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An Exploration of Design Method of Information Chart design in China Art Portfolio Training Institutions

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Abstract

In today's era of big data, the demand for information visualization and globalization is increasing day by day. However, efficiently obtaining relevant information can be very time-consuming, and information graphics have become a popular solution to this issue. Many universities in developed countries have already incorporated education and research related to information into their curricula. However, in China, existing research on information graphic design mainly focuses on simple analysis, overlooking an in-depth exploration of its principles, forms, meanings, and functions. To address this research gap, this study aims to analyze the concepts and methods of information graphic design in art study abroad institutions. Through qualitative analysis, the researchers conducted interviews with portfolio institution teachers, students, and design professionals to collect data from different perspectives. The study compared various design approaches for information graphics and proposed insights. The research findings offer valuable methods and references for design practitioners and students, aiding them in enhancing their practical abilities in the field of information design.This research contributes to the development and application of the information design discipline, laying a foundation for future exploration of theories and practices in information visualization design.

Keywords: Information Chart Design,Information Design Method

1 Introduction

With the advent of the information age, our lives have gradually been enveloped by information, with a vast amount of data continuously being transmitted to us. The ability to read, organize, and extract useful information has become an integral part of daily life [1]. This calls for a method to rapidly digest and process information. In comparison to text, images, or graphics that pique interest, information graphics have emerged as a vital means of conveying information[2]. As Robert Klanten (2010) states, "In just a few short years, this once mundane task of presenting abstract data in a formal manner has become a favorite among designers, making information visualization the ideal realm of graphic designers."[3]

However, from a theoretical point of view, there are not many systematic studies on how to effectively communicate and respond to the visualisation of information to the audience. Only a few designers have explored the graphic design of information from the perspectives of human visual experience, aesthetic psychology and audience, so there is a need to further explore the relevant theoretical and practical issues. (2011, Yau, Nathan)

Currently, a few universities in developed countries are engaged in education and research activities related to information design from multiple perspectives. Given these shared characteristics, information design remains a core teaching activity. The primary focus of this paper is the study of information graphics design and its visualization methods. It comprehensively elucidates the role of graphic design in information design within the field of visual communication design and explores the impact of information graphics design within the realm of visual representation.The aim of this paper is to examine the design of infographics and its visualisation. We will comprehensively explore the design of diagrams in information design within the field of visual communication design and provide an in-depth study and summary of how to approach the design of information graphics within a visual context. At the same time, we provide further illustrations with practical examples, aiming to provide a meaningful and practical contribution to theoretical research and practical application.

2 Research Methodology

The purpose of this study is to provide an in-depth exploration of China Art Portfolio Training Institution infographic design and to assess the effectiveness of graphic messaging. To achieve this goal, a qualitative exploratory research methodology will be used to collect exhaustive data closely related to the research topic through a cross-sectional study. Qualitative research focuses on understanding how individuals view and experience the world . It appears particularly applicable when capturing individuals' thoughts, feelings, and interpretations of different meanings and processes, as well as when gaining an in-depth understanding of a particular issue [4].

This study adopts a problem-oriented approach, focusing on design-related issues and incorporating design practice. The aim is to propose design ideas and methods based on an exploratory study of the problem as a systemic concept and a comprehensive analysis of the relevant elements. The research methodology is based on the analysis of existing information

and knowledge and aims to develop viable design theories. Throughout the research process, a large number of case studies related to infographic design and information visualisation are referenced. These case studies provide valuable insights and theoretical commonalities that can be applied to personalised design cases.

In addition to the case studies, the research methodology used in this study was a literature search. This included reading a large number of information visualisation design cases as well as retrieving relevant concepts. Research methods included comparative

analysis, cross-analysis and summarisation to identify key points and explore potential areas of exploration.

By integrating these methods, the research aims to contribute to the development of practical and theoretical knowledge in the field of infographic design and information visualisation. Synthesising and analysing case studies, exploring theoretical commonalities and retrieving relevant concepts are all important parts of the research process.

This research proposal is based on design-related problems, combining design practice, objectively proposing design ideas and methods, exploratory research of solutions as a system concept, and comprehensive analysis of related elements. Based on the analysis of existing information and knowledge, the methodology aims to develop viable design theories.

The qualitative approach in the research involves a process of investigation and understanding that focuses on social phenomena and human problems. The researcher's aim was to describe the opinions, perspectives and experiences of the participants in their natural context[5]. Qualitative research methods were used in this study. The research instruments included interviews, observations and document analysis.

During the research process for this paper, it was important to review and study a large number of case studies related to information design and information visualisation design. By analysing these individual design cases, it was possible to identify commonalities and various points of discussion. This approach grounds this study in real-world cases and explores their theoretical implications. In addition, conducting a comprehensive literature review is essential to understand the existing knowledge and research in the field. A comprehensive understanding of information design, information visualisation design and related concepts can be gained by translating and reading relevant books, articles and online materials.Talib's references may further support and provide insights into the strengths and applications of qualitative research methods in the field of design [6].

The researcher's primary method of data collection was through interviews. Interviews are used as part of the qualitative research methodology to obtain reliable information through face-to-face, open-ended question exchanges with interviewees [7]. In this study, interviews were used to gain professional perspectives and practical experience of design issues related to infographic design.

The unit of analysis for this study was a sample of professional designers with many years of experience working in the design field. The sampling method used in this study is purposive sampling. It is hoped that they will be able to provide feedback on the basic process of design production. In-depth interviews with open-ended questions will be used to collect data for this study. Face-to-face in-depth interviews will be conducted in order to obtain accurate data. During the interview process, the researcher will prepare interview questions but may add content during the interview process. The researcher will be given permission to record the interviews in order to focus throughout the interview process. Each interview will take approximately 45 minutes.

3 Results and findings

3.1 Results of the interview - 1

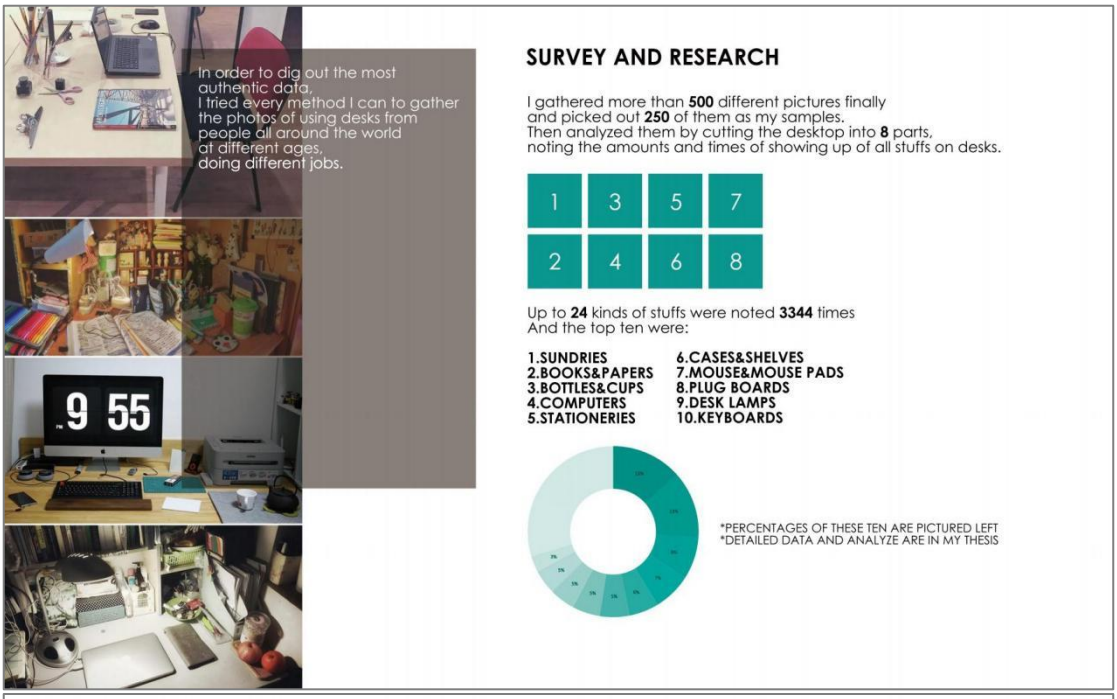
Interviews with the Study Abroad Teacher

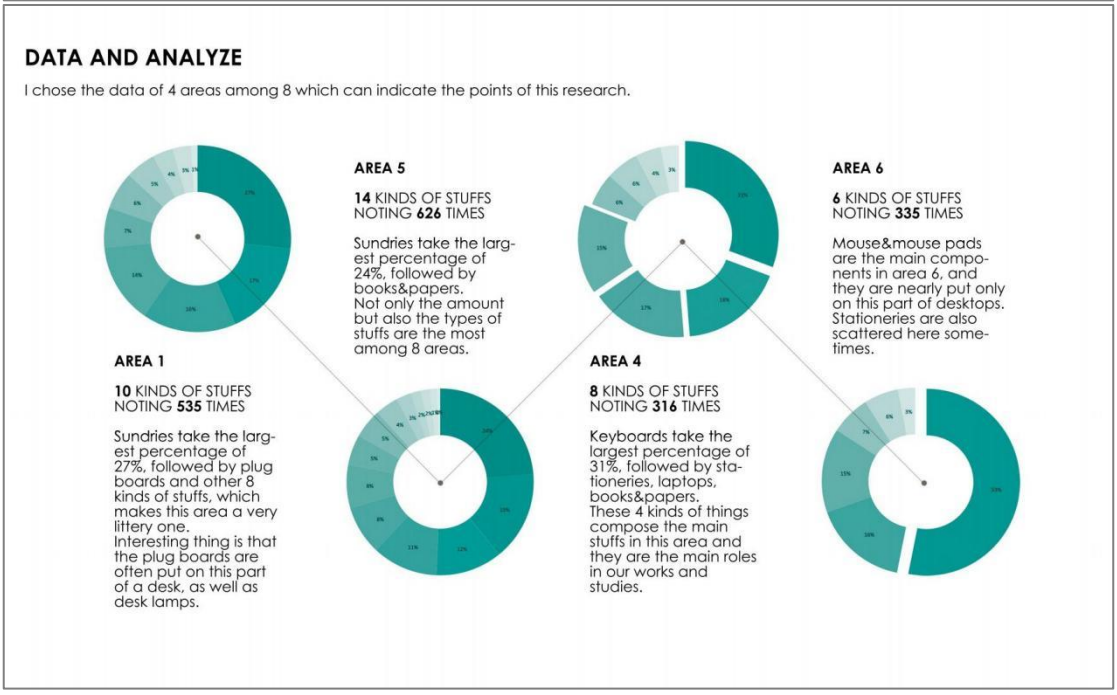
Step 1: Through the recruitment website, the alumni circle determines: graduates from the top 200 universities in the QS worlds ranking or the top 50 universities in the art and design ranking

Step 2: Major in graphic design, interactive design and information design

Step 3: Have work experience as a designer or teaching experience in a training institution, and the total time is more than five years
Step 4: Experience in information design
I will select 15 excellent candidates by comparing graduation colleges, resumes and portfolios

T1 (Undergraduate Institution: Edinburgh University, Master's Degree Institution: Royal College of Art, 4 years of work experience, Taught 25 students)



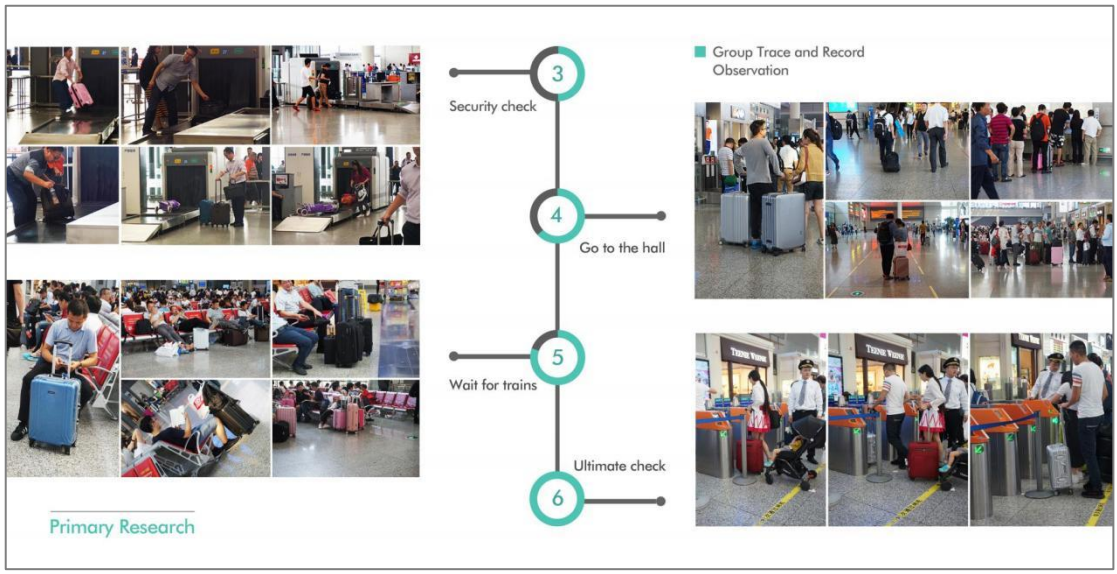


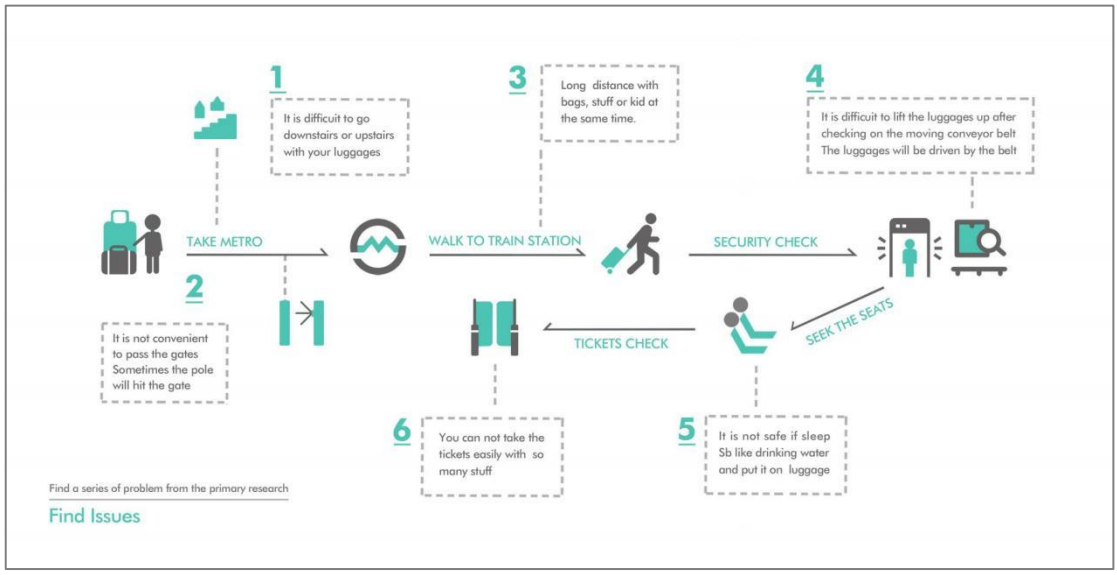
He said that the amount of household waste we have is increasing. In Chinese cities, we produce 1.21 kg of waste per person per day and use bins more and more often. This is his first chart design. "In order to dig out the most realistic data, I tried various methods to collect it, using photos of desks, people from all over the world, in different age groups, and ended up collecting over 500 different photos, from which I selected 250 for my sample. The desks were then analysed by cutting them into eight sections, noting the number of things on the desk and when they appeared. For example, clutter made up the largest proportion at 27%, followed by plugboards and eight other items, which made this area very busy. Interestingly, plugboards and lamps are often placed in this part of the table." Here's a chart from another of his projects. Both started making their own designs after working on the diagrams.

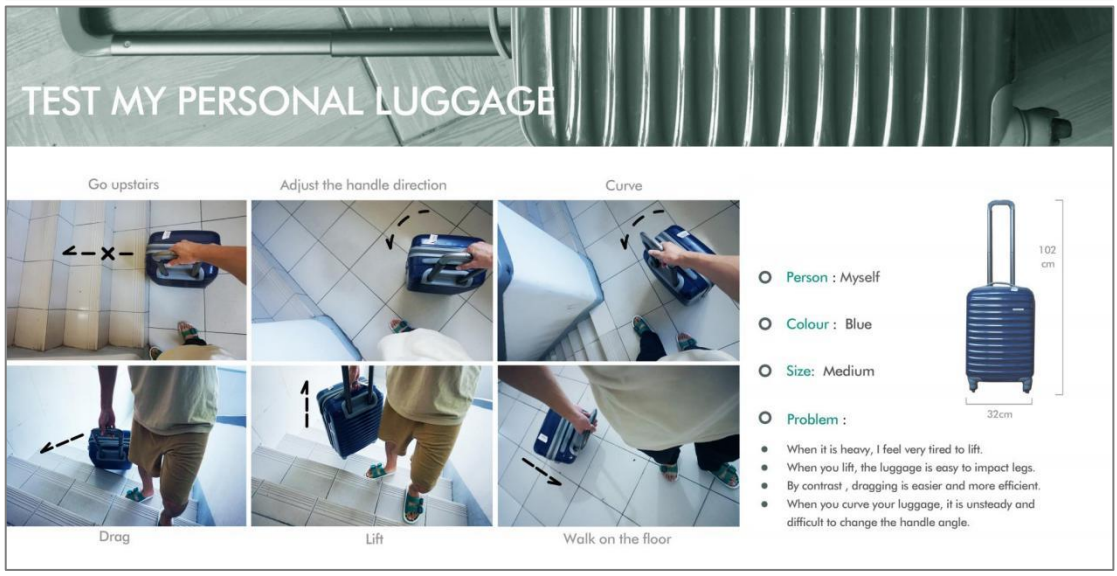
Results of the interview - 2

T2 (Undergraduate Institution: Jiangnan University, Master's Degree Institution: University of the Arts London, Years of Experience: 8, Number of Students Taught: 13)

The teacher, who has returned from Loughborough in the UK, has diagram design in every project and says he is also more experienced in this area. He says that as a designer, information graphic design is now an indispensable skill, but there is still relatively little teaching in this area in China, especially in universities. In the process of teaching his own students, he often stresses to them that information should not be expressed in words when the language can be spoken in pictures.

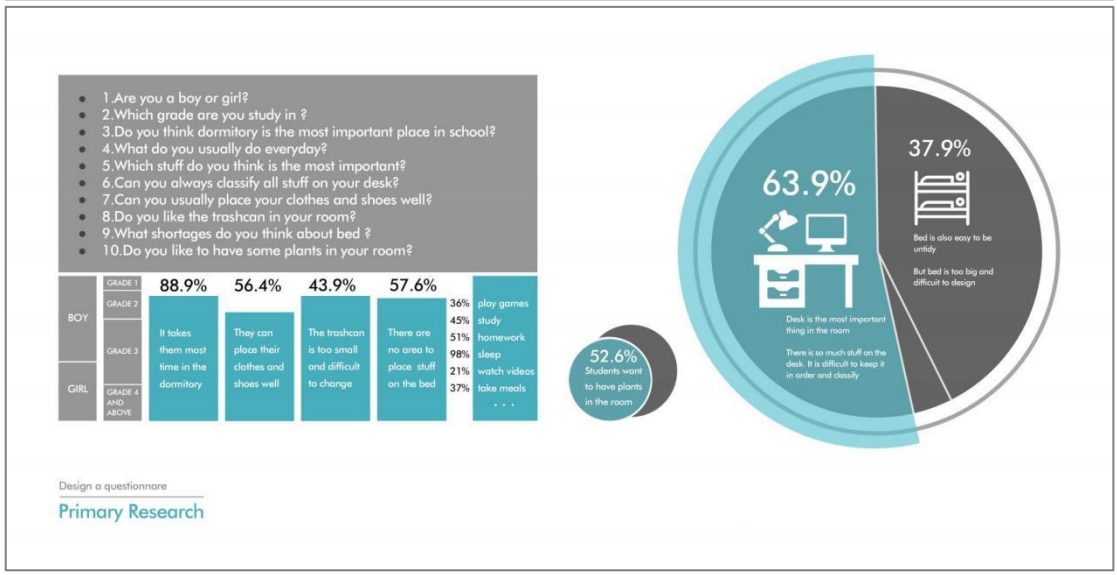






To increase the efficiency of the luggage, design a function, he himself plus live on the fifth floor, every time home luggage is very inconvenient. In the common areas, there are also many stairs to take. He visualised the problems he found in his initial research, he made

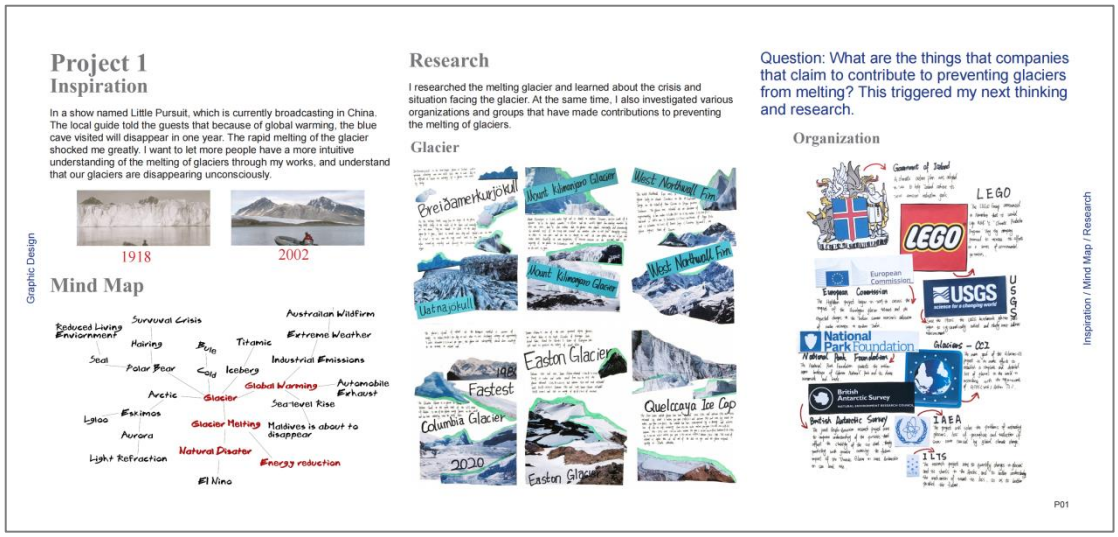
observations about his own luggage, spoke about the problems he observed,, and ideas for solving them etc. He made a diagram design. This was followed by a competitor analysis. Finally he started his product design.

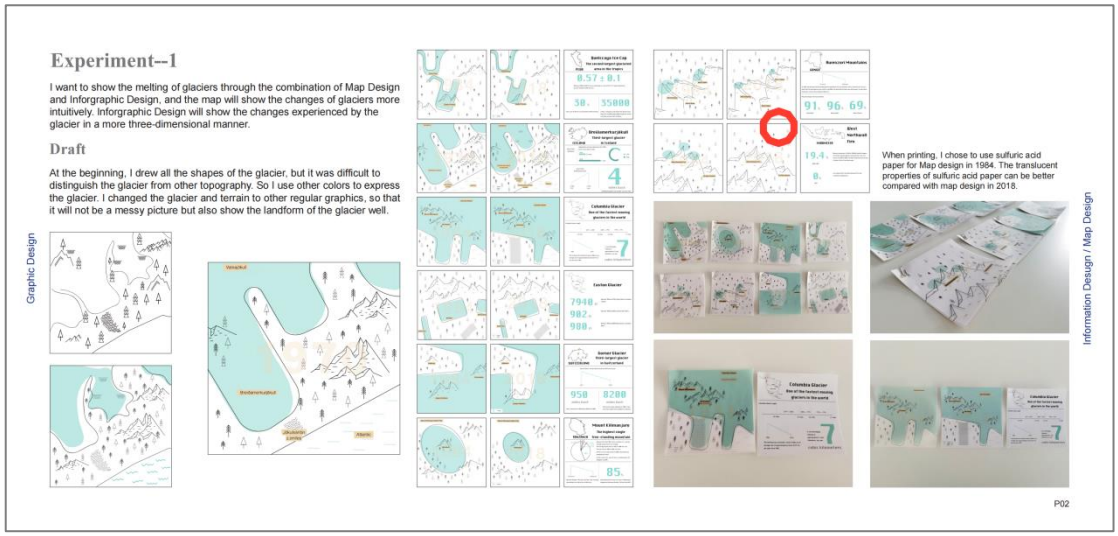


Another project he did was on Chinese hostel facilities. He found that sorting, organising was poor and inefficient and he researched the students and did a survey. This was followed by a chart design.He says "good graphic design UK is visually appealing enough to communicate information clearly to the viewer and has a clear structure."

3.2 Interviews with Students

I wanted to show the melting of the glaciers through a combination of map design and inforgraphic design," said Shi, who later applied to Kingston University for her project on glacial melt. The map will show the changes in the glacier in a more visual way, giving the viewer a better understanding of the changes in the glacier. The inforgraphic design is a more rational digital representation of the dramatic changes the glaciers have undergone over the decades".





3.3 Design Method of Information Chart design

Discovering the problems of information design

There are many things in life that make us ambiguous and lead to the wrong communication of information. For example, if we travel abroad, we need to rely on a signage system to find the destination we want to reach due to our lack of familiarity with the area or

in the event of a language barrier. If the signage is not designed properly or is not easily identifiable, it adds a lot of unnecessary obstacles to our travel. This leads to poor communication of information. This is why it is important to design in such a way that you are part of the audience, to put yourself in their shoes, to find problems and to improve them, and to be aware of and assess the reaction to the information around you. This is based on the idea of considering the audience, making the information design unfamiliar, turning the known into the unknown, and changing the perceptions to make it easier to think about the information design.

Analysing the content of the message design

The first step in message design is to analyse and consider the audience and its environment, to control the content and elements from the standpoint of the audience and to focus the message. It is important to change the audience from passive to active and to change the way they receive information passively.

Finding data

Finding data or gathering information is a prerequisite for message design. Most of the time information is not prepared, it needs to be searched and investigated by the designer [8]. Investigation is an important preparation for information graphic design, as clever design comes from the very beginning of investigation and understanding. We have to gather information from the huge amount of literature and data resources that are also available, it is a valuable research and information resource left by previous generations and should be used wisely. Investigation and collection take much longer than the design itself, so information design always takes a relatively long period of time from the beginning to the end, in order to find more adequate information.

Building the hierarchy

Information is made up of countless pieces of data, which are often presented in a scattered and irregular manner. The process of visualising information is not just a simple translation of readable and visible information, but includes the process of organising useful data into valuable information and then filtering, summarising, summarising and presenting it [9]. Therefore, uncovering the key information in the data and constructing clear, unambiguous and logical relationships is the first step in designing information graphics.

The layering of information takes place in the form of the audience's requirements and is generally divided into two categories: the content level, where we hate to feel confused when a lot of information appears at the same time and always try to group things together, when the information designer should do this first, because it is important to find the focus of the message, rather than giving the audience all the information at once, which would make selection difficult. Categorising information according to the different situations in which it appears and then combining it with research into the target audience gives the final design a rational and analytical state. For example, there must be different content in the website with main headings, sub-headings, links, etc. These are the filters of information for the website worker. Spatial hierarchy, the primary and secondary relationship of space, is like a supermarket shelf, the main products are often placed in the middle of the shelf, that is, where the customer can reach, if it is placed at the top or the bottom, even if it is a popular product, it may be ignored by the customer because of the location or abandoned because it is too difficult to reach, this is also the role of spatial hierarchy of orientation. There is a choice of focus in visuals, special and focused information needs to be arranged prominently, with elements such as colour, shape size and signage to remind the audience of the order in which and how to view the information.

Transforming information

The transformation of information is the beginning of the visualisation of information, which constitutes the basic visual vocabulary of information by transforming abstract information into visual symbols.[10] Visual symbols are mainly icons and images, but also include visual elements such as colours, words and numbers. Of these, icons are an important element of information graphic design. Icons are communication symbols that can be both figurative and abstract. Icons in information design are different from Icon, as long as they can express the meaning of data, they can be called icons, such as pie charts, curve charts, bar charts, time axis, maps, all can be regarded as data icons. Icons are not only the main element of the screen, but also a necessary guide to reading information design, and determining the style of the icon basically determines the way the information design is presented. Clever use of visual forms

Information graphics are carefully designed by designers and, like other design disciplines, must first have a visual aesthetic. The pursuit of formal beauty is an instinctive human response, which conveys the designer's intentions in the first instance. Information is organically organised in visual form through the visual transformation of information structures and information units. The task of information graphic design is not only to communicate the information, but more importantly to improve the quality of the communication of the information through design. It is an important tool for information design to enhance the aesthetic value of information by triggering the "visual pleasure" of the recipient through the beauty of visual forms.

The visualisation of information design is the final and crucial step in the information design process. The success or failure of the visualisation of information determines the success or failure of the information design, and every part of the information design process is essential. When designing indicators and data, the use of graphics with a corresponding practical meaning will make the data charts more vividly presented and make it easier for the user to understand the subject matter to be expressed in the charts.

Contribution of the Study

This study has contributed to the portfolio training industry, students, designers, and other relevant groups in China in the following aspects:

1. Practical Significance: The research findings aid portfolio training institutions and teachers in better understanding the potential challenges they may face in their future teaching endeavors. This helps institutions and teachers develop more effective plans to enhance their performance.

2. Academic Value: The research results expand the existing literature system. The valuable insights gained through academic research provide support for portfolio institutions. This study may also benefit designers and students seeking design methodologies.

3. Teaching Contribution: It offers portfolio institution teachers specialized knowledge in the field of information graphic design, providing high-quality knowledge to students and other individuals in need.

In conclusion, the contributions of this paper encompass describing the design methodologies of information graphics, comparing and analyzing the design processes of different teachers, and showcasing the influence of Western approaches on this field. Furthermore, the roles of teaching personnel in an international context have been investigated. Through the methods and data collection employed in this study, practical conclusions and recommendations are provided for the application of information graphic

design in art portfolio training institutions. These research outcomes have positively impacted the practices and education in this field, offering reference and inspiration for future studies.

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