

Hong Kong Toy Design Lab

Shaping the Toys to Come - from the World's Production Hotbed

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About the author:

Rémi Leclerc has lived in Asia, Africa, USA and Europe. His exposures to diverse cultures and his understanding of the representations of these cultures invigorate his designs. His work is anchored in his exploration of different notions of play and the conventions of interactivity, and he draws on the characteristics of both traditional and contemporary play objects to develop prospective children's environments, educational kits and products.

His research focuses on toy design, play, education and issues of social awareness. Since his graduation from Les Ateliers ENSCI in Paris, he has explored extensively the union of design with play and social responsibility, in Paris, New York and Hong Kong. Rémi currently lives and works in Hong Kong where he is a Lecturer in the School of Design at the Hong Kong Polytechnic University, and runs its Toy Design Lab.

Abstract:

Hong Kong is widely perceived as the world's toy capital. In the past decade, its toy industry has outgrown its role as the world's flexible provider of cheap toys known under the label of 'Made in Hong Kong' to become a global generator of play products.

In this context, the School of Design's Toy Design Lab of the Hong Kong Polytechnic University undertakes education, research and development programmes, helping to foster a culture of creativity that embraces innovation, design and engineering, initiating research and product development programmes with academic, industry, and institutional partners, to design innovative playthings for local and international children markets.

Aware of changing global market realities, the Lab is concerned with studying the future of the materiality of play from a critical perspective. This paper relates educational research and development experiences in academia and industry carried out by the Lab over the past 5 years, and its relevance to toy design business in the South China region.

Keywords

Toy design education

Toy research

Design for entertainment and education

Design for leisure and recreation

1. Introduction: changing perceptions - from 'Made in Hong Kong' to 'Designed in Hong Kong'

Hong Kong (HK) and China's Guangdong province are where leading toy brands set up design, sourcing, and marketing offices; where toy business stakeholders converge to negotiate business deals, review product line development, plan and control production quality, source components and samples, test products for safety, and sell and buy new products.

As the industry attempts to shift from a predominantly OEM (Original Equipment Manufacturing) or ODM (Original Design Manufacturing) business model, whereby it hardly controls product output, to more profitable, albeit a more remote dream, OBM (Original Brand Manufacturing), and necessarily, OSM (Original Strategic Manufacturing) models, whereby its companies could control the market, it is turning to academia to develop means to 'inspire' innovation from within its ranks of managers.

Thus HK has staked its place on the creative toy design map, and the Region's effervescent cultural dynamism, a unique blend of East Asian, European and American cultural influences (Ngai and Turner, 1995), has now come of age and is exporting creative talent to economies across the world, generating among other outputs entertainment product concepts and designs for children.

HK designers are ideally positioned to explore the novel cultural horizons such an opportunity presents to them - the stuff play is made of - brought about by the changing market landscape, while bearing contemporary relevance to their own cultural fabric.

The School of Design (SD) of Hong Kong Polytechnic University (PolyU) is HK's sole provider of toy design education at tertiary level and trains students immersed in HK's unique cultural system. As part of SD, the Toy Design Lab aims at helping HK toy companies maintain and consolidate their current position as the world's leading exporters of toys from HK and China, produced in the factories they solely own or run through joint-ventures in China. The Lab's goal is to foster from within HK a culture of creativity that embraces innovation, design and engineering.

The Lab aims to:

1. Act as a resource centre for play design students and practitioners
2. Support academic research in the fields of play culture and play product design

3. Foster best practices for the development of sustainable entertainment, education, leisure and recreation product design solutions for the industry
4. Showcase SD's ability to generate professional creative play design presentations

The development of the toy manufacturing industry has been steered by engineering and marketing, disciplines which provide managers with the promise of certainty. Now, design's ability to plan for uncertainty is suggested as a more appropriate discipline for long term strategic development in an ever changing business context. The Lab works with manufacturers to foster a business culture that sees design as a fundamental management practice contributing to the successful development of a business; and proposes it integrates a practice that is not limited to product development and should be the basis for best corporate strategic development practices.

The author has worked in the play industry for over 15 years, in HK and in the US, and has frequent contact with local play design practitioners, manufacturing and marketing company managers, product developers and production managers. The following is an account of professional industry and academic practice in the fields of education, entertainment, and leisure product development. Informal meetings with Toy Manufacturers' Association of Hong Kong (TMHK) leading members, SME managers, and model makers helped provide insight on the current issues the industry is facing.

2. Hong Kong toy industry strategies for innovation: the OEM>ODM>OBM>OSM conundrum

2.1 Current development practice mainstay

The competitive nature of the toy business makes it difficult to formally interview companies directly about their design innovation strategies. The following relates comments voiced to the author throughout the past 10 years from various industry stakeholders.

Design innovation practices in transnational marketing companies

According to informal interviews with designers from subsidiaries of U.S. OBM/OSM companies, toy designers do occasionally meet in groups in their headquarters to brainstorm toy concepts while collating background information in the form of visual boards. These companies also rely on toy inventors and design consultant firms. Focus groups may be used, for two main purposes:

One, for marketing tests to be conducted with children playing with prototypes, to assess appropriateness of designs, i.e. play value and popularity, before investments are approved by management for expensive manufacturing tooling plans.

Two, for beta-testing a toy before design details are finalised.

Design innovation practices in local product development and manufacturing companies

Though creative meetings are more and more organized in the larger companies, OEM/ODM company strategic manufacturing and design decisions often rely on the opinions of foreign marketing and sales, as well as local managers' appreciation of fashion trends.

Apparently the widespread culture of toy inventors does not seem to be shared by local HK companies, an indication of their need to control everything in-house.

Also, little consideration is given to child development theory, an indication of the different perspectives on child development in a trans-cultural export business context.

Finally, the seasonal nature of the industry (buyers require novelty for every Christmas) leaves little time for local design teams to effectively use the growing array of design research methodologies. Design research is more often limited to internet browsing.

2.2 The future of Hong Kong manufacturing for play: turning a (container cargo) ship around

"Name a global [toy] brand that is Chinese." "Can't do it? Here's why" Time magazine sardonically muses on the cover of its July 27, 2009 issue. Are *you* familiar with these Brands: Wah Shing Toys Company, or Crown Ace Ring Toys? Most likely not - then again you would not - despite employing tens of thousands of workers and shipping millions of products to every continent in the world, these companies are hardly mentioned outside their business context. Both are among the world's biggest OEM and strategically positioning themselves in the ODM operating business model, pitching concepts and products developed internally to their international brand clients, for whom they may also be supplying development and manufacturing services.

Initially established as a means to define business operation modes and differentiate companies' quantitative output from qualitative, a change in this system is appreciated as a qualitative evolution following hierarchical value-creation modes of operation, from product development and manufacturing to strategies creating new value and markets.

One could summarize the system as follows:

Servicing product development and manufacturing:

OEM: *I Know How* (to develop and manufacture Equipment designed by marketing companies)

ODM: *I Can Do* (Design models to sell to marketing companies in different markets)

Creating new market and value:

OBM: *I Sign* (my products with my Brand)

OSM: *I Stay* (in the market thanks to my Strategies, and ward off threats from competition)

3. Challenges to integrating design thinking in corporate strategy

With designs submitted by clients, one can appreciate why OEM companies do not see conducting product marketing research as necessary. However, the industry is intent on moving up the value chain: more and more OEM companies are opening subsidiaries for ODM/OBM development. Unsurprisingly, many face limitations, be they internal or external. 'M', i.e. HK Management, specializes in the ability to conduct operational processes: HK 'Knows How' and 'Can Do'. Rather, 'O', i.e. 'Original' appears to be problematic, as HK has yet to spell a brand it can 'Sign', or with which it needs to 'Stay'. Several issues may be considered for an explanation of this conundrum. Reflecting the transient nature of the territory, the local toy manufacturing industry appears to be constantly undergoing changes, for historical, cultural, and structural economic reasons.

3.1 External perceptions

'Designed in HK' is in the process of replacing 'Made in HK' - local manufacturers are just starting to get to grips with design as a core engine for development.

The challenge of the switch is multiple: HK-owned manufacturing companies face external expectations, a consequence of the 'What you want, we can do' slogan of HK's 60s manufacturing 'golden age'. Little surprise then buyers do not perceive HK as a place where design is flourishing, even less where design creativity is nurtured. With most political and economical decisions made elsewhere, HK's cultural identity is at best an elusive topic. An export-driven market mainly shaped by Western and Japanese contemporary pop culture, HK's industry hardly ever designs for its own local consumer market. Producing designs for international brands the headquarters of which can be found in Los Angeles, New York, Tokyo, Nuremberg or Paris (but could nevertheless have been designed in development offices in Hong Kong), HK has difficulty shaking off the 'workshop of the world' label, which, though in reality it applies now to Dongguan on the

other side of the border in the mainland, is set in the international buyer - and consumer - consciousness.

3.2 Internal stigmata

The OEM/ODM business model on which HK's manufacturing sector has based its success has now turned into a complex that it is now trying to eradicate. The challenge is to shift from a 'product churning' quantitative paradigm to the qualitative OBM/OSM models whereby companies mediate abstract systems of relationships - brands - to appropriately defined consumer markets. Unfortunately several brands have already established their predominance over manufacturing and are holding on huge segments of the market share. For local ODM companies to carve a place among established U.S., Japanese, or European brand players would be akin to turning a huge container cargo ship around. Paramount in its priorities is a need for a cultural sea change for which current production managers - in the main boasting backgrounds in engineering or marketing (or law and accountancy!) - are little prepared to appreciate.

'Designerly' thinking strategies to plan for change - the unpredictability inherent to creative development processes - is more suited to help manufacturers prepare for the jump from OEM/ODM to OBM, and eventually OSM.

3.3 Export or import? Designing for others or designing for the other?

HK toy design apprentices and practitioners are struggling with the cultural reality of this export industry, as they are designing for cultural contexts foreign to theirs. They design for abstract concepts of players defined through second hand account from managers, generalizations and stereotypes. A combination of lack of (development) time, poor cultural awareness, exoticization, limited marketing knowledge, and absence of user-centered design processes has designers working in these 'transition' companies ill-prepared to provide appropriate design solutions for the 'other'.

3.4 Appreciating the value of Child Psychological Development

The cognitive developmental science of child psychology structured by Piaget, Vygotsky, and Parten among others has little resonance in the practices of would-be OEM/ODM companies that produce the overwhelming majority of toys consumed in the world. This would probably not be the case if they had the liberty not to deal with OBM/OSM companies, which are still in the main rather motivated by trends, fads, gimmicks or technological innovation - aspects of innovation which have come to dominate much of the creative drive in the industry. Furthermore, standing in-between so called Western and

Eastern cultures, HK toy developers may have different appreciations of the motivations at the root of child development, which may be at odds with those taken for granted in their customers' homelands.

3.5 Contextual challenges of rising costs: politics, land, labour, oil

Local manufacturers have thrived despite - or thanks to - an ever-changing business context. The short-lived post-war manufacturing industry based in HK proper (whence from the label 'Made in Hong Kong') underwent successive waves of relocation, triggered by China's Reform and Opening in 1978 and the prospect of higher revenue due to cheaper labour and land rates.

1st wave: relocalisation of development & production facilities from HK to Shenzhen (Mainland China)

2nd wave: relocalisation of development & production facilities from Shenzhen to Dongguan (Mainland China)

3rd wave: relocalisation of development & production facilities from Dongguan to further inland

Ironically, China's successful economic development has witnessed in recent years a return of certain facilities such as design, engineering or sourcing offices to either Shenzhen or Hong Kong, as increasing labour and land rates in the Guangdong Province have made it just as viable to operate these facilities closer to home. While some design development and production planning offices are located at the border close to HK, services such as sourcing and administration that had moved 'up North' (HK lies at the Southern tip of China's Guangdong province) have now returned.

To add to the ever-changing structural aspects of domestic politics, manufacturers are at the mercy of fluctuations (read: increase) in the price of commodities, the main one in the toy industry being plastics, a derivative from oil. As OEM/ODM companies generate profit from the sales of items to be marked up for retail, they are engaged in fierce competitive battles to bid the lowest price to buyers while maintaining a reasonable profit margin. With the ever rising price of oil, margins are squeezed thin, forcing companies to look for even larger orders.

4. Toy Design Lab activities - overview

With industry turning repeatedly to PolyU for inspirational guidance, the SD developed a toy design curriculum in 2002 to nurture creative toy design talent, with the Lab anchoring a critical, theoretical basis for the development of homegrown perspectives on

international play culture. One could refer to Huizinga (1938), who contends that culture is the outcome of play (1938) and see in the reification of mass-mediated cultural values, the fact that toys should be appreciated as *novelty* and *agency* (Sutton-Smith, 1986), verifying Barthes' contention that "objects are initiators: [that] they are infinitely faster culture mediators than ideas, as powerful producers of fantasy as 'situations'."

The Lab has been conducting toy design education, research and development programmes since January 2004. It works with academic and industry partners and initiates research and product development programmes to design innovative playthings for local and international markets. Its educational aim is to cultivate students' appreciation of innovative toy design and development processes through the analysis of existing juvenile products, the establishment of a set of play and design specifications and the development of personal conceptual approaches relevant to contemporary multicultural contexts.

5. Teaching

Through experiential education, the Lab trains apprentices and inspires professionals to develop innovative play concepts. Among the Lab's main objectives is to steer student design project development to shape compelling arguments. Big and small-sized marketing and manufacturing companies have acquired designs developed by the Lab. All students it has mentored are now active in professional toy development structures.

5.1 Student projects

The Lab provides Masters (MDes), Bachelor (BA Hons) and Associate Degree (AD) students with opportunities to design for play as part of their compulsory or elective curriculum. Students work out playthings, mostly for children but occasionally for adults (50% of toys in the world are consumed by adults), in subjects such as Design Thinking, Toy Design, The Consumer as Producer or in such capstone projects as the Client and Final Projects. In capstone projects students are required to develop user-centred research methodologies and run creative workshops with children, organised with local and international primary and secondary schools. Findings inform the creative process and help validate conceptual development decisions.

5.2 WIE Work-Integrated Education

The Lab supports the education and industrial community in different ways and organises:

- Work Integrated Education workshops

- Study visits to model-making factory
- Visits to manufacturing plants
- Study Trips
- Graduate job placements and student trainee placements
- Seminars with professionals



Figure 1: WIE Work Integrated Education Workshops - Shenzhen model-making factory visit, Hong Kong 2004 - current

5.3 Continuing Education

PolyU's SD and PolyU's Management and Executive Development Centre (MEDC) jointly offer a comprehensive training programme to provide the contemporary design knowledge and skills needed in the toy manufacturing industry through a structured learning path for in-service practitioners to enhance skills and competencies.

Upon successful completion of the programme, participants will be able to:

- Assess market opportunities to identify appropriate toy design solutions
- Contextualize design, technology and business to develop, manufacture and market innovative toy products and brands
- Integrate inventors' creative contributions into design-led toy product development
- Advise strategic means to develop creative solutions for internationally competitive products and brands
- Identify efficient sustainable manufacturing processes and production technologies for marketing innovative products

5.4 Creative Workshops

The Lab runs creative workshops with adults, youths, and children alike, to foster creativity for design processes and assess appropriateness of concepts. The intense, haptic processes of such workshops have proven appropriate platforms to elicit stream-of-consciousness creative design directions to nurture design development.

6. Research and design project development - areas of investigation

The Lab runs projects focusing on the following domains of investigation:

6.1 Eco-play - design for sustainable play

A series of Work-Integrated Education projects provided students with opportunities to investigate sustainable design solutions for material play and incorporate principles of environmentally friendly, or eco design. Through play and communication students accrue knowledge about these principles and explore their applications in the design process. The products integrated eco design principles, such as use of materials and choice of manufacturing process, and environmentally-friendly play patterns through concepts involving recycling found materials, or green bombs, or biodegradability, or yet again eco-science education.

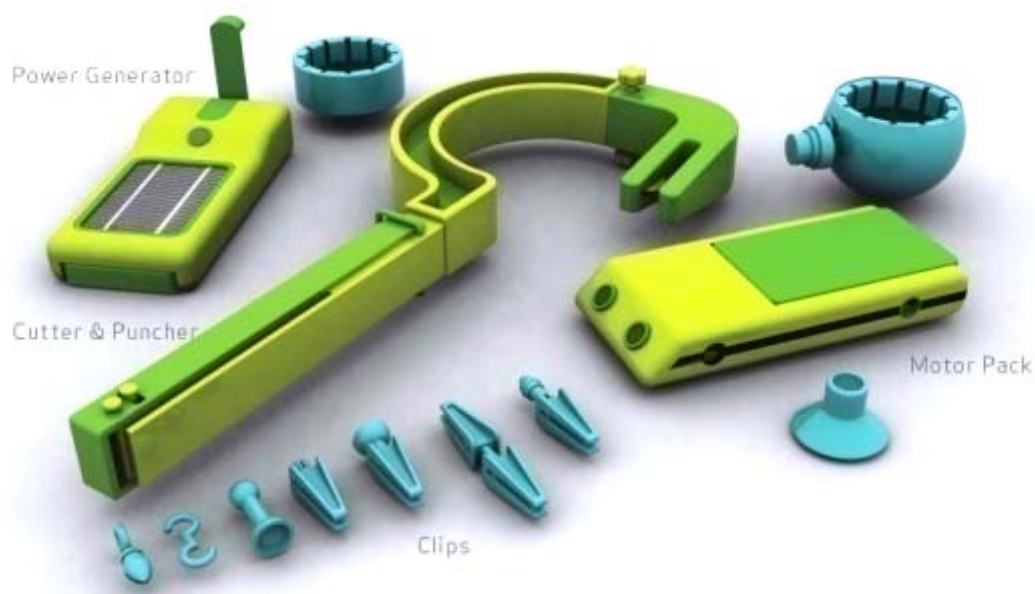


Figure 2: Eco-play - *Ecologics*, recycling material tool play set, TSE Tim Lok, Gerald WONG Tsz Lok, Rachel Reese WONG Wai Ying, Ali WU Ka Lai, BA (Hons) IPD Client Cooperative Workshop, Client: Crown Ace Ring Toys, Hong Kong 2008.

6.2 Recycl-play

Extolling the value of found objects and their accidental qualities, the assignment for the AD in Design's introductory subject Design Thinking requires students to research into and accrue a basic understanding of play theory, play with a metaphorical or mechanical appreciation of the 5 senses, and reuse, or 'upcycle' found materials to execute working playthings in less than a month. As design apprentices manipulate objects found in the post industrial consumer wasteland, they experiment with materials, mechanical properties, forms, shapes, textures, and colours to generate delightful, humorous, and poetic objects,

while realising first-hand the extent of the waste generated by the consumer society. With play used as an overarching metaphor for the design process, the combination of sensory experiences (for user-centeredness, interaction and human factors), recycling processes (gaining a basic awareness of sustainable materials and manufacturing processes), and research into play (for a holistic, humanistic appreciation of culture), novice design apprentices are provided with an efficient introduction to the fundamentally cultural practice of design. The short, intense nature of the project dove-tailing the jovial innocence of design freshmen produces a very creative context for toy ideas for children and adults alike.



Figure 3: Recycl-play - *Catch & Boom*, parachute cannon. Yummy LAM Man Lei, Design Thinking project, Associate in Design, Hong Kong 2005.

6.3 Prosumerism - the Consumer as Producer

Critical trends in consumer culture are examined and skills for reusing appropriate elements in the industrial culture are identified and practiced: This project aims at helping students understand new critical aspects of product development and consumer behaviour, *which are in turn* a rejection of current product development and consumer behaviours.

Students will develop requisite skills in recognising signs in the industrial wasteland and appropriate elements that can be reused to wear off its cultural influence.

An opportunity to develop a critical understanding of current producer/consumer practices, students exhibit findings and projects to share and sharpen their knowledge of design's scope.



Figure 4: Prosumerism - *Bag-a-gag drag workshops*, Creative workshops, MDes, Hong Kong 2006-current.

6.4 Design for education

Design for education - what is the purpose? In a culture where filial piety stands for good reason in lieu of a welfare system, 'educational toys' are perceived as tools to forge children to be better workers. The appreciation of child's right to play in the sense Piaget appreciates it (incremental cognitive development) has little bearing with often conservative manufacturing companies. Whereas parents see their children as investment, manufacturers do not believe in the usefulness of child psychology. Tomfoolery, child-centered absurdity and humour, or free play is rarely integrated in the design for educational products. Educational products designed at the Lab integrate findings from workshops with children in the conception of educational products.



Figure 5: Design for Education - *Graveyard Disco*, paper engineering animated assembly kits, NG Him Wing, BA (Hons) IPD Client Cooperative Workshop, Client: Flying Pigs Limited, Hong Kong 2006.

6.5 Hackshops: experimental creative toy design workshops

The Lab has been conducting Hackshops, or experimental creative toy design workshops, twice yearly since 2006, to inspire more structured aspects of its toy design research, education and consultancy programmes and to enhance students' creative output. At these one-day workshops, students hack electromechanical or mechatronic moving toys and use found materials to build working playthings. These have proved an efficient means to foster creative processes for educational toy design programmes, providing an inspirational platform to would-be toy designers.



Figure 6: Hackshops - *Hackshop Critters*, BA (Hons) IPD students, Hong Kong 2006.

6.6 Character Toys & Story Play

Products of the XXth century, licensed, or character toys, are offspring of the toy and media industries. Surfing the post-war consumer wave generated by the Baby Boom, the toy industry was eager to transform the war effort's technological know-how to explore new global market options. Mass-mediated pop-culture characters are a boon for marketers keen on tapping into a wider mental share of consumers' emotions and fantasies to fuel innovation and fend off internationalized competition.

Designs and play patterns generated by the reification of a popular myth derive from an original narrative; they are the interface to a world of motivations and values. Character toys mediate play, and as such combine play with story-telling, inviting players to identify with role models, adapt adventures to their social needs and act out their emotional development.

Year after year, the share of sales of toys made under license represents up to 25% of all toy sales: conscious that the industry sees the association of a popular character as a possibly winning feature for the commercialisation of a toy, the Lab investigates character toys' impact on current consumer culture, its value as a collector item, and its relevance to identity, emotion and desirability (i.e. the worthiness of these artefacts in regard to an individual's self-realisation) to current toy design practices.



Figure 7: Character Toys & Story Play - *Mixatales*, modular audio story telling action figures. LAI Wai Lok, BA (Hons) IPD Final Year Project, Hong Kong 2009.

6.7 Sensory Play

Core to play, sensory perception provides toy designers with means to develop experiential narratives for discovery and communication of phenomena. The Lab's creative design curricula suggests sensory play as the theme for design assignments for several subjects, such as Design Thinking, taking cues from German social commentator Friedrich Schiller's contention that Play is "The only opportunity for humans to fully develop their humanity by setting free the two aspects of its double nature: sensation and thought."



Figure 8: Sensory Play - *Feelie Critters*, interactive robot characters based on the 5 senses- Ali WU Ka Lai, BA (Hons) IPD Final Year Project, Hong Kong 2009.

6.8 Design for Leisure

Stress, long hours and unhealthy lifestyles are common conditions for people around the globe. How we spend our precious leisure time is of critical importance for de-stressing and healing. This subject aims at providing students with the skills necessary to recognize how humans have come to separate play from work and contextualize the importance of downtime, play and exercise in our contemporary societies. Students will assess the relevance of the sports and leisure market and explore lifestyle trends, emerging leisure and sports activities to create innovative solutions for the way people play.



Figure 9: Design for Leisure - *Pook*, Family beach play set, BA (Hons) IPD Design for Leisure student project, Hong Kong 2007.

6.9 Design Play

As they learn by doing, SD students at times struggle to appreciate the relevance of many cognitive tools created to improve design practices for the development of a design process. Consequently, SD teachers often find themselves reviewing student project outcomes that may not bear relevance to seemingly well presented projects. This suggests potential discontinuities in students' network of ambitions and perspectives and why they fail to create appropriate learning and design value from their projects.

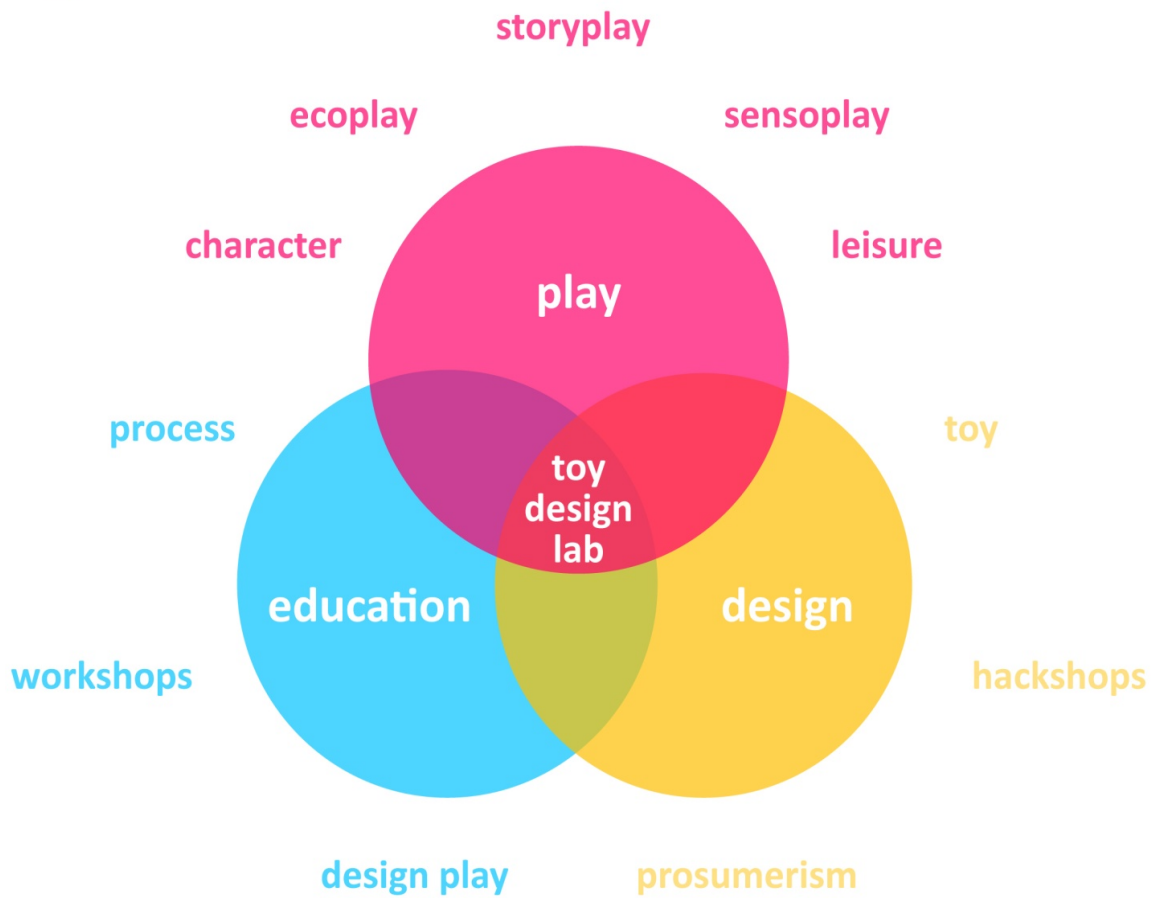
Interviews with students and colleagues during two pilot Design Play studies suggested that Play would be relevant to the development of a self-directed learning interactive toolkit to enhance capstone project development learning experiences in SD's multicultural contexts. Initial iterations of the toolkit for implementation in SD projects

help students appreciate the value of linking various steps in the often unstructured creative process, especially during the early stages leading up to the formulation of design specifications for execution and presentation of solutions. Attempting to bridge the Ludus/rule-based game play inherent in structured design processes with the Paidia/free play of creative inspiration, the toolkit is also intended to enable designers reflect on processes created, and facilitate communication of such processes through compelling arguments making the case for the appropriateness of the solutions generated.

7. Conclusion: opportunities for the implementation of best design for play practices

The current global financial crisis spelt closure for more than half of the 8,000 or so mostly HK-owned Chinese toy companies (SCMP, 6 January 2009). This may prove to be a watershed in the industry's post-war history, with bigger corporations more likely to survive. With less competition to worry about, surviving companies will be in a better position to implement new creative toy development planning and management strategies. A reduction in the number of suppliers also means the industry will be in a better bargaining position to forge a new business culture, with possible emergence of brands catering for different consumers. Indeed, no less significant is the possible emergence of a domestic Chinese consumer market, the development of which many economic commentators, local and international, believe Beijing needs to encourage in response to a declining global consumer demand.

With an eye on future implementation of OBM and OSM strategies, the industry will have to adopt new management practices striking a balance between catering for a new cultural profile (the emerging Chinese market), and addressing sustainable imperatives. In this context, an industry that has been traditionally steered by an engineering and/or marketing-led management culture will have no choice other than integrating design thinking and its ability to plan for and work with uncertainty - as mature players.



Toy Design Lab
Research activity chart

Play

- Character - Identity & personality play
- Storyplay - Narrative play
- Sensoplay - Sensory play
- Ecoplay - Environmentally-friendly play
- Leisure - Recreation & outdoor play

Education

- Workshops - Creative experiential learning
- Design Play - Design tool search engine
- Process - Integration of problem & solution

Design

- Prosumerism - Defining creative production tactics for consumer-generated playthings
- Toy - Entertainment & Education products
- Hackshops - Creative design workshops

Figure 10: Toy Design Lab activity chart, November 2009.

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