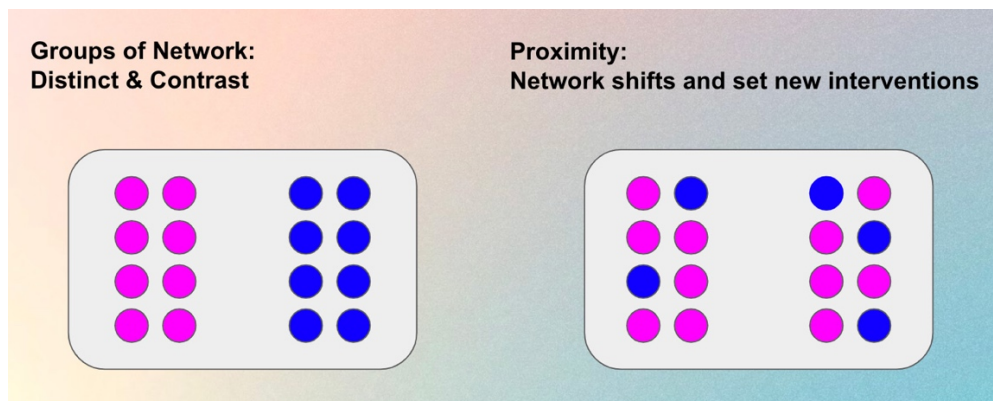


Figure 2: Proximity - new networks

This category sets a criteria list, acting as thematic provocations that can be used to set the tone and objective of the project brief.

<p>From a social innovation perspective: What does the proximity of citizens to their own systems of living mean for the design of our cities?</p> <p>Example: How user knowledge from communities empowers urban spaces.</p>	<p>From a design futures perspective: How might proximity be used to enquire knowledge about technologies that empower innovative encounters?</p> <p>Example: How does medical technology impacts patients' medical experience</p>	<p>From a circularity perspective: How might the proximity of design researchers, brands and citizens to supply chains (and their varied socio-material actors impact) affect their experiences, behaviours and decisions?</p> <p>Example: How alignment of systematic processes reduces digital footprints.</p>
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Table 1: Criteria list

The Project Brief

How can tools, methods and materials support design researchers in their negotiation of proximities in a project, given the 'glocal' nature of collaborative and participatory design research, both online and 'in the field'? Therefore, the research explores 'proximities' from two perspectives:

- Methodological enquiry:** we welcome papers from researchers dealing with how to negotiate to shift proximities to collaborators, participants, artefacts, communities and places. What are the challenges and the possible tools, methods and approaches to negotiating (cultural, geographical, disciplinary, linguistic) distance? What is ethical, fair and equitable practice?

- **Outcome-oriented / theoretical inquiry:** we welcome papers which deal with the impacts of creation and/or erosion of proximity to social and cultural interactions, lived experiences, nature, production (supply chains), knowledge (online/in person) and so on. Can increased proximity lead to agency and behaviour change and in what forms does this take place?

We want to develop a cross-cultural experience that fosters collaboration with students and the wider community while converging different design practices:

- An invaluable experience of exchange with participants from different backgrounds and different disciplines
- An opportunity to test theory into practice – real-world experiences that form an important aspect of transferable skills for future careers
- A reflective learning experience that builds a meaningful discourse
- A disruptive learning – breaking down siloed design practices

Guideline for students to use during the creative process

a) Learning experience	b) Acceptable evidence	c) Findings& insights
Online methods: - readings and fact finding - insights analysis	Physical in-situ methods: - talking to artisans - conducting photo ethnography against environmental factors	Phygital methods: - create their own process and ways of working - combination of online and offline methods
Research and gathering Processes: • Gathering information and visual research • Evidence & projects case studies • Data	Field work & understanding audience: • Fieldwork and meeting with actual audience • Site specific assignments	Design Making and iterations: • Inquiry, provocations, systems design and visual responses

Table 2: Guideline

Methods: Case Studies (the idea of Proximity)

Proximity can mean the re-consideration of the social spaces around us. Where we can re-evaluate our surroundings to focus on engaging the local communities and yet, connect through technology and possibly other methods such as craft materials or artisans when necessary. What we mean by this examination is how Singapore used the term during the pandemic, ‘Social distance’, whereby we always have to keep 1 metre apart but still be able to continue to communicate and interact every day. This concept seems to represent an oxymoron, then how can there be distance if what characterizes socialising is the proximity between individuals, and generally living, eating, and working together?

While we collate projects and provide examples to provide a broader perspective of the multi-faceted conjures that defy proximity to deliver positive results and impacts. Some areas of interest presented in Singapore’s context, as well as students’ projects:

Areas of interest: as suggested to students

Subject Areas	Example:
<p>Eldercare (Ageing Population)</p> <ul style="list-style-type: none"> • Vulnerable groups • Accessible Health Care • Lifelong Learning • Public Spaces (Infrastructure) 	<ul style="list-style-type: none"> - Age-friendly cities using Kampung Admiralty (KA) (a pioneering project of integrated housing cum community for the ageing population) - Technology learning, higher learning without having to sit for exams (Skills Future)
<p>Early Childhood</p> <ul style="list-style-type: none"> • Childcare • Pre-school and foundational years that requires hands-on learning and experience 	<ul style="list-style-type: none"> - ‘Proximity of Care’ Framework - Early Interventions centre and special needs - Reggio Emilia Inspired Inquiry-based Curriculum for some pre-schools in Singapore
<p>Sustainable Practices:</p> <ul style="list-style-type: none"> • Vertical Farming: growing own vegetables, due to border closures, and encourage self reliance • National Parks: extending urban spaces to be more inclusive • Upcycling: Sustainable practices for Generation Z. 	<ul style="list-style-type: none"> - Converting carparks into rooftop farming: Comcorp Singapore - Gardens for Special Needs children - Sustainable Properties in a Green city and thriving stores like Stakeout/Loop Garms

Table 3: Areas of interest

Student Projects: Case study

Created by Gracia Goh in 2021

Not-So-Public Public: Not-So-Public Public is a provocative design project that challenges the politicisation of public space planning in Singapore by highlighting the Singaporean's predominant role as consumer over citizen in society (Goh, 2021).

Created by Png Jun Kiat in 2020

Of Food, Sweat and Tears: A Celebration of Singapore's Hawker Culture: the celebration of Singapore's Hawker Culture using Human-Centered Design as an alternative approach to Promote the Preservation of the Intangible Cultural Heritage (Png, 2020).

The examples above are projects that came about during the pandemic. The stakeholders involved were connected through either technology while there were restrictions within the city. The projects continue to largely focus on the needs of the local community, which once relied upon outsourcing, imports, etc. Our design students are now looking inward within the communities to realise some of these avenues that need to be addressed, international students are providing fresh perspectives to these design-related issues and begin to celebrate the intricacies of what resources have been neglected and can be found internally.

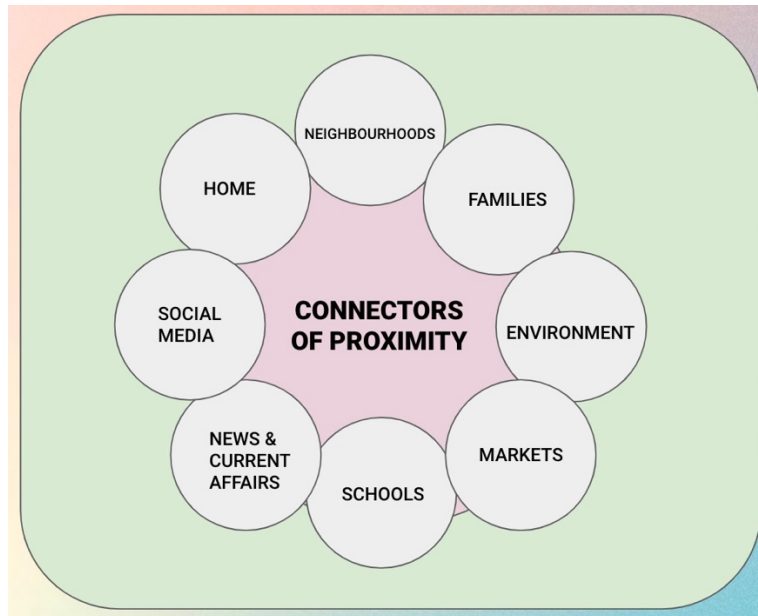


Figure 3: Concepts for Mapping

Figure 3 explains the concepts for mapping. Students to discover what are the tools, methods and materials that can support design researchers in their negotiation of proximities in a project.

Pedagogical changes are when the tutors or educators have to quickly adapt to the given restrictions and accelerated changes. Does the usual design output use a lot more digitally-enhanced methodology and technology? (Consider the experience via manifesto videos, digital publications instead of printed matter, etc.) We have to consider what our role is in the project. (How can we continue to be effective facilitators or being to be peer learners - learning side by side?) Do we act on behalf of the designer, and find different modes of contributions to design? (Group presentation in Zoom, Telegram for group work and collaboration, etc.)

Does this mean that accessibility can be the way to move forward? Accessibility can also refer to a citizen's ability to attain basic services such as health care, education, employment or information or to participate in community or cultural events. In the concept of social design, inclusivity is always a key consideration when designing things of probable solutions. This act of thinking also means that through community cooperatives pivoting to the front, citizens and designers likewise are empowered to identify local issues and generate solutions based on local knowledge.

A key project looks into reviving community spirit in the Singapore Housing void decks through playful and functional design. "Just Let Us Live Lah" is a series of installations created by BA (Hons) Product Design graduand, Evan Tan (Bay, 2021). His project fosters awareness and understanding among residents about Singapore's stay cat population. Many cats live in communal spaces such as void decks and through his designs of a resting stool, a scratching post and a food station, he hopes to raise community spirit and demonstrate how animals and humans can coexist. The positive outcomes of this type of development when combined with appropriate collaboration and follow-up, include greater citizen participation and support.

Conclusion: The ‘glocal’ nature of collaborative and participatory design research exists both online and ‘in the field’

What is the hidden value of Proximity? Given the current pandemic and social distance rules, travel restrictions as well as not being able to leave the house, how have these restrictions provided a different perspective of gathering data (such as open call brief, call for collaborators internationally, etc.) learning, teaching and making? With that said, how can we empower our students to look inward but with an outward view? How can we provide opportunities to scrutinize the locals and form closer links with our immediate sources? As Singapore is not known for having its own natural resources, our imports always come from our neighbouring countries such as Malaysia, Indonesia and Thailand. Based on the thought that Southeast Asia countries have the same root of art, culture and heritage, one example was a project to seek collaborators across South East Asia. Neighbour Programme: The Mixture of Southeast Asian Visual Culture (Wijaya, 2014) was initiated in 2010 by three institutions from Southeast Asia: Singapore, Malaysia, and Thailand; then Indonesia joined them a year later in 2011. These institutions, which specialise in art and design, decided to develop a project about the cultural exchange that aimed to reconnect art and design in the form of dialogue and research as practice. Through this platform, Students as well as design educators are taught by producing design artefacts presented in exhibitions.

During the pandemic, a Design Communication alumni Chua Jia Xiang crucially established the role of design in the fight against Covid 19. Chua is a Senior Service Designer in the Kaizen Office at Tan Tock Seng Hospital (TTSH). With the COVID-19 outbreak, frontline healthcare personnel were wearing personal protective equipment for longer periods than ever. The team saw a lot of photos where doctors and nurses had a lot of marks on their faces due to prolonged usage. This gained media coverage across Singapore, likewise across international media. Chua and his team spoke to ground staff to find out about their needs and their working environment. This paved the working relationship between healthcare professionals and how they can work together with designers to turn ideas and concepts into prototypes (Lasalle, 2020).

The innovation was based on an old prototype of a face shield used during the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003. The team spent two weeks — and over a hundred iterations — to come up with a new design to create something that would be comfortable, safe and easy to wear and remove, as well as cost-effective to produce. The face shields have completed the first phase of user acceptance testing, and are already being rolled out in mass production for use at TTSH in 2020 (Lasalle, 2020).

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