

Zeya Paper Reborn: Designing Modern Chinese Lamps Using Traditional Bamboo Paper in Wenzhou, China

Maurizio Vrenna¹ & Mengxi Cui²

¹ Michael Graves College of Architecture and Design, Wenzhou-Kean University, Wenzhou, China

² Department of Visual Communication, China Academy of Art, Hangzhou, China

Correspondence: Maurizio Vrenna, Michael Graves College of Architecture and Design, Wenzhou-Kean University, Wenzhou, 325060, China. Tel: 86-577-5587-0712.

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Abstract

Papermaking is one of the four great inventions of ancient China and embodies centuries of wisdom. In the Zeya highlands, northwest of Wenzhou, handmade paper production became the pillar of the local economy during the last century. However, due to industrialization, the demand for traditional handmade paper has significantly decreased, and many papermaking workshops have had to shut down. Today, villagers mainly use Zeya bamboo paper for less noble purposes, such as draft paper. New applications for such culturally-rich material have to be envisioned. This manuscript discusses the *Zeya Paper Reborn* project, which is committed to showing the appeal of Zeya traditional paper through the design of modern Chinese lamps. The bamboo paper is combined with various materials, taking advantage of past and present aesthetics in an attempt to revitalize the local industry. A series of five lamps and an exhibition resulted from one year of study and practice. These design products are meaningful because they respect the regional tradition while adding a touch of modernity. The authors also discuss the project's meaning, results, challenges, and limits. This essay will be of interest to design researchers and practitioners looking for novel approaches to preserve and promulgate Chinese intangible cultural heritage.

Keywords: traditional bamboo paper, modern lamp design, practice-based design research, Chinese intangible heritage, Zeya highlands, Wenzhou

1. Introduction

We are living in a particular moment during which, due to a generational change, an affirmation of modern lifestyles, the depopulation of rural areas, and more efficient production techniques, the Zeya highlands' traditional values and practices are slowly fading. The *Zeya Paper Reborn* project has the noble aim of revitalizing the economy of the Zeya highlands near Wenzhou, Zhejiang (China) by investigating alternative uses for locally produced bamboo paper and promoting its intrinsic qualities. Using practice-based research resulting from design students' work led by an international faculty team, this project is future-oriented yet focuses on traditional Chinese intangible heritage. The idea of working on this project arose from the research group's interest and previous experience in *design for the cultural heritage* and *design for territories* (Menzardi, Peruccio, & Vrenna, 2018; Tai, 2019; Peruccio, Menzardi, & Vrenna, 2020; Peruccio & Vrenna, 2021), as well as from the desire to actively contribute to the development of the local economy and social fabric. The outcome of this research is a series of modern Chinese lamps made by combining traditional paper and other materials. The study gives much food for thought to advance knowledge and experimentations at the bridge between product design, material research, graphic arts, and cultural sustainability.

1.1 About the Zeya Highlands

The highlands of Zeya are located in the Ouhai District, 18km northwest of Wenzhou. The area has a surface of 145.4 km², with the highest altitude at around 1,000m. The mild climate allows a diverse array of plants and wildlife to thrive. This territory is famous for its natural landscapes, including waterfalls, rivers, and lakes, making it a popular tourist destination for those looking to enjoy the beauty of nature (Figure 1). The highlands fall under the jurisdiction of Zeya Town, with a population of 60,498 people (Wenzhou Statistics Bureau, 2022). Zeya Town governs one community and 39 administrative villages (National Bureau of Statistics of the People's Republic of China, 2021). The villages are connected by more than 100 km of roads; because of the terrain, most

of them are only accessible by car. The economy is based on agriculture, tourism, and small industry. Agriculture mainly focuses on growing crops like rice, tea, and fruits. Small industries include food processing, clothing and textiles, and traditional crafts. From 2012 to 2022, the total income of the collective economy increased by more than three times, from 10.73 to 36.78 million yuan. The total tourism output value reached 871 million yuan, with an annual increase of about 10% (Wang, 2021). Despite not being well known abroad, Zeya Town is recognized all over China for its long history of papermaking and is usually referred to as the “living fossil of ancient Chinese papermaking” (Huang & Li, 2021, p. 119).

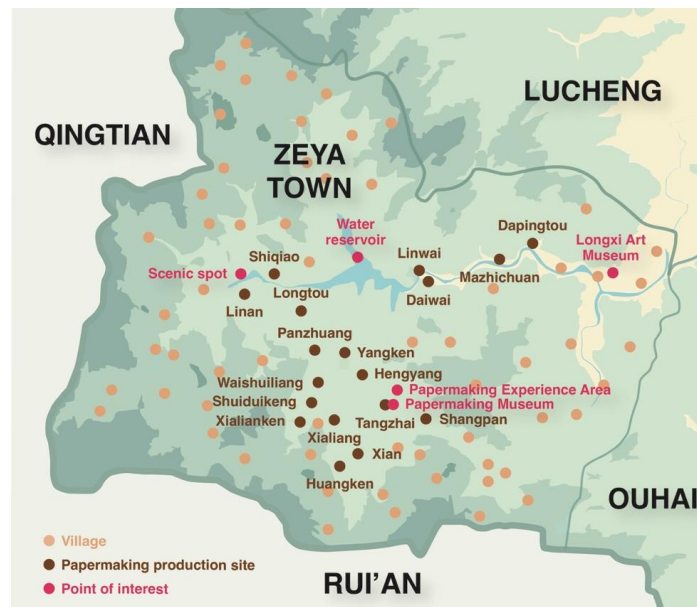


Figure 1. The Zeya highlands are located northwest of Wenzhou’s Lucheng and Ou Hai districts

Note. The map shows the villages, ancient papermaking production sites, and selected points of interest. Illustration by Mengxi Cui and Xinyue Chen.

1.2 Local Bamboo Papermaking

The history of papermaking in Zeya can be traced back to the Tang dynasty in the 8th century. At that time, the *juan paper* was made from mulberry bark and was white and smooth. Papermaking production was interrupted in the Ming dynasty due to the water pollution it caused. However, the introduction of a new method from Fujian province, using bamboo as raw material, helped the industry recover. The warm and humid climate of the Zeya highlands is ideal for bamboo growth, making it a high-quality and cheap plant fibre. The rich water systems became an essential economic driver, and more than 500 water wheels were built. During the heyday of papermaking in the Ming and Qing dynasties, around 60,000 people (roughly 90% of the population) produced 1.5 million bundles of paper annually. The 1930s and 40s witnessed the peak of the paper industry in Wenzhou (Wu, 2015). Paper production became the pillar of the local economy, providing job opportunities for all the villagers. During this period, Zeya bamboo paper was widely sold as toilet and joss paper in Shanghai, Jiangsu, Fujian, Shandong, and Taiwan and exported to other southeast Asian countries. After founding the People’s Republic of China in 1949, the government placed great importance on paper production: the *Paper Purchasing Center* and the *Wenzhou Regional Paper Production and Marketing Cooperation Committee* were established to support the industry (Zhou & Ning, 2014).

1.3 The Decline of a Prosperous Industry

In the second part of the 20th century, the traditional Zeya papermaking process struggled to compete with modern machinery’s efficiency because it was cumbersome, labour-intensive, and dependent on backward production equipment and technology. As a result, locals could no longer solely rely on paper production to survive. Several family-owned papermaking workshops gradually closed, and the working population began migrating elsewhere in the 1990s. The current population is heavily weighted towards seniors; the number of people over 60 years old in Zeya Town reached 14,092 in 2022, accounting for about 23.2% of the population (Wenzhou Statistics Bureau, 2022), much higher than the national average of 18.7% (National Bureau of Statistics of the People’s Republic of China, 2020).

The lack of young people in the area and the resulting neglect of old traditions have resulted in a severe loss of cultural heritage. Only a few households are currently engaged in papermaking production in Hengyang, Shuiduikeng, Tangzhai (Figure 2), Waishuiliang, and Yangkeng villages. Villagers mainly sell bamboo paper in the surrounding areas at low prices, and the quality of the final product is not as good as it used to be (Lu, 2006). Therefore, bringing new blood into Zeya Town is urgent to protect – and valorize – this ancient skill that otherwise may be lost forever.



Figure 2. The village of Tangzhai is surrounded by green hills rich in vegetation. Today, papermaking production only engages a few households.

1.4 Practices to Protect the Cultural Heritage

Zeya's cultural heritage, inspired by its unique rural landscapes, encompasses folk activities and appetizing foods in addition to traditional papermaking skills. The papermaking skills, having been passed down for centuries, form the foundation of the highlands' customs. Although papermaking technology and folk culture have been relatively well preserved due to attention from relevant authorities, the economic viability of producing and selling bamboo paper is a continuing challenge.

Efforts are being made to promote Zeya Town's bamboo paper through exhibitions, papermaking experiences, art workshops, and thematic homestays. Zeya Town has also invested in building various landmarks, such as the Papermaking Museum, the Papermaking Experience Area, the Zeya Longxi Art Museum, the Qijun Memorial Hall, and the Fable Literature Museum. In 2001, the old water piles and paper mills in the area were included in the 5th batch of the national cultural relics protection units (Government of the Central People's Republic of China, 2001), while in 2007, the Zhejiang province added Zeya's traditional papermaking in the 2nd batch of the intangible cultural heritage list (The People's Government of Zhejiang Province, 2007).

In 2010, the national project *Compass Plan*, to systematically re-discover and display cultural heritage values, was settled in the Tangzhai Village (Zhou & Ning, 2014). In 2014, the central government formally recognized Zeya bamboo papermaking as a valuable national intangible cultural heritage (Qi, 2014). Zeya Town set the goal to become an ecological, touristic, and culturally-prosperous town (Z. Li, 2020) during the 13th five-year plan (2016-2020). As a result, in the past quinquennium, Zeya Town has seen a dramatic flow of investments and human capital, which has led to an increase in tourism-related activities and a flourishing cultural industry. The future foresees more outstanding promotion of the unique characteristics of bamboo paper and the creation of more innovative products and services to drive the regional economy.

2. Significance of the Study

The loss of cultural legacy between past and present is evident in the number of considerable renovations in the local urban and industrial patterns. These renovations, essential for the town's economic development and citizens' welfare, regrettably flatten aesthetic tastes and overly-standardize industrial design products. A more responsible, culturally-rich, and ethical theory of design holds that products should not just be intended as mere objects but as a means of expression that embeds expertise, tradition, aesthetics, and innovation, in addition to being in tune with the times. The *Zeya Paper Reborn* project embraces this vision of the future of product design by combining ancient and modern production techniques.

The theme of cultural heritage protection is not unknown to designers. Several Chinese researchers and practitioners have already explored it with innovative approaches and collaborations with the government at the city-, province- and national levels (C. Li, 2020; Chu, Tan, & Chen, 2018; Feng, 2018; Teng, 2018; Yang &

Wang, 2018; Chen & Lin, 2017; Lyv & Zhang, 2016; Xie, 2016). Still, this research is unique because it is the first attempt at an academic methodological design study in the Wenzhou area carried on by a university with an international imprint. Furthermore, the Department of Industrial Design at Wenzhou-Kean University is relatively young and dedicated to intensifying the connections with other local actors (e.g., factories, workshops, artisans, and museums). Hence, this project is an incredible opportunity to create long-lasting bondings and start new international collaborations.

3. Research Objectives

This study was conducted within the framework of a highly-competitive program funded by the Wenzhou-Kean University Office of Research and Sponsored Programs (Office of Government and Community Relations) called *Students Partnering with Faculty*. The program supports and advances research and creative work while providing students with extra-curricular learning opportunities. This design study has a robust pedagogical nature for students with a research-oriented, learning-by-doing component aimed at acquiring new knowledge. In addition, the tangible outcomes may find real-world commercial applications. The research's objectives are manifold:

- 1) Gain relevant qualitative data about the current situation of traditional papermaking in the highlands of Zeya.
- 2) Improve students' critical skills in practice-based design research.
- 3) Leverage innovative design possibilities by combining traditional handcraft papermaking techniques with industrial production.
- 4) Experiment with the design of new, modern Chinese lamps.
- 5) Start a collaboration with the graphic design department to support the product designers to elaborate, where necessary, their visual ideas.
- 6) Extrapolate, from practice, reflections on how to sustain local paper production in the long term.
- 7) Pave the way for further research to raise public interest and awareness.
- 8) Aspire to concrete real-world applications in support of the local community.
- 9) Promote Chinese intangible cultural heritage.

4. Research Methodology and Timeline

The practice-based research for this project took place in Wenzhou from September 2021 to November 2022, involving two faculty and 19 undergraduate junior design students. The project started with a field trip to the Zeya highlands at the beginning of the fall semester. As part of the Industrial Design Studio II – a core course of the industrial design program – students were tasked with developing the concept for a new lamp (desk, floor, wall, or ceiling), utilizing Zeya paper as the key material. Students had six weeks to approach the research individually and qualitatively, working on preliminary ideas, sketches, 3D models, and renderings. They presented their concepts through posters and rudimentary physical models. The best designs were then selected for further development.

Product development took most of the effort and spanned more than three semesters. Industrial design students, heavily occupied with their primary studies, conducted this project during their spare time and were supported by the faculty, who met and advised them periodically. During this period, students refined their 3D models, update their physical prototypes, and eventually got in touch with small factories that, at affordable prices, helped build high-fidelity prototypes.

In October 2022, five lamps were submitted for a patent application (the patents were granted in February/March 2023) and showcased at the Zeya Longxi Art Museum, a modern museum space in Zeya Town. A team of dedicated graphic design students worked on the exhibition's visual identity, promotion, and layout. The exhibition attracted various stakeholders' interest and had excellent media coverage. In November 2022, the research group reflected on the project in light of the feedback received during the event.

5. Zeya Paper Reborn

The *Zeya Paper Reborn* project is a comprehensive study encompassing desk and field research, material experimentations, design proposals, product iterations, prototyping, exhibition design, communication, and critical reflections on contemporary issues. It builds on interpreting the transforming values of local bamboo paper while arousing people's consciousness on the subject. It invites the audience to reflect on the importance of innovation and research in design through the eyes of younger generations. As a practice-based design project with real-world applications, it stimulates students' critical thinking and interdisciplinarity. Zeya bamboo paper,

now primarily used for less noble purposes – such as draft, toilet, or joss paper – acquires new meaning, coming to life again in the form of modern Chinese lamps. This form is not accidental: paper lamps and lanterns have a long history dating back to the 6th century (Tsien, 1985). They have become a symbol of national pride in China and are still used during celebrations to decorate both public and private spaces.

5.1 Educational Field Trip

A trip to the Zeya Papermaking Museum in September 2021 was enlightening for all the participants and a fundamental part of the field research. The small museum has a well-curated section that describes the traditional papermaking process. The procedure, done mainly by hand, includes 72 steps. Some of the steps for making Zeya paper are more primitive than the ones recorded in the *Tiangong Kaiwu*, a 17th-century encyclopedia covering various technical subjects (Huang, 2020). The tour guide also described a simplified bamboo papermaking process with fewer actions (Figure 3), typically involving:

- 1) Bamboo cutting: Farmers cut off the bamboo plants – grown up in the mountains for at least one year. Then remove the branches and leaves, and cut them into sections of one-meter length.
- 2) Sun-drying: The bamboo poles are broken with a hammer and placed under the sun to dry.
- 3) Soaking: Once dried, farmers move the bundles into a pond, arrange them in an orderly manner, and press them with stones. They then fill the pond with water, soak the bamboo, and sprinkle quicklime to accelerate the corrosion and softening processes.
- 4) Turning: The soaking process generally lasts 50 to 60 days. The water is stirred twice a month to ensure the bamboo corrodes and softens evenly.
- 5) Washing: All the impurities are removed from the water using a filter.
- 6) Beating: The soaked bamboo is beaten to separate the fibres from the poles.
- 7) Mixing: Farmers step on the paper with their feet or use other tools to mix the fibres and create a pulp.
- 8) Forming: The pulp is scooped out with a sieve and pressed to form bamboo paper sheets of the same size. The sheets are stacked to a height of around 30 cm.
- 9) Pressing: Farmers use press and roll rods to squeeze the paper dry.
- 10) Drying: The stacked paper is dried under the sun.
- 11) Separating: Farmers separate the stacked papers into single sheets.
- 12) Sorting and packing: The paper sheets are sorted and packed for sale.

The papermaking process is theoretically easy but highly laborious, with some complicated steps. To understand the process better, students were then invited to experience hands-on papermaking production, guided by expert local papermakers (Figure 4). Meeting the villagers, talking to them, listening to their concerns and future visions of Zeya Town, and learning such an ancient form of craftsmanship was a memorable, enriching experience. This field trip laid the foundations for the next steps of the research.

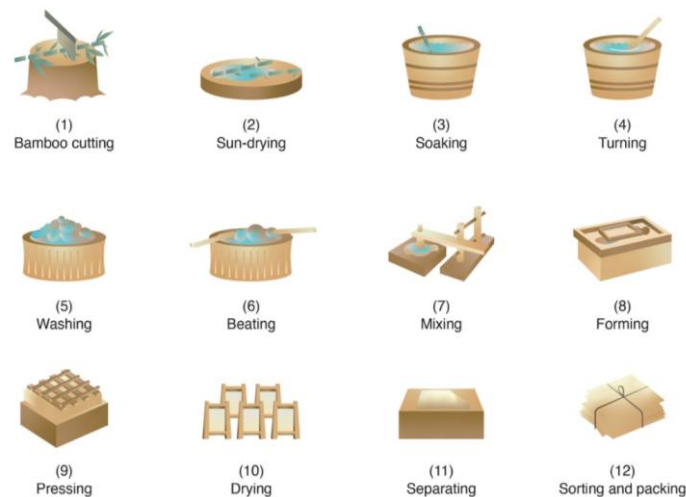


Figure 3. The main steps of bamboo papermaking process

Note. Illustration by Mengxi Cui and Xinyue Chen.



Figure 4. A student tries to make bamboo paper, guided by an expert villager

5.2 Tinkering with the Bamboo Paper

In the following weeks, students played around with the bamboo paper. Tinkering with materials is an integral part of the learning process and an essential activity for product designers. This playful, casual exercise allowed them to discover more about the unique characteristics of this material. Different from the industrially-manufactured paper that is whitened using bleach, Zeya paper has a natural yellow colour, a pleasant bamboo scent, and presents small impurities – for instance, the occasional fine wood chip. The paper's surface is coarse, rough, and holds the distinctive pattern of the sieve obtained during the forming process. The paper usually comes in sheets measuring 22 cm x 17 cm, similar to the size of facial tissues (Figure 5). The format of the paper is directly proportional to the sizes of the pond and the sieve; nevertheless, it can be customized according to particular needs. Compared to regular paper, a more accurate analysis showed that Zeya's one is slightly heavier but with a lower density, better water absorption properties, and higher light transmittance. It is not very resistant but quite flexible; thus, it can assume many conformations. It also has an exquisite touch of handicraft and transmits a sense of historical belongingness.

During this phase, students were also introduced to some simple notions of lighting design. They learned to understand how light sources interact with paper surfaces and created unique, lovely warm lighting effects. Furthermore, students explored the possibilities of combining bamboo paper with other materials. They then worked on developing design concepts and presented their first ideas through posters and basic prototypes.



Figure 5. Zeya bamboo paper has a natural yellow color and a rough surface

Note. It is characterized by small impurities and a distinctive pattern. It usually comes in sheets of 22 cm x 17 cm.

5.3 Concept Proposals and Selection

Nineteen concept proposals displayed students' creativity, hard work, and different project approaches (Figure 6). Considering the level of preparation of this class of junior students, their rendering capability, and the relatively short time allocated for the project, some concepts were clear and well defined, while others displayed unfinished potential. By contrast, a few designs had substantial gaps (for example, they were not correctly visualized or were incomplete). Ignoring the illustration techniques and the roughness of the prototypes, concept proposals were evaluated according to the following parameters:

- Aesthetics: The overall look and feel of the lamp and the lighting effects.
- Innovation: The product's ability to communicate new concepts unconventionally.
- Use of materials: The use of bamboo paper in combination with other materials.
- Sustainability: Environmental and cultural sustainability of the product.
- Feasibility: Considering the skills of the local factories, the easiness in industrialization and production.
- Commercial viability: The potential attractiveness of the lamp on the local and international markets.
- Diversity: Ability to bring out each product's intrinsic peculiarities and create a heterogeneous collection.
- Student's attitude to the project: The students' perceived effort and capability of managing the work.

Six projects were selected for further development after the course: *Golden Dawn*, *Pitaya Lamp*, *Gingko Love*, *Golden Mountain Lamp*, *DIY Memory Lamp*, and *Fading*. The prototypes were exhibited during the *Wenzhou Culture and Creative Industry Association* event on Wuma Street, in the city centre of Wenzhou, from 3 to 5 December 2021 (Figure 7). At this event, the intent was not just to show the projects – which were incomplete – but rather to collect informal yet helpful feedback from passers-by to determine their interest in these types of products and opinions on the concepts.

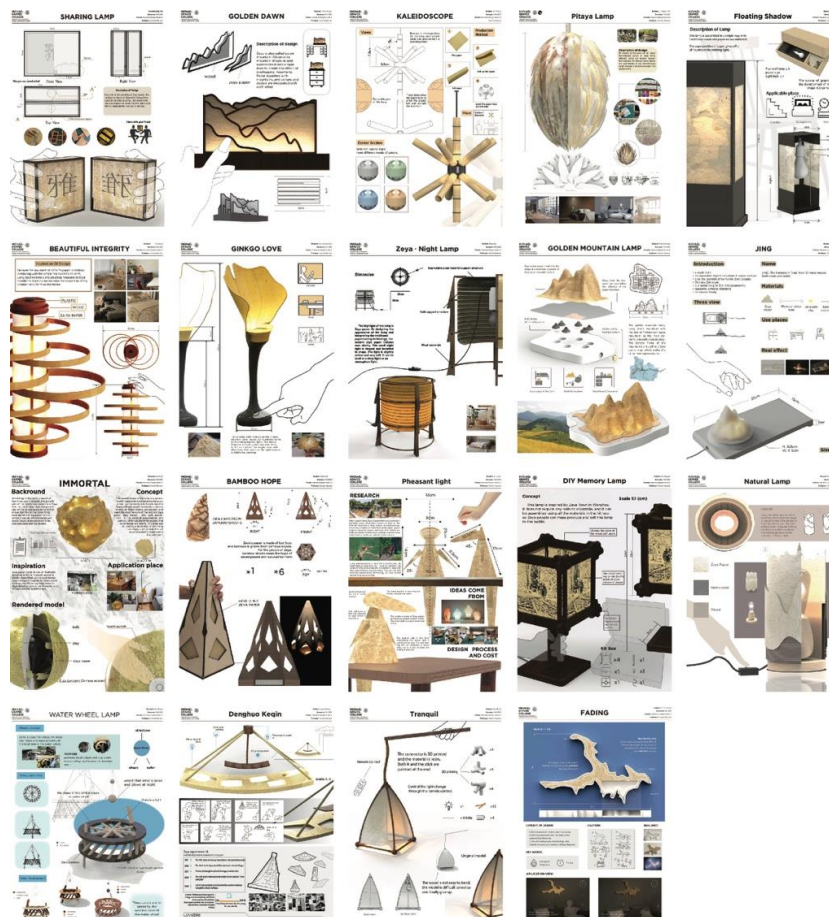


Figure 6. Students' concept proposals

Note. Posters by Lanlan Cai, Yixuan Chen, Fanshu Jin, Huijing Li, Yuhong Pei, Jiayue Tao, Jialei Wu, Siyu Zang, Chenyou Zhao, Yuxuan Du, Minqi Hu, Ruixuan Qi, Xukai Su, Xinyuan Xu, Shihan Zhang, Xuyue Zhen, Yiheng Zhong, Shuqi Zhu, Yizheng Zhu.



Figure 7. Selected prototypes were exhibited during the Wenzhou Culture and Creative Industry Association event on Wuma Street in December 2021

Note. From left to right: *Golden Dawn*, *DIY Memory Lamp*, *Ginkgo Love*, *Golden Mountain Lamp*, *Fading*, and *Pitaya Lamp*.

5.4 Product Development

Selected students were engaged in the product development phase for approximately ten months after the conclusion of the Industrial Design Studio II course. Brief update sessions with tutors took place bi-weekly to monitor the progress of the research and the quality of work. Major review meetings occurred monthly and, on a few occasions, also involved external experts. First, the students critically reviewed their projects, enhanced some aspects, and refined the technical details.

Once the 3D models – created with SolidWorks or Rhinoceros – were updated, the students used university facilities to make prototypes and test their achievability. The students had to contact external suppliers if the university workshop did not have the necessary machinery to carry out specific operations. They were recommended to reach out to local companies. However, due to the Covid-19 pandemic prevention restriction policies at that time, it was easier to deal with most companies online rather than face-to-face. Hence, there was a vivid exchange of messages and negotiations – mainly on Taobao – between students and small factories scattered throughout the Zhejiang, Fujian, and Guangdong provinces. Only in a couple of cases was it possible to visit the factory in person.

This exchange was a valuable introduction to the profession for the students because they were confronted with problems related to production and delivery times for the first time, and they learned to modify their projects to obtain more convenient quotations. The prototypes produced by the factories proved to be, overall, good quality and affordably priced. In most cases, however, more than one prototype was needed, and up to three different versions were created to achieve an optimal result.

The product development phase was crucial for this research, and the students approached the project with great awareness and maturity. Compared to the first concept proposals presented in the studio course, the projects underwent an enormous evolution in quality and detail. Even the names of the lamps were changed to reflect their novelty better. Of the original six lamps, five evolved into their final versions.

6. Exhibition and Final Products

A final exhibition was planned as the culminating outcome of this *Students Partnering with Faculty* project, to increase public interest. The exhibition was intended to bring the lamps to their homeland, just a few kilometres from where bamboo paper is produced. The chosen location – the recently-inaugurated Zeya Longxi Art Museum – is both suggestive and significant. The museum is located on the Longxi river to the west side of the Zeya government complex, beside the access gate to the scenic area. The layout of the Zeya Longxi Art Museum, inspired by the traditional construction of Zeya's papermaking workshops, has a remarkably narrow plan characterized by five interlocking volumes (FAX Architects, 2021).

The exhibition, entitled *Zeya Paper Reborn*, was curated by Maurizio Vrenna and Mengxi Cui, with the help of Wenning Shi, Yuxuan Du, and Zhenze Yao (exhibition design), and Xinyue Chen and Yeshuhan Wu (graphic design and communication) (Figure 8). An exclusive space on the second floor was secured with an expansive river view. Five exquisite lamps with exotic names, the result of the brilliant work carried out by product design

students and, in one case, with the contribution of graphic designers, were displayed in the exhibition.

The public display lasted from 15 to 23 October 2022, with many locals having the opportunity to admire the products. A closing event saw the participation of influential local figures, including the major of Zeya Town, Wencai Ye, the Zeya Longxi Art Museum curator, Zhongjie Shen, the vice-chancellor of Wenzhou-Kean University, Xiadong Zheng, and dozens of people of different social backgrounds and skills (Figure 9). The local government has expressed positive comments for the work – the only one of its kind and the first in collaboration with an international university.

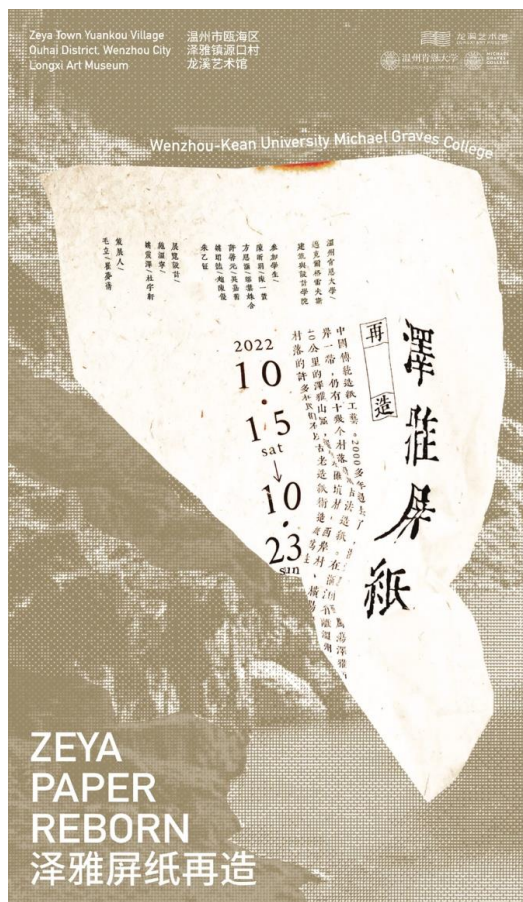


Figure 8. The poster of the exhibition *Zeya Paper Reborn* designed by Mengxi Cui, Xinyue Chen, and Yeshuhan Wu



Figure 9. Participants discussing some details of the lamps during the closing event at the Zeya Longxi Art Museum

6.1 A Beautiful Scenery

A Beautiful Scenery is a suggestive ambient lamp. The lampshade is made of small pieces of Zeya paper glued together in the shape of a mountain (Figure 10). The bottom part of the lamp, made of beech wood, subtly brings to mind the map of the area while accommodating two bright LED light bulbs. The mirror represents the placid waters of the nearby lake and naturally reflects the light. The golden button adds a touch of exquisiteness to the product (Vrenna & Zhao, 2023). The innovation of this product lies in the production process of the lampshade: the pieces of Zeya paper were glued onto a 3D-printed plastic profile to give them the characteristic shape. Once the glue solidified, the profile was removed and reused for producing other lampshades.



Figure 10. *A Beautiful Scenery*, a suggestive ambient lamp

Note. Photo by Chenyou Zhao.

6.2 Ginkgo

Ginkgo is a night lamp whose design is inspired by Ginkgo Biloba, an autochthonous tree native to China. The main body of the lamp is made of corrosion-resistant stainless steel; the lampshade consists of a layer of Zeya paper. *Ginkgo* plays on the duality between traditional and modern, artificial and natural. The shiny, polished, and cold metal contrasts with the simplicity and warmth of the unrefined bamboo paper. These materials are connected and fixed with screws, suggesting their symbiotic relationship (Figure 11). In the attempt to combine a functional object with artistic touches, *Ginkgo* is a clear tribute to Art Deco (Vrenna & Wu, 2023). This lamp underwent a radical evolution from the preliminary prototype to the finished product, experiencing multiple iterations. It was necessary to involve two factories to obtain an optimal result regarding the curvature of the metal part and the surface finish.

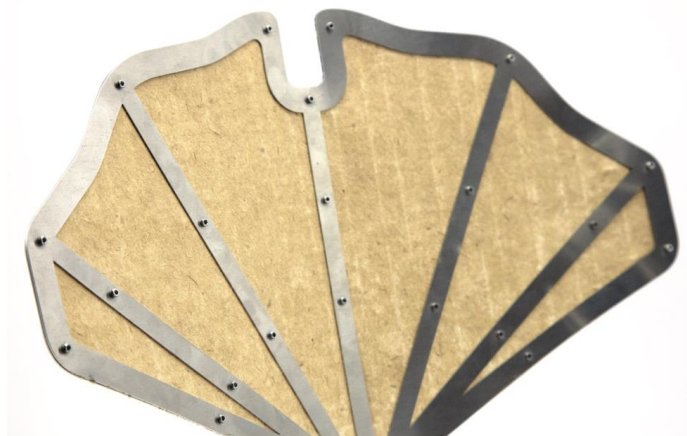


Figure 11. A detail of *Ginkgo*, a night lamp whose design is inspired by Ginkgo Biloba and is a clear tribute to Art Deco

Note. Photo by Jialei Wu.

6.3 Golden Dawn

Golden Dawn is a desk lamp, inspired by Zeya's beautiful landscape and the golden sunlight's reflections at dawn (Figure 12). The product is made of laser-cut red rosewood panels in the shapes of mountains and hills, arranged into layers to create a rich and intriguing skyline. An LED strip covered with white opaque acrylic sheets is placed in the base. When the light powers up, it reflects on the yellowish paper creating a pleasant visual effect. This lamp, uncomplicated to produce and assemble, uses clever technical solutions and a combination of unusual materials to reveal the product's beauty and functionality. For instance, the wood panels and the acrylic sheets are not glued together, so it is possible to slide them out for maintenance easily, should the light source need be replaced (Vrenna & Chen, 2023).



Figure 12. *Golden Dawn*, a desk lamp made of paper and wood panels arranged into layers to remind of a mountainous skyline

Note. Photo by Yixuan Chen.

6.4 Memories of the Village

A project at the bridge between product and graphic design, *Memories of the Village* is an easy-to-assemble desk lamp made of laser-cut wood panels that comes in lovely packaging. The four pieces of Zeya paper, one for each side of the lampshade, have unique patterns inspired by the details of traditional local architecture (mostly eaves, roofs, and windows) printed on the paper's surface. The dominant colour of this product is red, an intense and eye-catching hue popular in Chinese culture (Figure 13). In its simplicity, this lamp is innovative because it is versatile and particularly suitable as a gift. Users may change the graphics on the paper at their discretion. This feature makes it highly customizable, creating an empathic relationship with the user (Vrenna & Xu, 2023).



Figure 13. Developed by industrial and graphic design students, *Memories of the Village* is an easy-to-assemble, highly-customizable desk lamp

Note. Photo by Xinyuan Xu.

6.5 Pristine Lake

Pristine Lake is a wall light fixture in the stylized shape of the Zeya water reservoir. Given its sizeable dimensions, it is an excellent showcase piece. Similar to a typical three-dimensional front-lit signboard, it has a brushed aluminium scaffolding with an LED strip inside. The front consists of one layer of transparent acrylic and one of Zeya paper. When lit, the lamp emits a warm and soft light (Figure 14). Besides being aesthetically pleasing, *Pristine Lake* invites us to reflect on the importance of water resources and the pollution problems connected with the paper industry.

At first glance, this lamp may seem challenging to produce. However, the process is simple because it uses – in a new and creative way – the well-established know-how of light sign manufacturers, which are popular in China and Zeya Town. The production of this prototype required a customized format of Zeya paper. In addition, the making of this lamp led the research team to learn more about artisan realities and inventive production techniques (Vrenna & Zhu, 2023).



Figure 14. *Pristine Lake*, an elegant wall light fixture in the stylized shape of the Zeya water reservoir

Note. Photo by Yizheng Zhu.

7. Discussion

The design of culturally-sensitive products is a powerful way to display societal connotations, transferring a long inheritance process into aesthetically-pleasing objects. The *Zeya Paper Reborn* project is a tribute to Chinese culture, which reflects the locals' talent and the crystallization of centuries of wisdom while raising awareness of this topic among younger generations. The project not only preserves the cultural heritage but enriches it – evolving it with a new key to understanding and an eye for an optimistic future in line with the expectations of local authorities.

Because the research was led by Chinese and international faculty working at a Sino-American jointly-operated university, some may argue that this project involves a certain degree of cultural appropriation. It is more accurately termed an outstanding example of cultural appreciation; the topic has been investigated with methodological rigour, respect, seriousness, and humility, with the genuine intent of learning from other cultures and helping others learn more about Chinese cultural heritage.

Zeya Paper Reborn is a design project “oriented toward the professional formation of accountable figures [...] able to conceive innovative products [...] with the intent of improving collective conditions” (Peruccio, Menzardi, & Vrenna, 2019, p. 20). It is also an interdisciplinary project because – parallel to the work done by the product design students – the graphic designers became passionate about this topic during the UI/UX II course, creating simple graphic products and other minor artefacts.

Regarding the project's sustainability, this is not just cultural: environmental sustainability was also considered. While the bamboo paper is not without environmental impact, it is an eco-friendlier alternative to regular paper due to its lower water usage, reduced use of chemicals, and carbon sequestration potential. Furthermore, all the lamps use low energy consumption LED lights, are made with recyclable materials, minimize glues and paints, are designed to last for a long time, and are easy to disassemble in case of maintenance and final disposal.

In conclusion, this research was successful. Qualitative data on bamboo paper production in Wenzhou was collected, new relationships were established with the local community, the research team achieved surprising results (e.g., exhibition and patents), and students significantly improved their critical and analytical thinking skills. Carrying out this project required many efforts that have been rewarded with the invaluable opportunity of sharing the results with the domestic and international academic community. The study, therefore, is not an end but a new starting point for future studies. It presents, in fact, limitations mainly related to time constraints and causes of force majeure. For instance, it would be advisable to identify more local factories to produce the artefacts. Also, it would be beneficial to involve villagers in the conceptualization and design of lamps – eventually through the organization of thematic workshops – and to quantify, through economic studies, the impact these products, combined with other revitalization strategies, can have on the territory. Additionally, in an ongoing effort to improve, refine, and express new and ever-changing meanings, creating products other than lamps may be necessary.

8. Future Plans

The research team will travel to Zeya Town again in the coming months to strengthen ties with local authorities and support factories in mass-producing the lamps. Undoubtedly, the team will collaborate more intensely with the villagers because the solutions adopted should not be imposed by academic researchers but rather result from a co-design process with master papermakers. In this way, it will be possible to sustain the local economy not only in the short and medium terms but also in the longer run. Other collaboration opportunities with Zeya Town are also being investigated to increase interdisciplinarity between product and graphic design students at Wenzhou-Kean University. Some examples include: alternative initiatives to improve tourism, the modernization of the *Papermaking Experience Area*, the study of new thematic workshops, and the creation of digital and interactive experiences. Some students have decided to explore some of these topics in their final graduation projects.

Other design practitioners and researchers are likely to take inspiration from the *Zeya Paper Reborn* project to create meaningful products in step with the times. Furthermore, more and more young people will learn to appreciate the rich cultural background of the Zeya highlands and will ensure that its legacy will be preserved.

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