ABSTRACT
To all kinds of design, the negotiation between the expression of designers’ idea and the representation of users’ desire is a typical internal tension of design. Particularly, the balancing of the internal tension of the design for children requires sophisticated solutions, because the needs of the actual users are often mis-represented by the desire of their parents. Therefore, in addition to satisfying social needs, the designers should also recognize the collective unconsciousness of adults who express on behalf of children. Taking the studies in Developmental Psychology and Anthropology as reference, this article focuses on playing, instead of knowledge acquisition, and discusses the balancing of the internal tension of the design of playing spaces for children, especially for the preschoolers. This article aims at revealing the role of games to children’s psychological and intelligence growth, as well as their game playing mechanism, by answering two questions: why do children play games and how do they play? By illustrating a case study on the playground design of the COBY Preschool in Japan, the proposed concept of “design to not design” is expected to inspire the design of children’s playing spaces.

KEYWORDS
Internal Tension of Design; Psychology of Children; Game; Personality Development; Anthropology; Loose Parts
1 Internal Tension of the Design of Playing Spaces for Children

Desire is one of the drivers of design. Nikolaus Pevsner, founder of the history of western modern design, built the historical framework of design from the perspective of Art\cite{1}. Since then, design is viewed as a practice of art and designers have gained unprecedented attention as design works. Following Sigfried Giedion’s call to “remove the designers’ subjectivity in design”\cite{2}, Adrian Forty criticized this phenomenon that, in addition to designers, economic and social demands also play a key role in the development of design\cite{3}. Nevertheless, all these perspectives share a common ground that desires—individual creativities or social needs—promote the progress of design.

The conflicting perspectives mirror the internal tension between designers’ will and social needs which is the nature of design. To public design works, this tension is often exemplified as the negotiations between the designers (the minority) and the users (the uncertain majority). As a result, an initiative on user-oriented design philosophy and methodology formed based on long-term reflection on and exploration about the internal tension of design.

Design has become an approach to fulfill human desires in industrial society. The conflicts and reconciliations among various desires of design represent a “production process” through which the human beings create the future. Meanwhile, humans retain the other “primitive” way that leads to the future—reproduction, and children therefore manifest the “reproduction” of human beings ourselves. In other words, the design for children is crucial to the (re-)production of our future.

In the designs for children, the needs of the actual users are often (mis-)represented by the desire of their parents, which complicates the balancing of internal tension. “Children” are not the pre-existing objects, and conceptual construction of “children” is the result of cognitive development and text production\cite{4}. In other words, the current knowledge about the psychological development of children is limited. However, under the huge pressure of competitiveness in the modern society, parents’ desires for a stronger survival and growth of their children manipulate their investment and consumption activities under the name of “love.” Knowledge education and skill training take over the job of “designing” a “better future” for children, regardless of children’s individuality and initiative. The adults who view knowledge acquisition as the main tasks of child education overlook the characteristics of different stages of children’s psychological growth. Therefore, in addition to satisfying social needs, the designers should also recognize the collective unconsciousness of adults who express on behalf of children.
恰是幼儿体验挫败，从中学会抑制自我、协调社会关系的重要环节。

我去拿他打了我”——这个看似平常、监护人常介入调停的摩擦，恰立。比如，游戏中的争吵——“我想要那个玩具，可是他不给我玩，化与自我调试的探索。探索过程会影响信任、安全感等基本情绪的建

抑制只能在个体化的调试经验中逐步建立。游戏便是重要的经验来源

体社会化的初始阶段，他们通过与家庭以外的世界产生交集开始自发

介，同时也是学习自我调试的重要途径。伴随游戏形式愈发复杂，幼儿

伟大的成熟。当游戏发展到一定程度，幼儿逐渐学会在游戏中扮演不同

个发展阶段对应年龄段约

于人类发展阶段存在着多元划分法，本文中“学

所指的“学龄前幼儿”指3~6岁的儿童。同时，本文所指人类发展

端的阶段的年龄划分并不绝对化，而应从人格发展的全

期出发，思考儿童的心理需求。

个发展阶段对应年龄段约为：婴幼儿期（0~1岁）、幼

年（1~3岁）、学前期（3~6岁）、学龄期（6~13岁）、成

中期（40~65岁）和老年期（65岁至死亡）。

幼儿初期常见的是独自游戏的形式；3岁开始出现平行游戏，即在一个时

空下多人同时游戏，游戏伙伴之间缺乏互动；4岁后联合游戏的形式逐渐

增多，即在平行游戏基础之上出现游戏伙伴之间的对话和交涉；5岁后游

戏形式进一步发展，形成协同游戏，即游戏中幼儿进行对话交流，形成不

同的分工，领导者与被领导者的角色出现，群体内部开始产生地位区分。

2 为何游戏？

Erik Erikson，one of the founders of Developmental Psychology, divided one's life journey into 8 stages based on the stages of psychosexual development proposed by Sigmund Freud, and proposed the core task of each stage. One’s personality progressively develops—the psychological building of the preceding stage influences that of the following one. At the initial stages of their life, preschoolers establish ties with others by interacting with the world outside family, and adjust their spontaneous behaviors based on the responses from the surroundings.

Infancy and pre-school stages are also known as the “game stage”—literally, games play a crucial role to the socialization of young children. When playing games, children get contact with others and adjust themselves at the same time. As the games become increasingly complicated, children’s socialization level promotes. Psychologist Jean Piaget pointed out that egocentrism is a major psychological characteristic—rather than in an ethical sense—of preschoolers. Unlike the school-age children who learn to follow rules and obey social norms, preschoolers have no idea about “disciplines” (general constraints); Having difficulty in objectifying the other, they can hardly accept the disparities in viewpoints and positions. Therefore, they can only gradually inhibit their egos upon their own experience, such as playing games.

Compared with the school-age children, games for preschoolers often take place where several groups take interactions at different levels. These games are mostly about establishing the playing rules (how to play) but without a definite end. For children, the process of establishing rules is the game itself, where they learn to socialize themselves and primary emotions such as trust and sense of safety would be fostered. For instance, children often quarrel in games (like tussling for toys), and the parents usually intervene; however, in such conflicts, preschoolers would experience frustrations and learn to constrain themselves and negotiate their social relations. Quarrel in games should thus be viewed positively, and adults should let the children develop their relationships gradually.

2 Why to Play Games?

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3 How to Play Games?

Understanding the role of games in the socialization of children helps designers build a design philosophy. As mentioned above, children are often represented by the adults because they cannot clearly express their needs in a logical way. By observing how children play games from the anthropological perspective, designers would better understand the needs of children and then to inform the development of the design of children’s playing spaces.

According to anthropologists Mette Kjaersgaard and Ton Otto, games are in essential to help children adjust their social relations, which echoes the ideas of Developmental Psychology. After observing and interviewing children’s game playing in a design workshop, Kjaersgaard and Otto further pointed out that the designers and the users (children) have sharply different understanding about playing facilities and games. For designers, playing facilities are the static results of design expression of forms, and they define the games what would take place in the place. While, children care more about the building process of playing facilities, which per se is the game to have fun.

The internal tension of design thus comes into being: In the eyes of the designers, there are pre-set rules for games, and games are manifested by following the rules; However, for children, games do not have definite rules, and their needs for playing facilities are manifested by the situatedness of the game. Therefore, if designers merely focus on providing combinations of playing facilities and defining the use of the playing spaces for children accordingly, the design would betray the essence of games. It is the time for designers to respond to the requirement that how to improve the flexibility of playing facilities to accommodate and trigger diverse game forms for children.

As games are the media of children’s socialization, playing spaces should be designed to 1) ensure the diversity of games and encourage children’s social interactions, and 2) ensure
children’s minimal safety distance to resolve interpersonal conflicts. Also, situatedness is the essential to children’s games, which suggests the new possibilities of the spatial combination and material selection in the design of playing spaces, including 1) open, meandering spatial layers with flexible movement lines, and 2) elastic playing facilities that encourage children’s participation into games.

In terms of material selection, the ideas above all confirm that loose parts are beneficial to the design of playing spaces for children. First proposed by Simon Nicholson, “loose parts” refer to the materials that children can use to freely manipulate, transform, and create, offering children with opportunities to express their creativity. Including Nicholson’s description and other relevant studies, there is no widely agreed definition of loose parts, but existing research confirms that the loose parts are the natural or man-made materials that can be used for open and interactive playing, without operation limitations. The interaction with the loose parts would contribute to development of children’s creativity and imagination: by exploring various combinations, children would dominate the game, which helps foster children’s social and emotional abilities.

However, most studies on loose parts focus on the benefits in games and suggestions on the design of playing spaces. This article concentrates on children’s psychological needs for games and criticizes the designs that simply imitate the material selection of certain loose parts which have specific benefits. For example, sand is a commonly found natural loose parts; however, if designers simply prepare sands for children but overlook the design of social spaces (e.g., for sharing and sheltering purposes), children’s playing with the sands would little help with their personality development. As mentioned above, when games are prepared for ability and skill training, the internal tension of design is out of balance, failing to meet the true needs of children, the users.

Young children education focuses on the fostering of fundamental abilities. It requires adults to observe children’s game playing behaviors and to provide guidance accordingly. Loose parts, like plasticine, help the kids who are emulative in games enjoy the interaction with the parts, to get self-recognition from free expression, instead of through comparison with others; for the children who tend to play games alone, watching or joining others and group games should be encouraged.

4 Case Study: A Kindergarten that Puts “Fostering before Teaching”

Following the design framework directed above, the author thinks of a space with sands and plants, as if there is no need for

The interaction with the loose parts includes children’s explorative and entertaining activities.
any work by designers. In a sense, the design of playing spaces for children should invite the kids to access nature with minimal spatial interventions, i.e. “design to not design.” Meanwhile, in the modern industrial society, the satisfying of the desires of capital propels the advance of design. In this sense, balancing the internal tension of design requires not only to satisfy the expectations of “design” from the investor but also the needs for the personality development of young children through the “design to not design.” By illustrating the design concept of COBY Preschool in Kodaira, Tokyo whose main buildings were designed by Japanese architect Toshio Tsushima, this article elaborates on the idea of “fostering before teaching” in the design of the playing space of the kindergarten. The details in the design might inspire inter-disciplinary ideas.

The preschool principal envisioned a “kindergarten that is not look like a generic one” that usually adopts the toys with definite playing rules and the fixed spaces with little help to children’s free play. Tsushima explained the design concept of “fostering before teaching” that “teaching starts with the knowledge and the patterned cultivation of talent training; fostering, on the other hand, values the innocence of young children, allowing them to make mistakes and grow up freely and happily…. Kindergarten is a place to help build the fundamental abilities for young children, rather than to learn knowledge and be disciplined, which is the programming focus of elementary school and beyond.” This philosophy sharply contrasts with the idea that equates kindergarten education with pre-school preparatory programs.

This article expounds on two design ideas of the kindergarten: the outdoor landscape design adopted a combination of playing facilities allowing children to enjoy freedom and release nature in games; and the architectural design values the variability and diversity of space and the initiation of behavior. The design ideas are both embodied by: 1) using loose parts to encourage free play...
and interpersonal interactions; 2) creating multiple movement lines in the limited spaces to serve as part of the playing facilities and to define the intimate and public spaces; and 3) improving the flexibility and versatility of the space to meet multiple utilization demands and catalyze children’s spontaneous activities.

Like many other playing spaces for children in Japan, COBY Preschool occupies a small area. The designers were asked to enrich the spatial experience of the outdoor playing space. They did not employ the prefabricated playing facilities, but used rocks, wood, and building structures to create a free game space (Fig. 1). A series of low walls were made with stones and wood bars, where the water running in the cracks among stones becomes the natural toy for kids, and the transparent structures with “undefined purposes” allow children to invent new games. The low stonewall ensures unimpeded views, allowing children to observe each other and teachers to guide when necessary. The curve styling of the walls enriches the spatial layout and provide adequate safe distance for children’s self-adjustment by outlining the spaces for sharing and intimate moments. In the limited outdoor space, the stonewalls are visually integrated with the boundary of the kindergarten, creating a broader vision of the playing space. Different from generic design of kindergarten, the spatial design of COBY Preschool conceives simple combinations of physical elements which encourages children’s creativity and engagement at the greatest extent (Fig. 2).

In terms of architectural design, to ensure the flexible use of indoor space, the kindergarten adopts few of fixed walls. Different from most Chinese kindergartens where the living and napping areas are separate, the activity area can temporarily turns to napping area in COBY Preschool when kids there make the bed and nap on the floor and then returns back after their waking up. The passages and open spaces are also used for games and music classes. The spatial design encourages children’s communication and interactions. A series of glass walls guarantee the safety supervision of teaching staff (Fig. 3).

COBY Preschool won the 2013 Kids Design Award of Japan. The jury highly recognized the design of the playing facilities: “This design features an original set of playing facilities on the playground. In an urban kindergarten with limited space, this design ingeniously creates a playground where each child can find his / her own way to play.”

5 Conclusions

Taking reference from the studies in Developmental Psychology and Anthropology, this article explains why do
3. Coby幼儿园多功能分散空间成为了幼儿交流互动的催化剂。

3. The flexible spatial design of Coby Preschool encourages children’s communication and interactions.

5 结语

儿童玩耍游戏和如何玩耍，以展示游戏在儿童心理发展中所起的作用和游戏机制。它强调了设计儿童玩耍空间时需要强调幼儿成长的特征和使用松散材料。

最后，设计哲学的“设计不设计”被提出。

值得指出的是，“设计不设计”并不意味着不做任何事；而是指在了解设计极限后的“知而无为”；“设计不设计”并不是空白，而是蕴含可能性的意图留白。设计内在张力的平衡问题虽无通解，但“无为”作为设计师自我权力的内省，可为所有尝试提供基础。

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