Re-examining Design Games from the Perspective of Design Anthropology

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Abstract

This paper discusses how design games play a role in design anthropology research and serve the operation method of image behavior. By defining the design game in design anthropology, we can solve the following two problems: firstly, pay attention to how to promote group cooperation and help design researchers understand the relationship between image, space and behavior; secondly, this study helps researchers understand the vague role and cultural cognition of stakeholders in participatory design. In addition, this study designs a set of design game cards, through the extraction, collage, and reorganization of film images, and further changes the observation perspective, once again expanding the game to the field of the art design and design anthropology. The ultimate goal of the research is to explore the research methods in the design process and the training of reconstruction logical thinking. In future work, the design education can use game cards as the carrier to reconstruct the cultural cognitive language.

Keywords: Design Research Method; Image Behavior; Design Games; Cultural Cognition; Design Anthropology

Introduction

When designing games is often used in a social or participatory design, we should not only focus on research problems but also the method's logic. The game proposed in this paper is different from the traditional game. It is a research method based on design anthropology. It is also a fragmented space of different visual images of the same film constructed based on the cultural cognition of users or stakeholders in the game design. The key point is to analyze and explain the dialogue between the participants in the design game and the actors so that the participants and stakeholders can reunderstand the image operation and behavior. While implementing our research methodology centered around game design in design anthropology, we need to pay attention to how to promote cooperation during the game and how to help researchers understand image behavior again. Subsequently, we should connect design, users, context, relationships, practices, and forms to achieve the key points of social design. The research should not only pay attention to the actors themselves, but also adopt the design game as a practical research method of design anthropology.

While there has been extensive research on game design, there is little focus on the question: how can game design help stakeholders understand their own roles, quickly achieve cooperation, rapidly change their research perspectives and participate in the same design research project creatively? To tackle this question, this study adopts the perspective of design anthropology with researchers participating in observation and designing a card game. As design researchers with different roles, they practically participate in it and reoperate the research process. When we design games from the perspective of design anthropology, metanarration and participation are different through the construction of game elements. For example, when the design assignment is different from design practice, the design researcher will carry out a series of social current investigations to check the design process and events. Re-examining the design game from the perspective of design anthropology, we can find that the design game is a research method, in order to unify the

design process with the previous concepts and enable stakeholders to observe things from different perspectives and understand the design intention.

This paper takes the design game of cultural cognition as the main research object, and creatively discusses the purpose, significance, and value of the subject by using the findings of design anthropology and the methods of existing literature and group discussion. Firstly, in the theoretical sense, this paper enriches and improves the theoretical knowledge system and provides a research perspective on the general development law governing people, games, and cognition. Secondly, in a practical sense, this study attempts to discover the relationship between cultural cognition, human behavior, and game design. Thirdly, in the practical sense, it attempts to demonstrate the problem consciousness in project practice, and study the cognition of design games under design anthropology by enumerating relevant theories and studying design game cases, to guide the utilization, development, renewal, and continuation of design education in the future.

Literature Review

The origin of design games can be traced back to nine urban environment design games (Habraken & Gross, 1988), and the game is used as a research tool to provide a method to explore various concepts and to study design theories or methods. Design games are often associated with participatory design and social design (Ampatzidou & Gugerell, 2019; Wanick & Bitelo, 2020), showing the ideas of participatory education, game design elements, collaborative cooperation, and social design respectively (Budde et al., 2016; Ismail et al., 2019; Voulgari et al., 2020; Young & Kim Kiyoung, 2014), which can be understood from the aspects of the composition system and complexity design experience. Therefore, the design game in some project work can enable design researchers and stakeholders to better show their ideas, narration, expressions, and comments. Taking the design game as a place for the public scientific experiment is conducive to the construction of collective imagination (Pollio et al., 2021). It is important to use design games to achieve cooperation among users, stakeholders, and designers and to strive to achieve a common goal.

Since the 1980s, practical theory has been constructed in the field of anthropology to solve the relationship between society and the individual. The theoretical problem concerned by anthropology is the relationship between man and structure, which aims to explore the dialectical relationship and bring into play man's initiative. At the same time, the design also drew lessons from anthropological methods and gradually incorporated practice and individual action into the research system. Design researchers believe that design research should "design by doing" (Ehn, 2017; Toralla et al., 2012). There is a space planning case that studies the views of single residents on shared space. It is based on a design game in action, determining and weighing family related space functions and services, collecting user knowledge and resident files, guiding participants to explain their preferences, and negotiating the boundary between shared space and private space (Pirinen & Tervo, 2020). This project provides a new research direction for developing new housing concepts or replanning existing spaces. In fact, a design game can be understood as a language game with practical action, which can enhance the dialogue relationship among users, stakeholders, and designers (Brandt & Messeter, 2004). In the whole process of design participation, game design can also be understood as a metaphor (Brandt et al., 2012). Metaphors can not only blur the boundaries between roles to a certain extent but also enhance the cognitive experience between roles. However, some scholars gradually appeared critical reflection in the role of early participatory design researchers, combining teaching process, experience, critical events, individual and society (Ali, 2020; Carrington & Selva, 2010; Dittmar, 2021). Design researchers pay more attention to their values, agenda, views, social response, and other content. These critical reflections are gradually applied to a participatory and expressive design game research method (Eriksen et al., 2014; Vines et al., 2013), and the social and humanized design research is also carried out. Design anthropologists also involve designers through anthropology, ethnography, and other research methods, and improve the depth and breadth of design problems. They think that design needs to have a humanistic spirit, advocate a new ethnographic research method involving design in the anthropological turn, and move towards social design, social practice, and social collaborative research (Garvey & Drazin, 2016; Murphy, 2016; Stuedahl, 2015; Ventura & Bichard, 2017). In addition, the research of design needs the involuntary participation of designers, and the research is the combination of purpose and method (Vines et al., 2013). When designing games is used as a kind of participation or sociality, it focuses on the study of combinatorial problems, which is also a logical method

and a solution with problem consciousness. Its cognitive culture and cognitive practice, reflexivity are often used in participatory design, and it is a topic for designers to formulate research methods (Kjaersgaard et al., 2021; Pihkala & Karasti, 2016). It is to provide opportunities for consumption experience by cultivating the continuity of practice, that is, immersion, adaptation, and innovation (Akaka & Schau, 2019). Therefore, reflexivity needs not only the conceptual design of objective objects but also the process of design practice. Anthropologist Braudel believes that "for the present, the past is also a way to distance ourselves" (Ohnuki Tierney, 1990). In the past, human beings can reflexively think about the present. This is not only a critical attitude towards social problems but also the premise of social design and participatory design.

So what is the relationship between design games and design anthropology, and how to intervene in the research problem as a form or method in the research process of design Anthropology? The design game in the context of design anthropology focuses on the relationship between design practices and contexts of design (Kjaersgaard et al., 2021). The practice of research must undergo profound changes, so that action is a kind of becoming, not getting, reshaping motivation and action (Ortner, 1984). It is necessary to pull away from the design process, appropriately intervene in research problems, and find the construction method to establish and expand the research process. Anthropology emphasizes the data of natives in fieldwork and observes the dialogue between natives and researchers. The design game of design anthropology does not need to provide the basic data of users but does practical research and process research through traditional ethnography to reconstruct the internal relationship between things in different cultural situations.

Methodology
Daily behavior cognition in culture

How do humans recognize themselves in daily life? This study discusses the design game through the art film "A pigeon sat on a branch and thought about life" directed by Roy Arne Lennart Anderson in Sweden. The film has no linear narrative in the general sense. It consists of 39 fixed silent scenes about human nature, depicts a surrealist picture full of artistic and philosophical speculation, and deeply implies the significance of modern human daily life behavior and cognition (see Figure 1).


Figure 1: 39 Scene images in the movie.

There are two main aspects of daily behavior cognition. One is image behavior generation. Starting from the phenomena of scrape together, discontinuity, and disorder in modern society, this method uses a seemingly meaningless random card game to deny the existing order and generate and create new space. According to the previous research part, this method discusses a new narrative space story. During the game operation stage, the team members upgraded the card game and continued to explore new spatial forms. The other is to explore new spatial forms in the way of random games. The film restores the elements of life scenes and uses cold jokes of human self cognition to describe the cultural phenomena of depth, emotion, and history (Andersson, 2015). In his early anthropological studies, Boas described cultural phenomena as a unique way of existence and understood their respective cultures in their respective fields (Boas, 1901, 1941). Malinowski believes that indepth field investigation is needed to understand social and cultural

phenomena (Malinowski, 2015; Young, 2004). In the 1950s, the change of cultural definition was marked by the cultural definition of gathering influence proposed by the American anthropologist Ward H. Good enough and related their respective cultures and social cultures to the cognition of daily behavior. He believes that social cultural cognition consists of what people must know or believe (Casson, 1983). Culture is not a material phenomenon, nor does it contain things, behaviors, or motives. It is an organization, a series of things recognized by people's minds, and a model of their perception, correlation, and interpretation (Gahrn Andersen & Cowley, 2021; Geeraerts, 2021). Whether in movies, photos, or paintings, the plot of each frame can extract space and character fragment elements to show the complete cultural life story to the audience or users. The reason why the film is selected as the basis of game design is to deepen life's understanding through the daily human behavior operation in the film. This method attempts to separate the relationship and plot between space and action, objects and objects in game design. It tries to make participants use random game behavior to get different design image results, to form relatively independent fragment elements. Finally, we extract the spatial elements of modern society from the film, combine the relevant elements of discontinuous and complex images, and use a seemingly meaningless random card game to deny the existing order and generate and create new spatial images. The ultimate goal is to explore people's cognitive behavior and find a pleasant and relaxed design research method through design means. The game can be used as a dialogue tool to understand human daily behavior through design practice. It is a process of discussing the internal objective image of space and participatory observation experience.

Game card scene and design assumptions

The project has produced a board game playing method similar to Chinese Mahjong (see Figure 2), including ten black-and-white dice (points from 1 to 10), a coordinate map (10 multiply by 10 as a unit), card list, card game playing instructions, form cards (object cards, role cards, space cards, operation cards, form cards), etc. (see Figure 3) The object cards, character cards, and space cards are extracted from the fragments of space scene elements in the film; Operation cards represent the operation means of design behavior, including intersection, union, difference, amplification, reduction, distortion, and rotation; Shape card is another image effect expressed by design behavior, including the form and content of plane, elevation, axis side, and perspective.
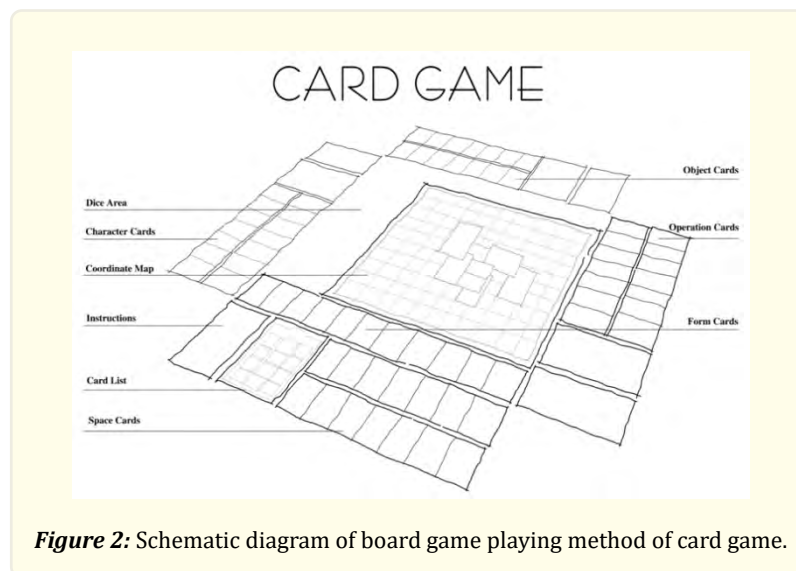

Figure 2: Schematic diagram of board game playing method of card game.
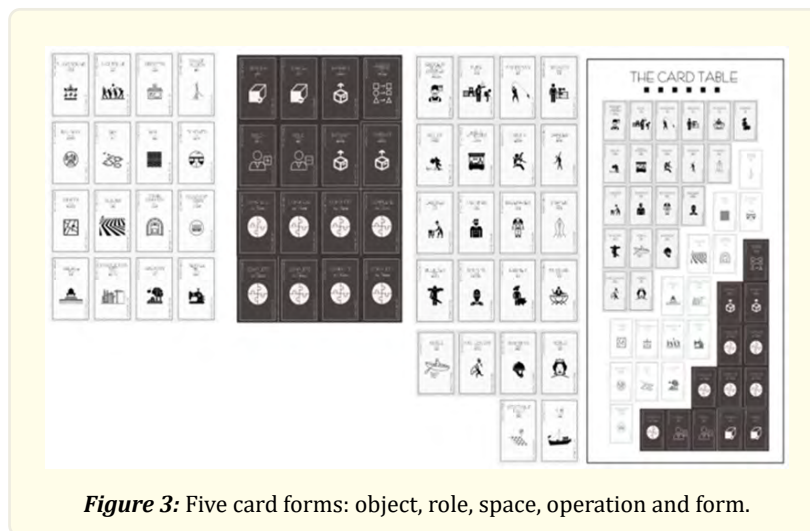
Figure 3: Five card forms: object, role, space, operation and form.

In terms of the overall operation, the design assumption of the card game is mainly divided into six steps (see Figure 4, Figure 5). Firstly, we look for the content of 39 scene elements about human nature in the film and intercept the picture. The elements in the scene are divided into three categories: objects, a character moving lines, and space, corresponding to object cards, character cards, and space cards respectively. Secondly, select and draw element cards from object, character, and space in order, and extract two cards in each round. Thirdly, it extracts different form cards for each card obtained before carrying out form operations (such as plane, elevation, axis side, and perspective). Fourthly, the abscissa and ordinate points are established successively by rolling dice twice, and the position of the card is determined by taking the lower left corner of the image as the coordinate base point. Fifthly, after determining the image coordinates, it is necessary to extract operation cards for each picture in turn, and determine the relationship with the next card by determining intersection, union, difference, amplification, reduction, distortion, rotation, and other means. Sixthly, we need to fuse to generate images. Finally, all elements are organized together by drawing to get the final spatial image result.
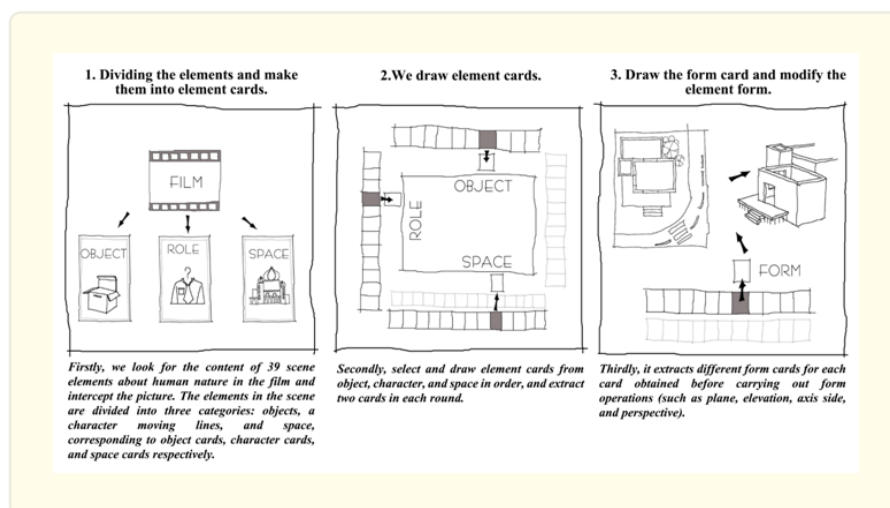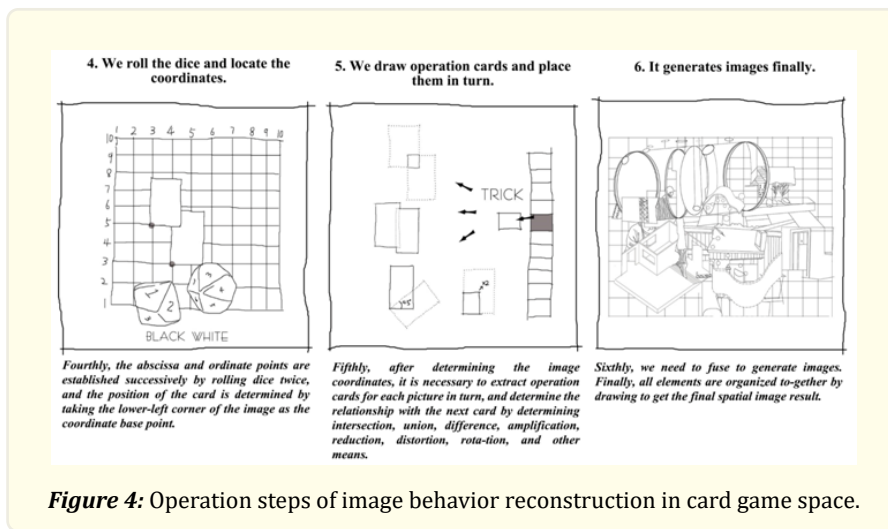
Figure 4: Operation steps of image behavior reconstruction in card game space.

Figure 5: Exploded view of card game steps.

The game design has a certain law of randomness. For participants to recognize the things themselves in the process of the experiment, a total of four participants need to complete the game design together, and all four participants need to make choices under the social background of unified understanding. Such a game process can not only enhance cooperation, but also experience and participate in human behavior and cognition in the design of games. Randomness is not static and abstract, but a dynamic system process with continuous change and development. In terms of statistical law, a large number of random events reflect the distribution of repeated probability in the process (Gnedenko & Ushakov, 2018). A large number of random phenomena in the game design must be a kind of systematic relevance as a whole. In the game, each stakeholder will be responsible for the production of an image type superposition, in which the randomness probability produces the relationship between interaction and communication. Through the behavior operation of card games, people get the design presentation of image script and the self existence of authenticity. Finally, a new narrative will be born after the 9 rounds of game alternation of repeated card crossing and replacement (see Figure 6, Figure 7). We use games to generate new stories from random probability events. The events generated by probability are collaged and re-organized to generate a new image space. The process of designing game strategy itself is the result of spatial behavior, and it is also another way out of the cultural metaphor of card game, random probability, and crazy artistic imagination.
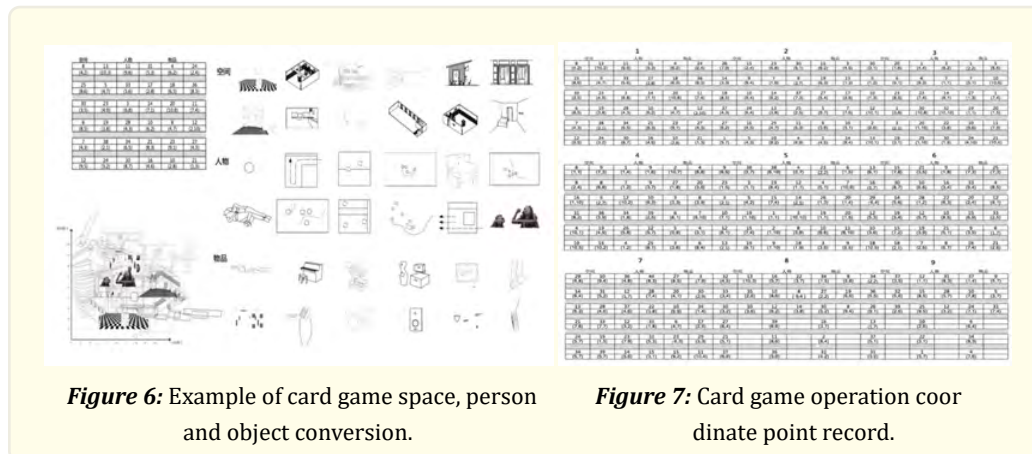
Figure 6: Example of card game space, person and object conversion.

Figure 7: Card game operation coor dinate point record.

Cognitive process of card games: how to understand image space

The process of game participation in image space is the process of human writing meta narrative space. The stitching and composition of different element images is a deterministic random event, and it is also a design behavior composition mode integrating space, people, and things. When studying the spatial narrative of artworks, the French Immigration Museum reorganized the design behavior through the image and form of a single object to awaken the sensitivity and attention of the audience (Sherman, 2016). Therefore, each object space presented is an event clue. The object space is spliced and combined independently through images and forms to form a spatial order, and reorganized by designing game behavior operations. Each real social space image extracted from it is abstractly described, which represents the objective material existence under the social and cultural background. The visual image element in the film is not only the premise of narrative space construction but also the reinterpretation of image space. Through the reconstruction of game design, it is transformed into a spatial model. Image space is expressed and presented through the experimental imagination and reasoning process of design research. This study takes the visual elements of the film "A pigeon sat on a branch and thought about life" as the starting point, discusses the cooperation mode between users through the card game behavior operation mode, edits and collages the image information, and then interprets it through the image visual method to express the relationship between the antagonistic and contradictory elements of space (see Figure 8) The understanding reached by the British philosopher John Locke by referring to objects and the concept of these objects are used to describe the seemingly perfect natural imagination in reality (Locke, 1847). In the process of designing research methods, card games, designers, users, and image elements overlap each other, which leads to the discussion of spatial imagination. By adding the reconstruction and reinterpretation of spatial images in the design of games, we can observe the constituent relationship of practice. Designing games as a means to promote and develop an early conceptual design or research methods can stimulate critical reflection between vision, image, and imagination in daily life.

Image behavior consists of events and plots. All event elements are behaviors, and narrative text is also the result of narrative behavior. Graphic image behavior can combine the images, devices, characters, stories, and other facts of the film, which is a strong structural tendency (Downs & Stea, 2017). Graphic image behavior can combine the image, device, character, story, and other facts of the film. These image elements are also active because of human behavior itself and object form. The image itself is a presentation of visual cognition, and image behavior is the presentation of facts in human behavior activities.
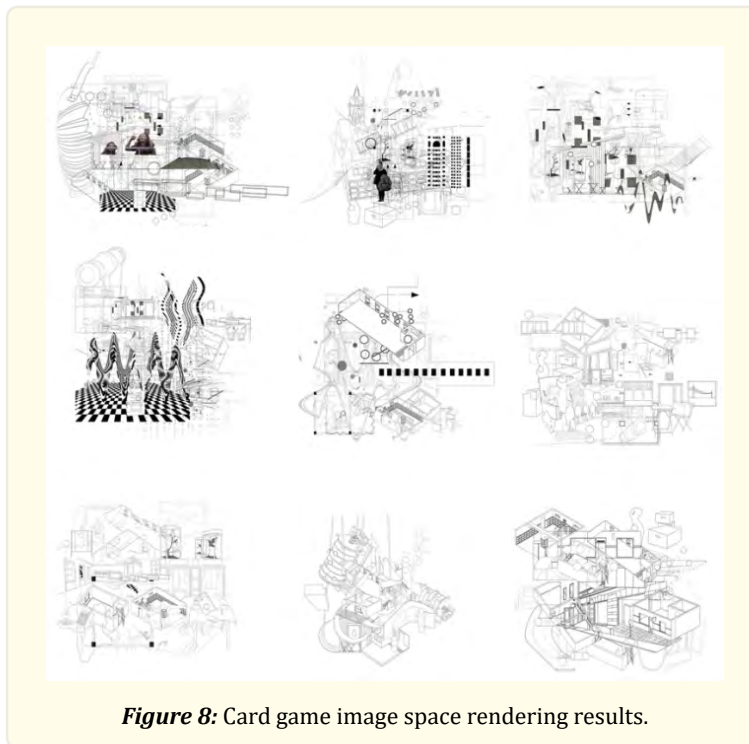
Figure 8: Card game image space rendering results.

Results

Design games is the reconstruction of cultural cognitive language. The purpose of this project is to reconstruct the cultural cognitive language by using a design game in the form of cards. The purpose/nature of cultural cognitive language is to simplify, classify, and abstract experience to form new design concepts and design contexts through the design practice means in design anthropology. Edward Sapir, an American anthropologist, and academician of the Academy of Arts and Sciences, compares cultural cognitive language to the form and structure of arbitrary symbol systems, and believes that language is a tool and thinking is a product (Sapir, 1931). The process of cognition is also a process of language rememory, which mainly includes vocabulary, such as memory, perception, imagination, language, graphics, images, insight, unconsciousness, consciousness, stimulation, and so on. The processing method of information in the memory system consists of three processes: acquisition, retention, and extraction, and previous experience have an impact on the current behavior (Lorenc et al., 2021), which will be reflected in some task operations. Card games connect individual meaningful concept symbols through game design and establish the relationship between things through a priori subjective feelings.

The process of game design generates image space and uses the way of design behavior to preview the future. By exploring the "what", "why" and "possibility" to deal with complex design research problems, users can experience the process of design and gameplay. Intervening in practice through design games can be regarded as a field investigation method of design anthropology. On the one hand, we can understand the human relations. On the other hand, we can reproduce the metaphorical objective objects and ideas by design practice.

To sum up, it can be summarized that a general flowchart is based on the research process of design game (see Figure 9). The article can be divided into three stages. The first stage is the activity analysis stage, mainly including the early literature review, data collection, game observation and activity planning research. The second stage is the planning and design stage, mainly including the six steps of card game. The third stage is the preparation stage of achievements, including the discovery of later achievements, conclusions, and future work plans.
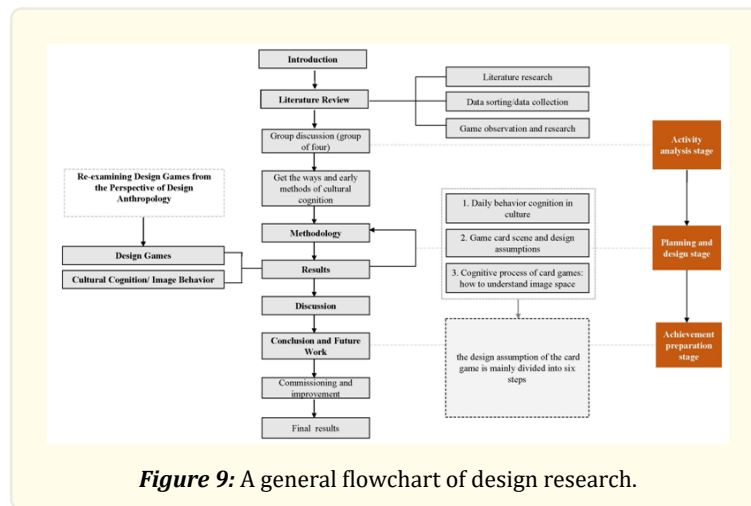
Figure 9: A general flowchart of design research.

Discussion

Design games are not only a way to rerecognize culture, but also a reconstruction of language. Designers discuss design games in the design practice and design context of anthropological research, which is a process of design research methods and thinking training. This paper generally discusses the following questions. How will human beings recognize themselves in their daily life in the future? How to reexamine game design from the perspective of anthropology? How can design games help stakeholders understand their own roles, quickly achieve cooperation, quickly change their research perspectives and participate in the same design and research project creatively?

Some of the questions have been answered. Next, designers participate more in design practice through design research methods, so that we can rethink the meaning of "field". The "field" of design anthropology is not only a real field or user observation but also takes design games as a practical way of current research. The splicing, deconstruction, and reorganization of visual elements are regarded as a behavioral operation means of design anthropology, and a random narrative space is reconstructed by setting card game rules, types, quantities, and participants. Telling the interactive relationship between man and space makes the spatial cognitive image visualized and forms distinctive cultural stories. The new space story narrative is like a game, showing a new view of the world, reality, and standard eyes.

Conclusion and Future Work

In this work, based on image research methods and game means of design anthropology, random probability events become more interesting. After six rounds of card changes, a new story will be generated, the probability occurrence standard will be determined, and deterministic random events will be found. The events generated by probability are reorganized and collaged to produce a new image behavior space. It is found that the process of the game is not only a means of image behavior operation but also a process of transformation and presentation of narrative space. We emphasize the use of game design elements when users participate in team cooperation, and provide a set of card game design methods that can be used to identify or recognize social culture. Through the design practice in design anthropology, cultural cognitive language simplifies, classifies, and abstracts experience to form new design concepts and design contexts. In future work, the design game education can use game cards as the carrier to reconstruct the cultural cognitive language. We will also further demonstrate the social value of a cultural cognitive game according to this research work, and deploy and evaluate it to obtain further insights.

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