

The Exemplar of Edutainment: Tong Xiegeng's *Yizhi* Puzzle and His Art of Integrating Learning with Play in Late Imperial China

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ABSTRACT: Tong Xiegeng's 童叶庚 (1828–1899) *yizhi* puzzle (*yizhitu* 益智图) exemplifies a pioneering model of edutainment in late imperial China, seamlessly integrating intellectual cultivation, moral education, and aesthetic engagement within an interactive gameplay framework. Invented in 1862 as an evolution of the traditional Tangram, this 15-piece tangram puzzle transcended mere recreation by embedding classical poetry, historical narratives, and ethical maxims into its puzzle-solving mechanics. Through rigorous textual and visual analysis of the series of *yizhi* puzzle books, this study argues that the *yizhi* puzzle achieved edutainment synergy via three innovations: (1) universal accessibility appealing to children, elites, and even the imperial court; (2) multidimensional content design that merged cognitive challenges (e.g., character/poetry assembly) with Confucian moral tales and artistic creation; (3) text-image pedagogical synergy where abstract puzzle outcomes visualized literary texts, enabling embodied learning. Through a comprehensive analysis of Tong Xiegeng's educational ideas in the series of *yizhi* puzzle books, this research illuminates the enduring significance of the *yizhi* puzzle. This exploration not only deepens our understanding of traditional Chinese educational toys but also highlights their potential in shaping modern pedagogical approaches. Furthermore, the series of *yizhi* puzzle books reflects Tong's perspectives on children, childhood, children's games, and toys as an ordinary intellectual of the late Qing Dynasty. This investigation contributes to the history of children's games and toys and to the broader field of Chinese childhood studies.

EET/TEE KEYWORDS: Edutainment; *Yizhi* puzzle; Tong Xiegeng; Text-image integration; Chinese pedagogy; XIX Century.

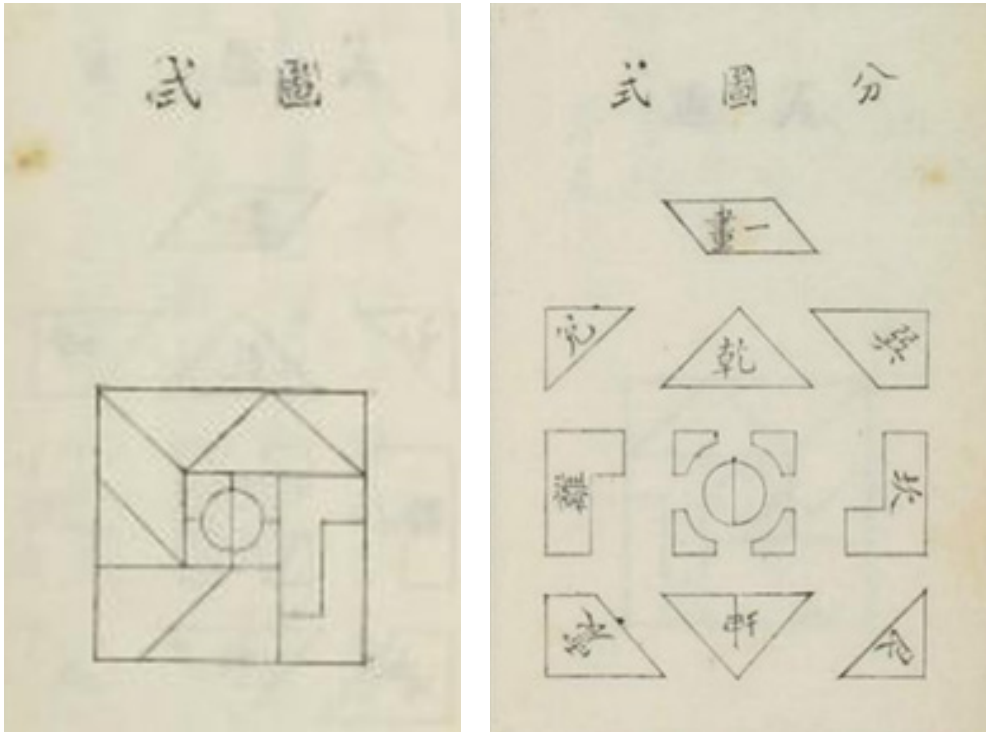
Introduction

The mid-19th century marked a profound transformation in China's perception of childhood. Amidst the backdrop of imperial decline and Western encroachment, reformers like Liang Qichao 梁启超 (1873–1929) began to view children as «the nation's future», emphasizing the need for educational tools that foster both intellectual growth and civic virtues¹. Traditional primers (*mengshu* 蒙书), with their reliance on rote memorization, failed to engage young learners effectively. It was in this context that Tong Xiegeng 童叶庚 (1828–1899), a former county magistrate in Zhejiang, introduced the *yizhi* puzzle [益智图] in 1862 – a 15-piece tangram puzzle designed to nurture wisdom through play (see Pic. 1 and Pic. 2). Unlike top-down reformist agendas, Tong's innovation arose from observing children's play, enhancing the Tangram by incorporating eight additional polygonal pieces inspired by the cosmology of the *Book of Changes* [I Ching 易经], including elements like the «Great Terminus» [太极], the «Two Elementary Forms» [两仪], the «Four Emblematic Symbols» [四象], and the «Eight Trigrams» [八卦], thus unlocking complex creative potentials. Tong Xiegeng and his family also published a series of books related to the *yizhi* puzzle: *Yizhitu* 益智图, *Yizhi xutu* 益



Pic. 1. An Image of Tong Xiegeng Holding a Treasured Mirror. Reprinted from Tong Xiegeng, *Chaojie shanren xiaoying* 巢睫山人小影 in *Yizhitu* 益智图, Shanghai, Shangwu yinshuguan, 1933, Vol. 1.

¹ For further references on the relationship between Chinese children and the state, see J.L. Saari, *Legacies of Childhood: Growing up Chinese in a Time of Crisis, 1890–1920*, Cambridge, MA, Council on East Asian Studies, Harvard University, 1990; A.F. Jones, *The Child as History in Republican China: A Discourse on Development*, «Positions: East Asia Cultures Critique», vol. 10, n. 3, 2002, pp. 695–727; J. Flath, N. Smith (edd.), *Beyond Suffering: Recounting War in Modern China*, Vancouver, UBC Press, 2011; C. Plum, *Lost Childhoods in a New China: Child-Citizens-Workers at War, 1937–1945*, «European Journal of East Asian Studies», vol. 11, n. 2, 2012, pp. 237–258; S. Graziani, *Youth and the Making of Modern China: A Study of the Communist Youth League's Organisation and Strategies in Times of Revolution (1920–1937)*, «European Journal of East Asian Studies», vol. 13, n. 1, 2014, pp. 117–149; P. Zarrow, *Educating China: Knowledge, Society, and Textbooks in a Modernizing World, 1902–1937*, Cambridge, Cambridge University Press, 2015, pp. 77–146.



Pic. 2. Tong Xiegeng's Yizhi Puzzle. Reprinted from Tong Xiegeng, *tushi* 圖式 and *fen tushi* 分圖式 in *Yizhitu*, cit., Vol. 1.

智续图, *Yizhi zitu* 益智字图, *Yizhi yanjitu* 益智燕几图, *Yizhitu yinzhiwen* 益智图阴鹭文², and *Yizhitu qianziwen* 益智图千字文. These publications represent the collective achievements of Tong Xiegeng and his family, highlighting their collaborative efforts, although Tong Xiegeng is the sole inventor of the puzzle.

Existing research has predominantly concentrated on the background of Tong and his family, the philosophical connections to the *Book of Changes*, and the artistic and educational significance of the *yizhi* puzzle series³. What

² Unfortunately, *Yizhitu yinzhiwen* was not well preserved and has been lost.

³ Xu Yunqiu 徐运秋, *Tong Xiegeng*, «Guoxue lunheng 国学论衡», n. 6, 1935, p. 48; Zhuo Guan 卓观, *Ji Chongming Tong Xiegeng xiansheng (futu, shufa)* 记崇明童叶庚先生 (附图、书法), «Su duo 苏铎», vol. 2, n. 1, 1941, pp. 23-25; *Ji Chongming Tong Xiegeng xiansheng* 记崇明童叶庚先生, «Jiangsu wenxian 江苏文献», n. 5-6, 1942, pp. 139-140; Kao Gu 考古, Jia Sha 佳莎, *Woguo gudai Yizhitu kaoshu* 我国古代《益智图》考述, «Neimenggu shehui kexue 内蒙古社会科学», n. 2, 1990, p. 72; *Yizhitu qianchu muhou gushi* 《益智图》牵出幕后故事, «Chengshi shangbao 城市商报», n. 9, 2009, A02; Liu Lei 刘磊, *Yizhitu tanwei* 《益智图》探微, «Xungen 寻根», n. 5, 2013, p. 90; Chai Taoxiong 柴焘熊, *Tong Xiegeng*, Shanghai, Shanghai renmin chubanshe, 2015; Id., *Tong Xiegeng yu zhili wanju* 童叶庚与智力玩具, «Chongming bao 崇明报», December 13, 2017, p. 4; Liu Weizhen 刘为珍, *Tong Zhiyu yu tade Tongshi yizhitu* 童治宇与他

has been lacking is a comprehensive analysis of how this puzzle integrates entertainment with education – a gap this study aims to fill. I assert that Tong’s brilliance lay not just in expanding the physical form of the puzzle, but in creating a multimodal edutainment ecosystem: his publications seamlessly integrated puzzles with classical texts, transforming gameplay into a medium for intellectual, moral, and aesthetic education.

The article is organized as follows: The following section explores the educational objectives and target pedagogical audience of Tong’s puzzle book series. The following section delves into the puzzle’s content architecture, illustrating how intellectual, moral, and aesthetic education were embedded into play. Additionally, considering that this series exemplifies the «integration of text and image», we analyze how Tong and his family skillfully utilized this combination. From an educational standpoint, particularly regarding children’s education, what role does this integration play? The final section assesses its legacy, arguing that Tong – an “ordinary intellectual” – challenged conventional biases against games for children and advocated for a child-centered perspective.

1. *Conceptualizing Edutainment: Tong Xiegeng’s Design Philosophy for the Yizhi Puzzle*

Tong Xiegeng created the *yizhi* puzzle as a means to «alleviate his boredom» [自娱]. However, he soon discovered that his invention not only brought him joy but also «provided amusement to others» [娱人]⁴. Although the original purpose of the series of *yizhi* puzzle books was leisure and entertainment, Tong Xiegeng and his family also sought to incorporate educational principles. As a result, the series became a «tool for developing the mind» [开发心智]⁵. The Chinese name of Tong’s puzzle, *yizhitu* 益智图, is indicative of this core aim of the puzzle. *Yi* [益] can be translated as «benefit» or «advantage», indicating something that is helpful or advantageous. *Zhi* [智] can be translated as «intelligence» or «wisdom», referring to intellect, or the ability to think and reason. See, for example, the following passage from the *Analects*: «To devote oneself earnestly to one’s duty to one’s humanity and, while respecting the spirits, to avoid them, may be called Wisdom [zhi]»⁶. The acquisition of wisdom is in-

的童氏益智图, «Xunyang wanbao 浔阳晚», December 15, 2018, A9; Li Xiangwen 李祥文, *Tong Xiegeng Yizhitu zhi yaqu ji buzhu* 童叶庚《益智图》之雅趣及不足, «Mei yu shidai 美与时代», n. 8, 2023, pp. 81-83; Id., *Tong Xiegeng Yizhitu de chushi yu rushi jingshen* 童叶庚《益智图》的出世与入世精神, «Mei yu shidai», n. 9, 2024, pp. 92-95.

⁴ Tong Xiegeng, *zixu* 自序 in *Yizhitu*, cit., Vol. 1.

⁵ Id., *zixu* in *Yizhitu*, cit., Vol. 1.

⁶ The original text is «务民之义，敬鬼神而远之，可谓知矣». Engl. transl. by W.E. Soothill, *The Analects of Confucius*, New York, Paragon Book Reprint Corp., 1968, p. 311.

separable from morality because, remaining with the *Analects*, «To learn, by which the Sage meant the study of morals [...] means the acquisition of wisdom and its expression in conduct»⁷. *Zhi* can also be understood as knowledge. For example, «I am not one who has innate knowledge, but one who, loving antiquity, is diligent in seeking in therein» (also from the *Analects*)⁸.

Tong also consistently emphasizes in his books that «while this is a game» [虽属游戏], «the textual expressions found in these associated books should not be dismissed as insignificant» [笔墨未可视为小道也], which reflects the meticulous efforts of Tong and his family in the design process⁹. A fundamental principle underlying the *yizhi* puzzle is the ability to «extrapolate from one instance to other cases»¹⁰. The patterns in the book series serve as mere samples, encouraging children to leverage the relationships between the puzzle pieces and devise new arrangements that differ from the examples provided. Moreover, they have the freedom to design patterns for various subjects, allowing for creative exploration beyond the confines of the given combinations.

Tong's puzzle attracted a wide-ranging audience, including people of opposite genders, diverse ages and classes. For instance, women were included as the puzzle's intended audience. One example is that Tong described the *yizhi* puzzle as a pastime for intellectuals and accomplished women from wealthy families in *Yizhi xutu*¹¹. Tong's puzzle was also accessible to individuals of all ages, with children naturally falling into the intended audience. This is supported by the origin story of *Yizhi zitu*: the book evolved from Tong's son's handwriting practice, aiding in the development of his calligraphy¹². Additionally, while the initial concept of *Yizhitu qianziwen* emerged from a challenge posed by Tong's friend, its prototype, the *Thousand-Character Classic* [*Qianziwen* 千字文], held significance in traditional Chinese children's educational literature. Moreover, Tong's puzzle not only functioned as a popular folk toy for the general public but also received the attention of the imperial family in the late Qing. For example, Prince Gong 恭亲王 (Yixin 奕訢, 1833–1898), the sixth son of the Daoguang Emperor, was very fond of the *yizhi* puzzle. He even owned an exquisite ivory *yizhi* puzzle set, the pieces of which were placed in a small square copper box that he carried with him. In 1893, Prince Gong provided the four-character inscription [操觚新格] «forging new scribal forms» for *Yizhitu qianziwen*¹³. It was said that Puyi 溥仪 (1906–1967), the last em-

⁷ Soothill, *The Analects of Confucius*, cit., p. 108.

⁸ The original text is «我非生而知之者，好古，敏以求之者也» in Soothill, *The Analects of Confucius*, cit., p. 351.

⁹ Tong Xiegeng, *ba* 跋 in *Yizhi xutu*, Shanghai, Shangwu yinshuguan, 1924.

¹⁰ Id., *bianyan* 弁言 in *Yizhi xutu*, cit.

¹¹ Id., *jiechao* 解嘲 in *Yizhi xutu*, cit.

¹² Zhu Meijun 祝梅君, *Yizhi zitu*, Shanghai, Shangwu yinshuguan, 1924, «zitu fu 字图附». Zhu Meijun is Tong Xiegeng's wife.

¹³ Tong Xiegeng, *tizi* 题字 in *Yizhitu qianziwen*, Shanghai, Shangwu yinshuguan, 1923.

peror of Qing, played with Tong's puzzle during his childhood¹⁴. It remains challenging to substantiate this claim, despite the existence of a collection of *yizhi* puzzle sets in the Palace Museum today¹⁵. Nevertheless, these examples collectively indicate the widespread popularity of Tong's puzzle, even among members of the imperial family.

2. Weaving Knowledge, Virtue, and Beauty: The Multifaceted Content of Edutainment

Examples of poetry, allusions, and objects in *Yizhitu*, along with their annotations, can serve as materials for intellectual, moral, and aesthetic education. Similarly, within *Yizhi zitu*, examples of character combinations and their annotations can function as sources for these three kinds of education. In *Yizhi xutu*, examples of everyday objects and their annotations can be utilized as a medium for moral and aesthetic education. The combinations related to tables in *Yizhi yanjitu* can be used as materials for intellectual education. Examples of character combinations in *Yizhitu qianziwen* can serve as sources for intellectual and aesthetic education.

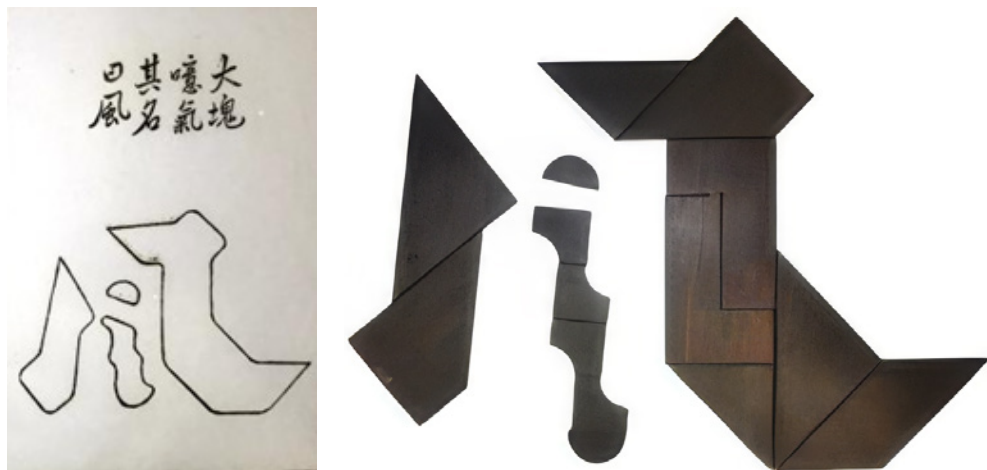
2.1. Intellectual Play: Learning Through the *Yizhi* Puzzle

Playing the *yizhi* puzzle can greatly enhance children's intellectual development by providing them with knowledge in various disciplines, including Chinese characters, poetry, geometry, and history. Firstly, Tong's puzzle serves as a tool for inspiring young children to explore Chinese characters and poetry. For example, *Yizhi zitu* comprises 150 patterns based on Chinese characters, each with its own distinctive features and accompanied by concise explanations. Among them, the pattern for the character *feng* 风 [wind] is accompanied by the following annotation, from the *Zhuangzi*: «dakuai yiqi, qi ming wei feng» 大块噫气, 其名为风¹⁶ (see Pic. 3). In this pattern, the curved part in

¹⁴ Liu Baojian 刘宝建, *Huanggong li de wanju* 皇宫里的玩具, «Zijincheng 紫禁城», n. 6, 2006, p. 39; Peter Rasmussen, Zhang Wei, Liu Nian [刘念], *Quwan 1: Zhongguo chuantong yizhi youxi* 趣玩 1: 中国传统益智游戏, Beijing, Sanlian shudian, 2021, p. 209. Unfortunately, no further primary evidence has been found to confirm the connection between Puyi and Tong's puzzle.

¹⁵ *Qiqiaotu he Yizhitu* 《七巧图》和《益智图》, <<https://www.dpm.org.cn/collection/utensil/233316.html>> (last access: 23.01.2025).

¹⁶ The translation is «When the breath of the Great Mass (of nature) comes strongly, it is called Wind», see Engl. transl. by J. Legge, *The Tao Tê Ching: The Writings of Chuang-Tzû, the Thâi-Shan Tractate of Actions and Their Retributions*, Taipei, Ch'eng-wen Publications, 1976, p. 225.



Pic. 3. The Character *Feng* (Wind) Formed in *Yizhi zitu*. The pattern on the left is reprinted from Zhu Meijun, *Yizhi zitu*, cit., 26b. The pattern on the right is assembled by the author of this article.

the middle can be seen as the breath coming out of the mouth. From another perspective, the overall shape depicts a person standing between two boulders, bent over as if being buffeted by the wind. This combination vividly captures the essence of “wind” and facilitates easy understanding.

Secondly, the combinations of Chinese characters in *Yizhi zitu* could be pieced together into poems or lines from famous works, showcasing the beauty and depth of Chinese language and culture. Examples include «Mingyue zhiru» 明月直入¹⁷, «Qingfeng xulai» 清风徐来¹⁸, «Zhengxin xiushen» 正心修身¹⁹, «Keji fuli» 克己复礼²⁰, «Zhilan junzide, songbai gurenxin» 芝兰君子德,

¹⁷ The original text is «明月直入, 无心可猜», [A beam of bright moonlight floods the room, attesting to my sincere intentions, / truly nothing worth speculating about]. See Li Bai 李白, *Dulu pian* 独漉篇 in *Li Taibai wenji* 李太白文集, Shanghai, Shangwu yinshuguan, 1930, juan 卷 4, yuefu 乐府 2, p. 32.

¹⁸ The original text is «清风徐来, 水波不兴», [A gentle breeze blows in, / the water's surface undisturbed, not a ripple in sight]. See Su Shi, *Qian chibi fu* 前赤壁赋 in *Su Dongpo quanji* 苏东坡全集, Beijing, Beijing yanshan chubanshe, 1998, Vol. I, juan 卷 1, p. 14.

¹⁹ The original text is «物格而后知至, 知至而后意诚, 意诚而后心正, 心正而后身修, 身修而后家齐, 家齐而后国治, 国治而后天下平», [Things being investigated, their knowledge became complete. Their knowledge being complete, their thoughts were sincere. Their thoughts being sincere, their hearts were then rectified. Their hearts being rectified, their persons were cultivated. Their persons being cultivated, their families were regulated. Their families being regulated, their states were rightly governed. Their states being rightly governed, the whole kingdom was made tranquil and happy]. See Engl. transl. by J. Legge, *Li Chi: Book of Rites: An Encyclopedia of Ancient Ceremonial Usages, Religious Creeds, and Social Institution*, New York, University Books, 1967, Vol. 2, p. 412.

²⁰ The original text is «克己复礼为仁, 一日克己复礼, 天下归仁焉», [Virtue is the denial of

松柏古人心²¹, «Bafang tong riyue, liuhe gong shanchuan» 八方同日月, 六合共山川²², «Busu ji xiangu, duoqing nai foxin» 不俗即仙骨, 多情乃佛心²³, and «Kaizhang tian'anma, qiyi renzhonglong» 开张天岸马, 奇逸人中龙²⁴, and derived from the works of renowned poets, such as Li Bai and Su Shi, or from the teachings in *The Four Books and Five Classics*, such as *The Great Learning* and *The Analects of Confucius*. By immersing themselves in the game, players are subtly influenced to appreciate and learn these famous poems, fostering a deeper understanding and appreciation of Chinese literature and philosophy.

Similarly, there are 63 assorted lines of famous poetry in the first volume of *Yizhitu*. The selected verses mainly consist of works from the Tang and Song dynasties, accounting for 50% and 25% respectively. The reasons for this choice are quite clear. During the Tang and Song periods, Chinese poetry reached remarkable heights, characterized by profound artistic expression, rich cultural significance, and enduring literary value. The poets of this era were masters of language, adept at capturing the essence of human emotions, nature's beauty, and the complexities of life. Their works have stood the test of time, influencing generations of poets and leaving an indelible mark on Chinese literature²⁵. It is important to highlight that Tang poetry started being integrated into elementary school curriculum in the Mid-Tang Dynasty. One of the factors behind this is the traditional Chinese belief that children could

self and response to what is right and proper. Deny yourself for one day and respond to the right and proper, and everyone will accord you Virtuous]. See *The Analects of Confucius*, cit., pp. 557–558.

²¹ The original text is «芝兰生于深林, 不以无人而不芳; 君子修道立德, 不为穷困而改节», [The orchid thrives deep in the forest, / its fragrance not withheld even when no one is around; / a noble person cultivates virtue and integrity, / unwavering in principles despite hardship]. See *Kongzi jiaoyu* 孔子家语, annot. Wang Su 王肃, Shanghai, Dazhong shuju, 1933, p. 109. «松柏古人心», [The hearts of ancient people are like pine and cypress] is the text of a calligraphic work by Wang Shimin 王时敏 (1592–1680), who was a famous painter of the late Ming and early Qing dynasties.

²² The original text is «八荒同日月, 万古共山川», [All things in the world share the same sun and moon, / while since ancient times, the mountains and rivers have been a shared spectacle]. See Yuan Zhen, *Chuge shishou* 楚歌十首 in *Yuanshi changqing ji* 元氏长庆集, Shanghai, Shanghai yinshuguan, 1936, p. 24.

²³ The original text is «不俗即仙骨, 多情是佛心», [If a person can shed worldly airs, they embody the aura of a celestial being; / and if one is compassionate, they can possess a heart as merciful as that of a Buddha]. See Jiang Shiquan 蒋士铨 (1725–1785), *Linchuan meng* 临川梦, annot. Shao Haiqing 邵海清, Shanghai, Shanghai guji chubanshe, 1989, p. 155.

²⁴ The translation is [The finest horse in the realm boasts a lineage of divine dragons, / while exceptional individuals are akin to dragons among men].

²⁵ B. Watson, *Chinese Lyricism: Shih Poetry from the Second to the Twelfth Century, with Translations*, New York, Columbia University Press, 1971, pp. 109–224; V.H. Mair, *The Columbia History of Chinese Literature*, New York, Columbia University Press, 2001, pp. 274–313, 337–69; S. Owen, *The Late Tang: Chinese Poetry of the Mid-Ninth Century (827–1860)*, Cambridge, MA, Harvard University Asia Center, 2006; M.A. Fuller, *An Introduction to Chinese Poetry: From the Canon of Poetry to the Lyrics of the Song Dynasty*, Cambridge, MA, Harvard University Asia Center, 2017.

acquire the skill of composing poetry through the memorization of poems²⁶. In this sense, Tong Xiegeng adopted the same strategy, since the poems selected in *Yizhi* were well known and not difficult to understand.

Thirdly, it is important to note that the series of *yizhi* puzzle books enhances players' understanding of geometry. Tong's puzzle is a captivating geometric-graphical game that demands keen observation skills and attentiveness to the geometric relationships between its pieces. For example, there are some repeated characters in *Yizhi zitu*, like «human» [人], «big» [大], «self» [己], «book» [书], «rite» [礼], «so» [所], «eight» [八], «nine» [九], «ten» [十], and «thousand» [千]. The character “human” is represented in five distinct patterns. Despite having only two strokes, these examples present completely different arrangements. The strokes vary in thickness and detail with differing annotations. This implies that players must possess keen observation skills, patience, and attention to detail in order to recreate these intricate designs.

Yizhi yanjitu is also closely tied to geometric knowledge. The *yizhi* puzzle can be arranged into various geometric shapes, such as «zhougui» 周规, «zheju» 折矩, «changfang» 长方, «bianfang» 扁方, etc.²⁷. Each category can be further divided into various types, with *zheju* featuring nine additional versions for a total of ten patterns and *changfang* employing three additional versions for a total of four patterns. In fact, in the extant version of *Yizhi yanjitu* referred to for this study, identifying the playing methods can be challenging due to the complex combination of rectangles and squares, while the outlines of triangles, pentagons, hexagons, parallelograms, and semicircles are difficult to discern. There is a total of 30 groups of «original patterns» [正体] in *Yizhi yanjitu*, which includes 100 original patterns. The names of these patterns are based on the layout of the table arrangements. Tong always emphasized that players could generalize from the original examples in the book and create different patterns based on them²⁸.

Lastly, the series of *yizhi* puzzle books offers readers a unique opportunity to gain historical knowledge²⁹. In the late Qing Dynasty, an American mis-

²⁶ Bai Limin, *Shaping the Ideal Child: Children and Their Primers in Late Imperial China*, Hong Kong, The Chinese University Press, 2005, p. 43.

²⁷ In traditional China, the *gui* 规 was a specialized tool used for drawing circles, while the *ju* 矩 was an L-shaped ruler designed for creating right angles, see *Zhoubi suanjing* 周髀算经, attributed to Zhao Junqing 赵君卿 (ca. 182–ca. 250), reorganized by Zhen Luan 甄鸾 (dates unknown), annot. Li Chunfeng 李淳风 (602–670), in *Sibu congkan chubian* 四部丛刊初编, Shanghai, Shangwu yinshuguan, 1936, *zibu* 子部, vol. 388, *juan* 卷 1, p. 6. *Changfang* referred to a rectangular shape, and *bianfang* indicated a flat rectangle shape.

²⁸ Tong Xiegeng, *Yizhi yanjitu*, cit.

²⁹ In village schools for elementary education, there exists a form of introductory textbook called *Mengqiu* 蒙求, which comprises anecdotes and rhymed phrases. The initial *Mengqiu* book was authored by Li Han 李翰, a scholar who achieved the *jinshi* 进士 degree during the Later Tang Dynasty (923–936). The text, presented in rhymed verses, encompassed 596 four-character phrases distributed across two chapters (*juan*), with each phrase containing an allusion.

sionary working at Peking University was entrusted by a friend to investigate the effects of different Chinese children's games. He found that a high-ranking official's son had a keen interest in the *yizhi* puzzle and could skillfully arrange it to depict a hippopotamus and a Luo turtle, associating them with the traditional Chinese stories of Fu Xi 伏羲 and Yu the Great 大禹³⁰. This implies that players, while playing with this toy, are also subtly learning about the historical background behind the examples. Examples of Chinese historical and cultural allusions in the first volume of *Yizhitu* include «Che Wu nangying» 车武囊萤³¹, «Sun Kang yingxue» 孙康映雪³², «Zaobi touguang» 凿壁偷光³³, «Suiyue dushu» 随月读书³⁴, «Yiqiao jinlü» 圯桥进履³⁵, «Yiqin yihe» 一琴一鹤³⁶, «Wanshi diantou» 顽石点头³⁷, «Mianbi liuying» 面壁留影³⁸, «Huxi sanxiao» 虎溪三笑³⁹, «Paozhuang hualong» 抛杖化龙⁴⁰, «Qiniu guoguan» 骑牛

Typically, the first two characters denoted the individual referenced, while the subsequent two summarized the tale, drawing mainly from historical texts or legends. See Engl. transl. by B. Watson, *Meng Ch'iu: Famous Episodes from Chinese History and Legend*, Tokyo, Kodansha International, 1979. Tong Xiegeng's book contains some of the same allusions as *Mengqiu*, but Tong did not use rhymed phrases.

³⁰ I. Taylor Headland, *The Chinese Boy and Girl*, New York, Fleming H. Revell Company, 1901, pp. 116–117.

³¹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 25b. For the source of this allusion, Fang Xuanling (comp.), *Jin shu*, cit., vol. 4, *juan* 卷 83, «liezhuan» 列传53, p. 2177.

³² Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 26a. For the source of this allusion, see Ouyang Xun (comp.), *tianbu xia* 天部下 in *Yiwen leiju*, cit., *juan* 卷 2, p. 23.

³³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 26b. For the source of this allusion, see Ge Hong 葛洪 (ca. 238–ca. 363), *Xijing zaji* 西京杂记, Beijing, Zhonghua shuju, 1985, p. 12.

³⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 27a. For the source of this allusion, see Xiao Zixian 萧子显 (487–537) (comp.), *Nanqi shu* 南齐书, Beijing, Zhonghua shuju, 1972, *juan* 卷55, «liezhuan» 列传 36, p. 295.

³⁵ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 27b. For the source of this allusion, see Sima Qian, *Shiji*, cit., Vol. 6, *juan* 卷55, «liuhou shijia 留侯世家», 25, pp. 2034–2035.

³⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 28a. For the source of this allusion, see Tuotuo etc. (comp.), *Zhao Bian* in *Songsbi*, cit., *juan* 卷 316, «liezhuan 列传», 75, p. 10323.

³⁷ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 28b. For the source of this allusion, see *Lianshe gaoxian zhuan* 莲社高贤传, Beijing, Zhonghua shuju, 1991, pp. 7–8.

³⁸ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 29a. According to legend, the famous Buddhist figure Bodhidharma (382–536) spent a decade meditating facing a wall inside a stone cave. When he departed, an image resembling his meditative posture was mysteriously left on the stone opposite, like a faint ink wash painting. See Ye Feng 叶封, *Shaolinsi zhi* 少林寺志, Yangzhou, Guangling guji keyinshe, 1997, p. 54.

³⁹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 29b. During the Eastern Jin Dynasty, the venerable monk Huiyuan 慧远 (334–416), the poet Tao Yuanming, and the Taoist priest Lu Xiuqing 陆修静 (406–477) engaged in joyful conversation. Unwittingly, they crossed the boundary of Tiger Brook and shared a hearty laugh together. See Chen Shunyu 陈舜俞 (?–1076), *Lushan ji* 庐山记, Beijing, Zhonghua shuju, 1985, *juan* 卷 2, p. 9.

⁴⁰ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 30a. During the Eastern Han Dynasty, Fei Changfang 费长房 (b. 68) encountered Master Hu 壶公 selling medicine in the marketplace. Subsequently, he followed Master Hu into the mountains to study the ways of immortality. Master Hu tested Fei Changfang's determination through various trials and eventually gifted him a bamboo staff, informing him that riding it would lead him back home. Upon returning home, Fei Changfang

过关⁴¹, «Chishi chengyang» 叱石成羊⁴², «Qin'gao chili» 琴高赤鲤⁴³, «Tiantai caiyao» 天台采药⁴⁴, «Baling zuiwei» 霸陵醉尉⁴⁵, «Qiting huabi» 旗亭画壁⁴⁶, «Zuimian wengce» 醉眠瓮侧⁴⁷, «Changji xi'nang» 长吉奚囊⁴⁸, «Shangyu mao-wu» 赏雨茆屋⁴⁹, «Midian baishi» 米颠拜石⁵⁰, «Taxue xunmei» 踏雪寻梅⁵¹,

threw the bamboo staff near his house, and it instantly transformed into a dragon. See Wang Shizhen 王士禛 (1634–1711), *Song Gao Niandong xiansheng yugao huanshan wushou* 送高念东先生予告还山五首 in *Yuyang shanren jinghualu* 渔洋山人精华录, Shanghai, Shangwu yinshuguan, 1937, p. 203.

⁴¹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 30b. The founder of Taoism, Laozi, rode a green bull through the Hangu guan 函谷关. See Liu Xiang 刘向 (77–6 BCE), *Laozi, Liexian zhuan* 列仙传, annot. Lin Wu 林屋, Beijing, Zhonghua shuju, 2021, pp. 28–33.

⁴² Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 31a. At the age of fifteen, Huang Chuping 黄初平 (ca. 328–ca. 386) was taken by a Taoist to practice in the stone chamber of Jinhua Mountain while he was out shepherding. He did not return for over forty years. His brother searched for him for many years without success. Eventually, guided by the Taoist, he found Huang Chuping. To show his brother the flock of sheep, Huang Chuping shouted, and the white stones immediately transformed into a flock of sheep. See Ouyang Xun 欧阳询 (557–641) (comp.), *shoubu zhong* 兽部中 in *Yuwen leiju* 艺文类聚, Shanghai, Zhonghua shuju, 1965, *juan* 卷 94, p. 1633.

⁴³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 31b. During the Warring States period, Qin Gao 琴高 of the state of Zhao achieved immortality by riding a red carp. See Liu Xiang, *Qin Gao* in *Liexian zhuan*, pp. 88–90.

⁴⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 32a. During the Eastern Han Dynasty, Ruan Zhao 阮肇 and Liu Chen 刘晨 encountered celestial maidens while gathering herbs on Mount Tiantai, and they became couples with them. See Li Fang, *tiantai shan* 天台山 in *Taiping yulan* 太平御览, Beijing, Zhonghua shuju, 1960, Vol. 1, *juan* 卷 41, “dibu” 地部 6, pp. 194–195.

⁴⁵ Tong Xiegeng, *Yizhitu*, Vol. 1, 32b. During the Han Dynasty, General Li Guang 李广 (?–119 BCE), upon being dismissed from his post, went hunting at the Baling Station 霸陵亭 (located in present-day Shaanxi Province) and was subjected to humiliation by the intoxicated Baling Magistrate. See Sima Qian 司马迁 (145–90 BCE), *Shiji* 史记, Beijing, Zhonghua shuju, 1982, Vol. 9, *juan* 卷 109, «liezhuan 列传», 49, pp. 2867–2878.

⁴⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 33a. During the Tang Dynasty, the poets Wang Changling 王昌龄 (698–756?), Gao Shi 高适 (704–765), and Wang Zhihuan 王之涣 (688–742) gathered at a tavern and agreed to judge the popularity of their poems based on the number of verses sung by the singer. See Xue Yongruo 薛用弱, *Jiyi ji* 集异记 in *Congshu jicheng chubian* 丛书集成初编, Beijing, Zhonghua shuju, 1985, Vol. 2698, *juan* 卷 2, pp. 8–9.

⁴⁷ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 33b. Bi Zhuo 毕卓 (dates unknown) loved alcohol, often getting drunk and sleeping by the side of the wine jar. See Fang Xuanling 房玄龄 (579–648) (comp.), *Bi Zhuo* in *Jin shu* 晋书, Beijing, Zhonghua shuju, 1974, Vol. 3, *juan* 卷 49, «liezhuan 列传 19, p. 1381.

⁴⁸ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 34a. For the source of this allusion, Yu Liangneng 喻良能 (1120–?), *Zhang Chihe shishibian ciyun yipian weixie* 张持荷示诗编次韵一篇为谢 in *Siku quanshu* 四库全书, Shanghai, Shanghai guji chubanshe, 1987, *jibu* 集部, Vol. 1151, *juan* 卷 2, p. 651.

⁴⁹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 34b. The translation is [Someone is admiring the rain scenery from within a thatched cottage]. See Sikong Tu 司空图 (837–908), *Dianya* 典雅 in *Congshu jicheng chubian*, cit., Vol. 2612, *juan* 卷 2, p. 4.

⁵⁰ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 35a. The translation is [Mi Fu 米芾 (1051–1107) worshipped the stones and treated them as comrades and brothers]. See Tuotuo 脱脱 (1314–1356) et alii (comp.), *Songshi* 宋史, Beijing, Zhonghua shuju, 1985, *juan* 卷 444, «liezhuan 列传», 230, «wenyuan 文苑», 6, p. 13124.

⁵¹ Tong Xiegeng, *Yizhitu*, Vol. 1, 36a. The translation is [Someone is searching for plum

«Bowang chengcha» 博望乘槎⁵², «Lianshi butian» 炼石补天⁵³, «Chang'e benyue» 嫦娥奔月⁵⁴, «Qintai kuafeng» 秦台跨凤⁵⁵, «Yunü touhu» 玉女投壶⁵⁶, «Wenjun danglu» 文君当垆⁵⁷, «Feiyan wufeng» 飞燕舞风⁵⁸, «Erqiao guanshu» 二乔观书⁵⁹, «Wenji guihan» 文姬归汉⁶⁰, «Mulan congjun» 木兰从军⁶¹, «Hong Xian daohe» 红线盗盒⁶², «Xiongwan jiaozi» 熊丸教子⁶³, «Ju'an qimei» 举案齐眉⁶⁴, «Shanyin huan'e» 山阴换鹅⁶⁵, «Gushan fanghe» 孤山放鹤⁶⁶.

blossoms in the snow]. See Zhang Dai 张岱 (1597–1689?), Li Xiaolong 李小龙 (comp.), *Yehang-chuang* 夜航船, Beijing, Zhonghua shuju, 2012, p. 16.

⁵² Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 36b. It is said that Zhang Qian 张骞 (ca. 146–114 BCE) once sailed a wooden raft upstream along the Yellow River and accidentally arrived at the Milky Way (the celestial river), where he encountered the Cowherd and the Weaver Girl. See Chen Yaowen 陈耀文, *Tianzhong ji* 天中记 in *Siku leishu congkan* 四库类书丛刊, Shanghai, Shanghai guji chubanshe, 1991, *zibu* 子部, *juan* 卷 3, p. 73.

⁵³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 44a. In legend, the figure Nüwa 女娲, in order to save the people, melted colorful stones to mend the sky. See *Huainanzi* 淮南子, annot. Chen Guangzhong 陈广忠, Beijing, Zhonghua shuju, 2012, p. 323.

⁵⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 44b. In legend, the figure Chang'e 嫦娥 flew to the Moon Palace after consuming a pill of immortality. See *Huainanzi*, cit., p. 333.

⁵⁵ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 45a. The daughter of Qin Mugong 秦穆公 and her husband rode a phoenix to become immortal companions. See Liu Xiang, *Xiao Shi* in *Liexian zhuan*, cit., pp. 112–114.

⁵⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 45b. In legend, the Dongwang Gong 董方朔 and a beautiful woman were playing pitch-pot. Whenever they missed the pot, the heavens would sigh or laugh, thus creating lightning. See Li Fang, *touhu* in *Taiping yulan*, cit., vol. 4, *juan* 卷 753, «gongyibu 工艺部», 10, p. 3344.

⁵⁷ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 46a. Sima Xiangru 司马相如 (179–118 BCE) and Zhuo Wenjun 卓文君 (175–121 BCE) returned from Chengdu to Linqiong 临邛 (now in Chengdu Province), where the Zhuo family resided. They sold their carriage and horses, bought a tavern, and while Wenjun sold wine in the hall, Xiangru and the hired help cleaned the wine vessels together. See Sima Qian, *Shiji*, cit., Vol. 9, *juan* 117, “liezhuan” 57, pp. 2999–3001.

⁵⁸ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 46b. Empress Zhao Feiyan 赵飞燕 (45–1 BCE), the wife of Emperor Cheng of the Han Dynasty, was highly skilled in dancing. See Xu Ning 徐凝 (dates unknown), *Hangong qu* 汉宫曲 in *Quan Tangshi* 全唐诗, Beijing, Zhonghua shuju, 1960, Vol. 7, *juan* 474, p. 5377.

⁵⁹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 47a. The two ancient beauties, Da Qiao 大乔 and Xiao Qiao 小乔, were reading within embroidered curtains. See Hu Kui 胡奎 (dates unknown), *Erqiao guanshu* in *Dounan laorenji* 斗南老人集 in *Siku quanshu*, cit., *jibu*, Vol. 1233, *juan* 卷 5, p. 526.

⁶⁰ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 47b. For the source of this allusion, see Fan Ye 范晔 (398–445), *Hou Hanshu* 后汉书, Beijing: Zhonghua shuju, 1965, Vol. 10, *juan* 卷 84, “lienü zhuan” 烈女传 74, pp. 2800–2803; Lily Xiao Hong Lee, A.D. Stefanowska, *Biographical Dictionary of Chinese Women*, Oxford, Taylor & Francis Group, 1998, Vol. 3, pp. 109–112.

⁶¹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 48a. For the source of this allusion, see Guo Maoqian 郭茂倩 (comp.), *Mulanshi* 木兰诗, *Yuefu shiji* 乐府诗集, Beijing, Zhonghua shuju, 1979, Vol. 2, *juan* 卷 25, pp. 373–375.

⁶² Tong Xiegeng, *Yizhitu*, cit., vol. 1, 48b. For the source of this allusion, see Li Fang, *haoxia* 豪侠 in *Taiping guangji* 太平广记, Beijing: Zhonghua shuju, 1961, vol. 4, *juan* 卷 195, p. 14602.

⁶³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 49a.

⁶⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 49b.

⁶⁵ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 50a. This is the story about Wang Xizhi 王羲之 exchanging his calligraphy for a goose with a Taoist priest. See Fang Xuanling (comp.), *Wang Xizhi* in *Jin shu*, Vol. 4, *juan* 卷 80, “liezhuan” 列传 50, p. 2100.

⁶⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 50b. In the Northern Song Dynasty, the poet Lin Bu 林

The above allusions are classic stories of famous figures in traditional China, such as Zhang Liang 张良 (?–186 BCE), who was a renowned Chinese military strategist and politician who lived in the early Western Han dynasty, and Mi Fu, who was a celebrated painter, poet, and calligrapher during the Song Dynasty. While some of these allusions may have been embellished over time, their origins trace back to classic works and have been passed down through generations, lending them a certain historical value.

2.2. Moral Tales in the Yizhi Puzzle Form: Embodying Virtues

Unlike ordinary geometric blocks, the *yizhi* puzzle can have a profound and positive impact on children's moral development. *Yizhi xutu* cites a sentence, «dezhe, shanmei zhengda guangming chunyi zhi cheng ye» 德者, 善美正大光明纯懿之称也⁶⁷, to explain virtue. It describes virtue as encompassing various positive qualities such as goodness, beauty, righteousness, magnanimity, brightness, and purity. Moreover, the quote «junzi jinde xiuye, yu jishi ye» 君子进德修业, 欲及时也 [The superior man, advancing in virtue and cultivating the sphere of his duty, yet wishes [to advance only] at the [proper] time] suggests that Tong hopes noble individuals would strive to improve their moral character and pursue their career aspirations in a timely manner through his puzzle⁶⁸.

The examples in Tong's book serve as sources of inspiration, showcasing numerous admirable character traits. Firstly, personal loyalty to the nation and country is an enduring moral principle that holds significant importance across different countries and eras. One example in Tong's book is the phrase «haishang kanyang shijiunian» 海上看羊十九年. This refers to Su Wu 苏武 (140–60 BCE), who is famous because of his unwavering loyalty to the Western Han⁶⁹. Su Wu's tale of resilience and dedication during his mission in a foreign land, where he endured captivity for nineteen long years, showcases his unwavering commitment to his task and his homeland. His faithfulness and patriotism continue to be praised by subsequent generations.

逋 (967–1028) chose to live in seclusion in the mountains by West Lake, where he raised cranes. See Lin Bu, *Lin Hejing ji* 林和靖集, annot. Shen Youzheng 沈幼征, Hangzhou, Zhejiang guji chubanshe, 2012.

⁶⁷ Zhu Meijun, *Yizhi zitu*, 30a. For the source of this sentence, see Le Shaofeng 乐韶凤 (?–1380) and Song Lian 宋濂 (1310–1381), *Hongwu zhengyun* 洪武正韵, Beijing, Zhonghua shuju, 2016, p. 379.

⁶⁸ Zhu Meijun, *Yizhi zitu*, cit., 21a. For the translation of this sentence, see *Zhouyi*, cit., p. 8.

⁶⁹ Tong Xiegeng, *Yizhitu*, Vol. 1, 15b. For the source of this allusion, see Ban Gu 班固 (32–92), *Han Shu* 汉书, Beijing, Zhonghua shuju, 1962, Vol. 6, *juan* 卷 54, «Li Guang Su Jian zhuan 李广苏建传», 24, pp. 2459–2469.

Additionally, integrity and incorruptibility are essential qualities, which could be shown in the story of the phrase «yiqin yihe». During the Northern Song Dynasty, when local official Zhao Bian 赵抃 (1008–1084) was appointed to Chengdu, his belongings consisted of a «guqin» 古琴 in a cloth bag and a white crane in a bamboo basket, both carried on a horse. He carried nothing else, which demonstrated his exemplary integrity as a government official⁷⁰. A similar example is «chu yuni er buran, zhuo qinglian er buyao» 出淤泥而不染, 濯清涟而不妖, which is attributed to Zhou Dunyi 周敦颐 (1017–1073)⁷¹. The author praises that the lotus flower emerges unsullied from the murky mud, cleansing itself in the clear water without losing its natural grace. This embodies the admirable spirit of remaining untainted by impurities, maintaining purity and innocence, and radiating a genuine beauty that is free from artificiality. Also, the phrase «xingzhi ze yingzheng, xingwang ze yingqu» 形直则影正, 形枉则影曲 means that when the form is upright, the shadow will be straight; when the form is curved, the shadow will be crooked. It serves as a reminder for individuals to hold themselves to high standards, enhance their personal cultivation, and ensure that their behavior is upright and incorruptible⁷².

Secondly, from a personal perspective, perseverance and hard work stand as two of the most commendable moral qualities emphasized by Tong's book. The series of *yizhi* puzzle books also highlights the value of diligence through stories like «Che Wu nangying»⁷³ and «Sun Kang yingxue»⁷⁴. These narratives revolve around Che Yin 车胤 (ca. 333–401) and Sun Kang (dates unknown), who utilized the reflected light from the glow of fireflies and the snow, respectively, to pursue their studies. These characters exemplify the virtue of hard work and resourcefulness, serving as role models for children to emulate. Additionally, the protagonist of the story behind the common idiom «zaobi touguang» is Kuang Heng 匡衡 (dates unknown), who ingeniously carved a small hole in his neighbor's wall to borrow light, symbolizing his determination to seek knowledge⁷⁵. Similarly, «suiyue dushu» is an allusion to Jiang Mi 江泌 (dates unknown), who avidly read books in the moonlight⁷⁶. These tales depict

⁷⁰ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 28a. For the source of this allusion, see Tuotuo etc. (comp.), *Zhao Bian in Songshi*, cit., *juan* 卷 316, «liezhuan 列传», 75, p. 10323.

⁷¹ Tong Xiegeng, *Yizhi xutu*, cit., 4a. For the source of this sentence, see Zhou Dunyi, *Zhou Dunyi ji* 周敦颐集, Beijing, Zhonghua shuju, 1990, p. 53.

⁷² Zhu Meijun, *Yizhi zitu*, cit., 25a. For the source of this sentence, see *Lie Zi* 列子, annot. Tang Jinggao 唐敬臬, Shanghai, Shangwu yinshuguan, 1933, p. 77.

⁷³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 25b. For the source of this allusion, Fang Xuanling (comp.), *Jin shu*, cit., vol. 4, *juan* 卷 83, «liezhuan» 列传 53, p. 2177.

⁷⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 26a. For the source of this allusion, see Ouyang Xun (comp.), *tianbu xia* 天部下 in *Yiwen leiju*, cit., *juan* 2, p. 23.

⁷⁵ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 26b. For the source of this allusion, see Ge Hong 葛洪 (ca. 238–ca. 363), *Xijing zaji* 西京杂记, Beijing, Zhonghua shuju, 1985, p. 12.

⁷⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 27a. For the source of this allusion, see Xiao Zixian

traditional Chinese figures who dedicate themselves to rigorous study, highlighting the importance of perseverance and a thirst for knowledge. Tong's citation, «gouri xin, riri xin, youri xin» 苟日新, 日日新, 又日新⁷⁷, encourage his readers to strive for daily learning and growth, embracing a mindset of constant improvement. They emphasize the importance of seeking new knowledge, experiences, and personal development each day, without complacency or stagnation.

In addition to diligence and perseverance, Tong believe that respecting one's elders is a commendable quality. For instance, in the story behind the phrase «yiqiao jinlü», the protagonist is the renowned statesman Zhang Liang. This story recounts an event that took place when Zhang Liang was in exile in Pizhou 邳州 (now in Jiangsu Province) as a fugitive wanted by the Qin government. Huangshi Gong 黄石公 (292–195 BCE) deliberately dropped his shoe under a bridge, prompting Zhang Liang to pick it up and hand it back to him. After several tests, Huangshi Gong deemed Zhang Liang to be honest and trustworthy. As a result, he imparted the book *The Art of War by Taigong* [Taigong bingfa 太公兵法] to Zhang Liang. Upon receiving this book, Zhang Liang joined Liu Bang's 刘邦 (256 or 247–195 BCE) cause and, as a brilliant military strategist, contributed to Liu Bang's eventual victory in the race to Guanzhong with the strategies he proposed⁷⁸. A similar example is the annotation to the pattern «pear» [梨] in *Yizhi xutu*, which draws on a well-known story in traditional China. It is said that when Kong Rong 孔融 (153–208) was four years old, he was eating pears together with his siblings. However, he always took the smallest pear to eat. His father, surprised, asked him why. Kong Rong replied, «I am the youngest, so I should take the smallest one»⁷⁹. This story has subsequently been used to teach children to show their respect and love to their siblings.

Furthermore, the phrase «jisuo buyu, wushi yu ren» 己所不欲, 勿施于人 serves as a moral guideline, reminding individuals to cultivate empathy, understanding, and a sense of fairness in their relationships and interactions with others⁸⁰. Being able to convince others with reason and being patient are also crucial moral qualities for an individual. An example is the tale behind the phrase «wanshi diantou». It revolves around the renowned Buddhist monk

萧子显 (487–537) (comp.), *Nanqi shu* 南齐书, Beijing, Zhonghua shuju, 1972, *juan* 卷 55, «liezhuan 列传», 36, p. 295.

⁷⁷ Zhu Meijun, *Yizhi zitu*, cit., 5a. The translation is [If you can one day renovate yourself, do so from day to day]. See *Li Chi*, cit., Vol. 2, p. 415.

⁷⁸ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 27b. For the source of this allusion, see Sima Qian, *Shiji*, cit., Vol. 6, *juan* 卷55, «liuhou shijia» 留侯世家25, pp. 2034–2035.

⁷⁹ Tong Xiegeng, *Yizhi xutu*, cit., 9b. For the source of this allusion, see Li Fang, *li* in *Taiping yulan*, cit., Vol. 4, *juan* 卷 969, «guobu» 果部 6, p. 4296.

⁸⁰ Zhu Meijun, *Yizhi zitu*, cit., «zitu fu», 3b. The translation is [So ever things you do not wish that others should do unto you, do not do unto them]. See *The Analects of Confucius*, cit., p. 562.

Zhu Daosheng 竺道生 (355–434), who was said to possess a profound understanding of Buddhist teachings and exceptional eloquence. It is said that even lifeless stones would nod in agreement as he expounded upon the intricate principles of the Dharma, showcasing his ability to persuade others through reason and his unwavering patience⁸¹.

Thirdly, embracing the concept of inherent freedom and living with a sense of ease can be considered as a pathway towards pursuing morality. According to Headland, the boy he met in the late Qing even understood traditional Chinese verse by playing with the *yizhi* puzzle, such as «caiju donglixia, youran jian nanshan» 采菊东篱下, 悠然见南山 [Picking chrysanthemums by the eastern hedge, / I gaze at South Mountain in the distance]⁸². These lines convey the poet's contemplation of his seclusion from the beauty of the southern mountains and his realization of the philosophy of returning to simplicity and truth. They depict the poet's serene state of mind when his spiritual world and the natural scenery harmoniously align after his seclusion. The author of these verses, Tao Yuanming, was one of the most well-known poets during the Six Dynasties period. Tao was a reclusive man who spent much of his time farming, reading, sipping wine, receiving occasional guests, and engaging in poetry. His poems typically revolve around the joys and challenges of life, as well as his decision to withdraw from the civil service. He was inspired by the peace and beauty of the natural world close at hand. The esteem for nature and the pursuit of freedom expressed in his verses are truly remarkable. Another example of a similar verse is «yuzhou zhushui aishanchun» 渔舟逐水爱山春⁸³, which conveys the image of fishing boats drifting downstream, chasing the enchanting spring scenery, while the peach blossoms on both sides of the riverbank bloom vibrantly. This poem, coincidentally, is a seven-character verse written by Wang Wei 王维 (699–761) when he was nineteen years old. Its theme is taken from Tao Yuanming's narrative essay *The Record of Peach Blossom Spring* [*Taohuayuan ji* 桃花源记]. Other examples include «qingchi haoyue zhao chanxin» 清池皓月照禅心⁸⁴, «butuo suoyi wo yueming» 不脱蓑衣卧月明⁸⁵, «louguan canghai, mendui zhejiangchao» 楼观沧海日, 门对浙江

⁸¹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 28b. For the source of this allusion, see *Lianshe gaoxian zhuan* 莲社高贤传, Beijing, Zhonghua shuju, 1991, pp. 7–8.

⁸² Headland, *The Chinese Boy and Girl*, cit., 125. Tong Xiegeng, *Yizhitu*, vol. 1, 20a. For the translation of Tao Yuanming's verse, see Kang-i Sun Chang, S. Owen (edd.), *The Cambridge History of Chinese Literature*, Cambridge, Cambridge University Press, 2014, Vol. 1, p. 222.

⁸³ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 9b. For the source of this sentence, see Wang Wei, *Wang Wei ji jiaozhu* 王维集校注, annot. Chen Tiemin 陈铁民, Beijing, Zhonghua shuju, 1997, p. 16.

⁸⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 17b. For the source of this sentence, see Li Qi 李颀 (?–ca. 751), *Ti xuangongshanchi* 题璿公山池 in Li Panlong 李攀龙 (comp.), *Tangshi xuan* 唐诗选 in *Xuxiu siku quanshu*, cit., *jibu*, Vol. 1611, *juan* 卷 5, p. 675.

⁸⁵ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 18b. For the source of this sentence, see Lü Yan 吕岩 (796–?), *Mutong* 牧童 in *Quan Tangshi*, cit., Vol. 12, *juan* 卷 858, p. 9697.

潮⁸⁶, «guaxi shi haiyue» 挂席拾海月⁸⁷, and «bukai renzhitian, er kai tianzhitian, kaitianzhe desheng» 不开人之天, 而开天之天, 开天者德生⁸⁸.

Finally, Tong also placed great emphasis on the moral education of women. The first example is the pattern «Mulan congjun», found in *Yizhitu*⁸⁹. The protagonist, Hua Mulan 花木兰, is a legendary folk heroine who lived during the Northern and Southern Dynasties. Mulan's story revolves around her decision to disguise herself as a man and join the army in place of her elderly father. Her courageous and selfless actions earned her the emperor's recognition and rewards for her long and heroic service to the nomadic tribes beyond the northern borders. However, instead of assuming a high office, Mulan chose to retire to her hometown to be reunited with her family. To the surprise of her comrades, Mulan first revealed her true identity as a woman. Hua Mulan's filial piety and loyalty have been celebrated by later generations, and she is revered as a true heroine. Similarly, the contributions made by Cai Yan 蔡琰 (Cai Wenji 蔡文姬, ca. 177–?) to the field of culture are commendable in the story behind the pattern named «Wenji guihan». Cai Yan, the daughter of the renowned scholar Cai Yong during the Eastern Han Dynasty, unfortunately fell victim to the chaos of war and was captured. She lived among the Hu people in the territory of the Southern Xiongnu for twelve years. Eventually, Cao Cao 曹操 (155–220) dispatched envoys to retrieve Cai Yan from the Xiongnu, arranging for her remarriage and entrusting her with the task of organizing the books left behind by Cai Yong. Her efforts in preserving and passing on cultural heritage were of significant importance⁹⁰.

The pattern named «Hong Xian daohe» is another example of celebrating women's courage and intelligence. The military governor of Weibo 魏博 (now in Hebei Province), Tian Chengsi 田承嗣 (705–779), had intentions of annexing the territory of Xue Song 薛嵩 (712–772), the military governor of Luzhou 潞州 (now in Shanxi Province). Xue Song was deeply concerned about this. His servant, a woman named Hong Xian, skilled in swordsmanship, bravely

⁸⁶ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 22b–23a. For the source of this sentence, see Song Zhiwen 宋之问 (ca. 656–712), *Lingyinsi* 灵隐寺 in *Quan Tangshi*, cit., Vol. 1, *juan* 卷 53, p. 653.

⁸⁷ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 24a. For the source of this sentence, see Li Bai, *Xujiu zeng Jiangyang zai Lu Diao* 叙旧赠江阳宰陆调 in *Quan Tangshi*, cit., Vol. 3, *juan* 卷 169, p. 1744.

⁸⁸ Zhu Meijun, *Yizhi zitu*, cit., 43a. The English translation of this sentence is [If the disposition that is of human origin be not developed, but that which is the gift of Heaven, the development of the latter will produce goodness]. See *The Tao Tê Ching*, cit., p. 454.

⁸⁹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 48a. For the source of this allusion, see Guo Maoqian 郭茂倩 (comp.), *Mulanshi* 木兰诗, *Yuefu shiji* 乐府诗集, Beijing, Zhonghua shuju, 1979, Vol. 2, *juan* 卷 25, pp. 373–375.

⁹⁰ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 47b. For the source of this allusion, see Fan Ye 范曄 (398–445), *Hou Hanshu* 后汉书, Beijing: Zhonghua shuju, 1965, Vol. 10, *juan* 卷 84, «lienü zhuan 烈女传», 74, pp. 2800–2803; Lily Xiao Hong Lee, A.D. Stefanowska, *Biographical Dictionary of Chinese Women*, Oxford, Taylor & Francis Group, 1998, Vol. 3, pp. 109–112.

volunteered to go to Tian's residence to gather information and issue a warning. While Tian was asleep, Hong Xian initially intended to assassinate him but instead opted to steal his golden casket and return. Tian sent soldiers to pursue her, but she defeated them. Hong Xian presented the casket to Xue Song, who then carefully sealed it and returned it to Tian. Tian was shocked and realized that Xue Song possessed formidable warriors and was not to be taken lightly. As a result, he sought reconciliation and established good relations with Xue Song⁹¹.

While celebrating women's extraordinary public achievements through these heroic narratives, Tong's discourse subtly bridges to another dimension of feminine virtue that is deeply rooted in domestic life. In traditional Chinese culture, women were expected to be good wives and mothers. Tong highlighted the importance of mutual respect between husband and wife, as illustrated by the idiom «ju'an qimei»⁹². This anecdote revolves around the story of Liang Hong 梁鸿 (dates unknown) and his wife, Meng Guang 孟光 (dates unknown). Liang Hong, a renowned scholar in Eastern Han Dynasty, was not enamored with wealth and status, treating his wife Meng Guang with utmost respect. Each time Meng Guang prepared meals for Liang Hong, she would lift the tray to the height of her eyebrows, symbolizing her deep respect for her husband⁹³. This phrase describes the ideal relationship between a married couple, where both partners show equal respect and consideration for each other. It signifies a harmonious and balanced union based on mutual understanding and shared responsibilities. Another example is «xiongwan jiaozi»⁹⁴. Liu Zhongying 柳仲郢 (?–864), a native of official in the Tang Dynasty, was known for his diligent studies. His mother gave him pills made from bear bile at night to help him stay refreshed and focused⁹⁵. This story has become an idiom that metaphorically represents a virtuous mother teaching her son valuable lessons and instilling good moral values.

⁹¹ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 48b. For the source of this allusion, see Li Fang, *haoxia* 豪侠 in *Taiping guangji* 太平广记, Beijing: Zhonghua shuju, 1961, vol. 4, *juan* 卷 195, p. 14602.

⁹² Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 49b.

⁹³ For the source of this allusion, see Fan Ye, *Liang Hong* in *Hou Hanshu*, cit., vol. 10, *juan* 卷 83, «yimin liezhuan» 逸民列传 73, pp. 2765–2768.

⁹⁴ Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 49a.

⁹⁵ For the source of this allusion, see Ouyang Xiu 欧阳修 (1007–1072) (comp.), *Xin Tangshu* 新唐书, Beijing, Zhonghua shuju, 1975, *juan* 卷 163, «liezhuan» 列传 88, p. 5023.

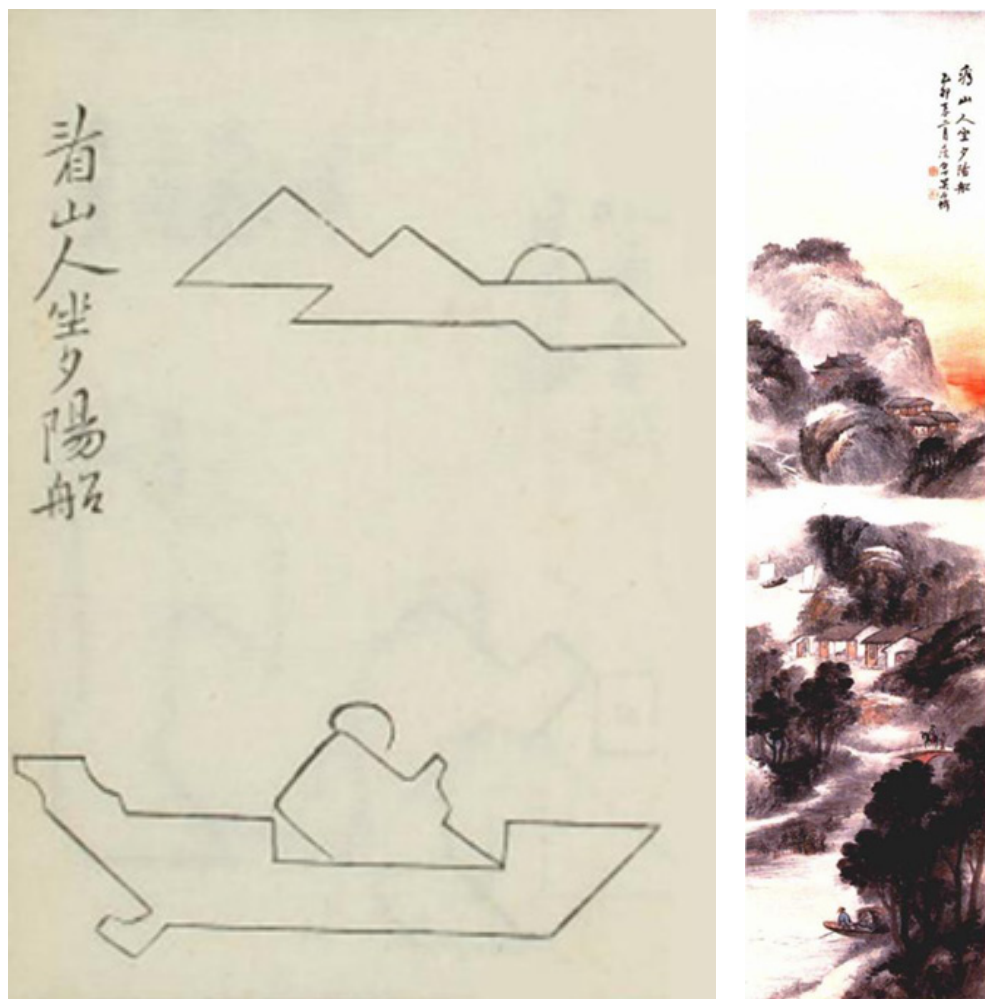
2.3. *Aesthetic Discovery: Finding, Appreciating, and Creating Beauty in Play*

As a friend of Tong Xiegeng remarks, Tong possesses «a sharp and magical talent» [敏妙之才], with «a calm demeanor» [沉静之性], and is naturally «an extraordinary individual» [思必异人]. This friend also points out that «although Tong's artworks may appear entertaining, they also offer a glimpse into the magical artistry within» [兹图虽游戏, 神通亦可以见一斑矣]⁹⁶. That is, although the series of *yizhi* puzzle books is rooted in a game, it holds artistic value due to its adept utilization of gaming and artistic skill.

First of all, the patterns featured in the series of *yizhi* puzzle books are carefully chosen from ordinary objects found in daily life, inspiring players to embark on a quest to uncover and explore the beauty that surrounds them. For example, *Yizhitu* and *Yizhi xutu* include daily necessities, plants, flowers, fruits, vegetables, birds, beasts, fish, insects, valuables, officials, birthday items, military weapons and armor, agricultural equipment, Buddhism and Taoism, art, drama and boudoir items. Tong Xiegeng intends to incorporate items that players would encounter in their daily lives as the primary subject matter of his books. This design philosophy not only bridges the gap between the players and the puzzle, as players are familiar with these carefully selected examples, but also encourages them to develop a habit of observing their surroundings, motivating them to discover and create beauty in everyday life. By actively seeking out beauty in their daily routines, individuals are more inclined to cultivate their own creative abilities and contribute to the creation of beauty in the world. By immersing themselves in the pursuit of discovering and designing patterns, individuals can cultivate a heightened sense of aesthetics and learn to appreciate beauty.

In addition to using everyday items that are easily accessible in daily life as prototypes, Tong Xiegeng also excels at connecting patterns with famous works of art, providing players with an opportunity to indulge in the appreciation of aesthetic appeal. One example in *Yizhitu* is «kanshanren zuo xiyangchuan» 看山人坐夕阳船 and the prototype of this picture is a drawing by Wu Shixian 吴石仙 (1845–1916) (see Pic. 4). Wu was a famous painter of Tong's time, particularly recognized for his landscape artworks.

⁹⁶ Jiuwan 九腕, *xu* 序 in Tong Xiegeng, *Yizhitu*, cit., Vol. 1.



Pic. 4. The Example of a Simplified Picture in *Yizhitu* Based on a Famous Drawing⁹⁷. The pattern on the left is reprinted from Tong Xiegeng, *Yizhitu*, cit., vol. 1, 12a. The pattern on the right is reprinted from Wu Shixian, *Zhongguo gujin shuhua paimai jingpin jicheng* 中国古今书画拍卖精品集成, Tianjin, Tianjin renmin meishu chubanshe, 2005, p. 55.

A comparison between the two patterns reveals that Tong deliberately chose the key elements for his combinations: person, boat, mountain, and the sunset. Tong's combination depicts a person rowing a boat while gazing at the distant mountains, while Wu focuses on the depiction of continuous mountains. No-

⁹⁷ For more biographical information of Wu Shixian, see Ying 英, *Wu Shixian* 吴石仙, «Xiaobao 笑报», May 25, 1930, 3; Wu Shixian xu 吴石仙续, «Xiaobao», May 28, 1930, 3.

tably, Tong's work includes a half sun, symbolizing a sunset, which is the lingering glow of the setting sun in Wu's original drawing. As individuals attempt to assemble this puzzle, they can simultaneously enjoy the famous drawing, merging the worlds of Tong's puzzle and fine art into a single experience. This is not the only example, because *Yizhitu* contains 20 patterns of art prototypes that can be found. From these prototypes, it is apparent that Tong Xiegeng's selections are all from renowned artists in the field of painting, with a particular preference for artworks from the Qing Dynasty. This inclination largely stems from the fact that he lived during that era. Also, this series possesses an abstract beauty, where the simplicity of each piece of the puzzle gives way to combinations that share a common spirit rather than merely resembling each other in appearance.

Despite Tong's puzzles being abstract geometric figures, he and his family made a concerted effort to capture the essence of each subject, paying meticulous attention to detail. For instance, men are identifiable by their semicircular head shapes, while women are portrayed with a right-angled pentagon head shape adorned with an inner arc. This distinction is rooted in traditional Chinese culture, where women traditionally wore buns on their heads. Tong's puzzle emphasizes this characteristic as a significant feature distinguishing males from females.

Moreover, it should be noted that Tong skillfully showcases each character in the *Thousand-Character Classic* using a variety of calligraphic styles, including regular script, running script, and cursive script. For example, among the four characters in Pic. 5, *xing* 性 [character] is regular script because of its clear, concise and uniform strokes. *Jing* 静 (quiet) and *qing* 情 [feeling] are running scripts with a great variation in the thickness of strokes, bold and vigorous brushwork, and an overall sense of flowing natural beauty. *Yi* is cursive script because the strokes are connected to each other in a flowing manner.

A comprehensive breakdown of the calligraphic styles employed in *Yizhitu qianziwen* indicates a strong preference within this series for the styles of running script and regular script, especially the former⁹⁸. This preference is especially prominent in *Yizhitu qianziwen*, where 29% of the Chinese characters are written in regular script, 60% are in running script, and the remaining 11% are in cursive script. As an art form, calligraphy cultivates individuals' appreciation for beauty and enhances their aesthetic sensibilities⁹⁹.

⁹⁸ For further references on the history of Chinese calligraphy, see Tseng Yuho, *A History of Chinese Calligraphy*, Hong Kong, Chinese University Press, 1993; Thomas O. Höllmann, *Chinese Script: History, Characters, Calligraphy*, Engl. transl. by M. Donicht, New York, Columbia University Press, 2017.

⁹⁹ In traditional China, there was a notion that the practice of calligraphy played a role in shaping children's characters. For example, Cheng Hao 程颢 (1032–1085) said, «When I practice calligraphy, I am very serious. My objective is not that the calligraphy must be good. Rather my practice is the way of moral training». Huo Tao 霍韬 (1487–1540) expanded on this abstract



Pic. 5. Four Selected Characters in *Yizhitu qianziwen*. The patterns on the top row are reprinted from Tong Xiegeng, *Yizhitu qianziwen*, cit., Vol. 4, pp. 193–194. The patterns on the bottom row are assembled by the author of this article.

As previously mentioned, Tong encouraged the players of the *yizhi* puzzle to extrapolate new patterns based on a single example pattern. This practice not only engages their imagination but also allows them to creatively arrange various pieces into furniture arrangements, Chinese characters, and both ancient and modern aesthetic objects. Through this process, players actively participate in the creation of beauty.

concept by offering specific guidance on how to cultivate morals through the art of calligraphy. For example, the vertical stroke represented the value of impartiality, while left-falling and right-falling strokes depicted a person raising their hands. Writing vertical strokes taught children about fairness, while the left and right-falling strokes served as reminders to handle tasks with reverence. Although Tong's puzzle may not directly instruct children in calligraphy, engaging in the puzzle-solving process can assist them in honing their strokes, thereby indirectly contributing to the cultivation of their morals. See Zhu Xi and Lǚ Zǔqián 吕祖谦 (1137–1181), *Reflections on Things at Hand*, Engl. transl. by Wing-Tsit Chan, New York, Columbia University Press, 1967, p. 133; Huo Tao, *Huo Weiya jiaxun* 霍渭崖家训, Shanghai, Shangwu yinshuguan, 1924, 25a.

3. *The Synergy of Text and Image: An Innovative Pedagogy for Edutainment*

In the tradition of traditional Chinese literacy primers, a notable practice has been the integration of text and illustrations. According to Evelyn Sakakida Rawski, such illustrated reading primers can be called illustrated glossaries, which distinguishes them from standard glossaries¹⁰⁰. Examples of this can be seen in books like the *Newly Compiled Illustrated Four-Character Glossary* [*Xinbian duixiang siyan* 新编对相四言]¹⁰¹. This book, categorized as an early Yuan Dynasty primer in the miscellaneous characters [*zazi* 杂字] genre, was specifically created for promoting literacy¹⁰². *Dui* 对 represents the concept of matching, while *xiang* 相 refers to illustrations. *Xinbian duixiang siyan* is the earliest illustrated book in the *zazi* genre¹⁰³. It comprises 224 monosyllabic words and 82 disyllabic words, accompanied by 306 illustrations. The text, following traditional custom, is arranged in groups of like objects, starting with heaven or sky, and concluding with such homely items as a dustpan and broom. Within this collection, they are all centered around natural phenomena and everyday objects. Similar books include *Kuiben duixiang siyan zazi* 魁本对相四言杂字, produced during the Ming Dynasty¹⁰⁴. This particular book was created as a children's learning resource, in which words are taught through visual depictions. Each sentence in the book comprises four characters, accompanied by corresponding illustrations. In total, the book presents 308 illustrations, 224 monosyllabic words, and 84 disyllabic words.

In contrast to traditional Chinese children's primers of this kind, the series of *yizhi* puzzle books make advancements in both text and illustration. First-

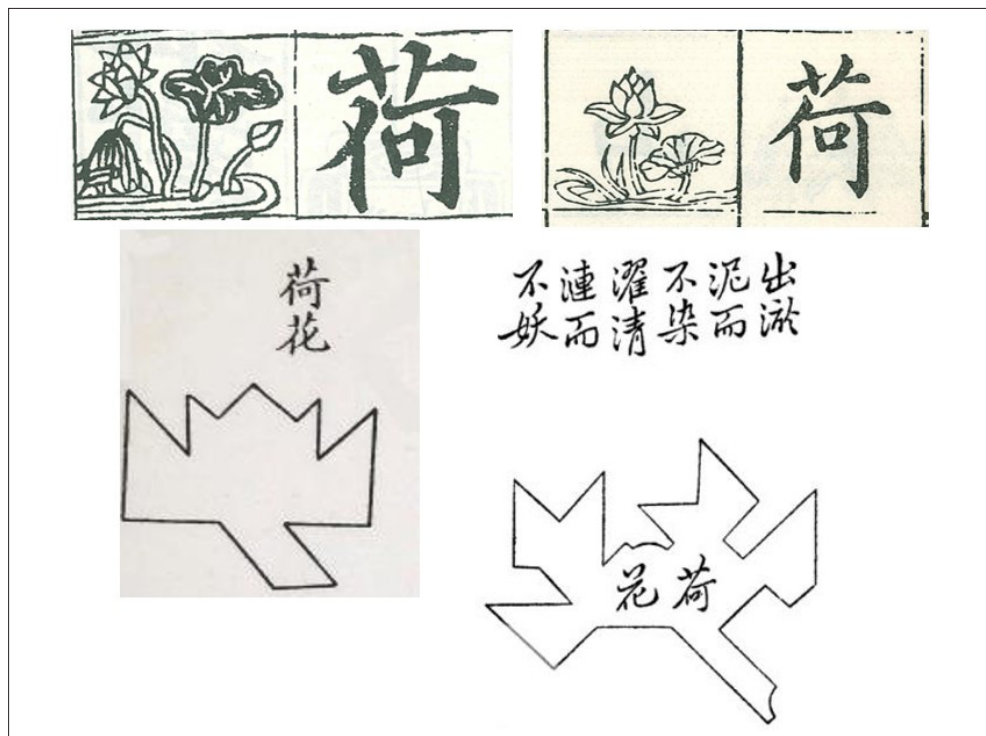
¹⁰⁰ E. Sakakida Rawski, *Education and Popular Literacy in Ch'ing China*, A. Arbor, University of Michigan Press, 1979, pp. 129-131.

¹⁰¹ *Xinbian duixiang siyan*, with Introduction and Notes by L. Carrington Goodrich, Hong Kong, Hong Kong University Press, 2015.

¹⁰² According to Bai Limin's discussion, *zazi* typically contained Chinese characters or terms commonly used in daily life, although the content varied among different versions. Therefore, *zazi* can be seen more as a general guidebook rather than a specific text. See Bai Limin, *Shaping the Ideal Child*, cit., p. 26. For further references on *zazi*, see Rawski, *Education and Popular Literacy in Ch'ing China*, cit., pp. 125-139; Pei-yi Wu, *Education of Children in the Sung* in Wm. Theodore de Bary, John W. Chaffee (eds.), *Neo-Confucian Education: The Formative Stage*, Berkeley, University of California Press, 1989, pp. 309-310.

¹⁰³ Evelyn Sakakida Rawski also introduced another two illustrated books in the *zazi* genre: *Illustrated Four-Character Glossary Zazi* [*Duixiang siyan zazi* 对相四言杂字], said to be a 1371 edition; *Illustrated Four-Character Glossary* [*Duixiang siyan* 对相四言], which seems to be a Qing edition. Since publication information of these two books is incomplete and the figures in these two books are very similar to *Xinbian duixiang siyan*, this thesis will pay more attention to the analysis of the content of *Xinbian duixiang siyan*. Rawski, *Education and Popular Literacy in Ch'ing China*, cit., pp. 129-136.

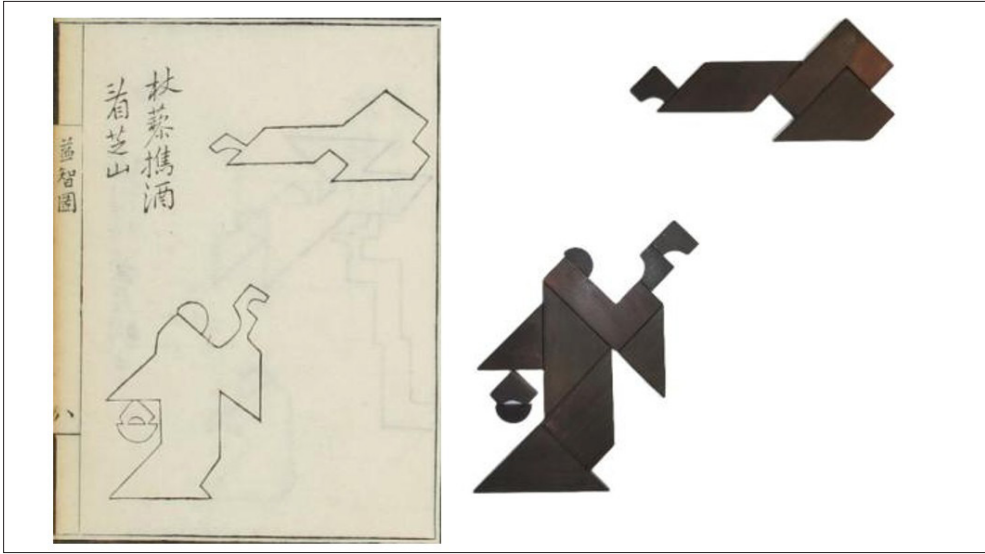
¹⁰⁴ *Kuiben duixiang siyan zazi* in Jin Chengyu 金程宇, *Hekeben Zhongguo guyishu congkan* 和刻本中国古逸书丛刊, Nanjing, Fenghuang shubanshe, 2012, Vol. 15.



Pic. 6. The Patterns of *He* (Lotus) and *Hehua* (Lotus Flower) in Four Chinese Literacy Primers. Reprinted from *Xinbian duixiang siyan*, cit., 1b; *Kuiben duixiang siyan zazi*, cit., p. 330 [top row, left to right]; Qian Yunji, *Qiqiao bafen tu*, cit., Vol. 6, juan 16, 5; Tong Xiegeng, *Yizhi xutu*, cit., 4a [bottom row, left to right].

ly, *Yizhitu*, *Yizhi xutu*, and *Yizhi zitu*, within the series, incorporate Chinese poetry and allusions as explanations for the illustrations, a feature that was previously overlooked in children's primers. Lines extracted from traditional Chinese literature are utilized to elucidate the illustrations. Secondly, the series of *yizhi* puzzle books presents abstract images as illustrations, departing from the conventional use of figurative illustrations. Taking the common topic of the "lotus flower" as an example (see Pic. 6), we can observe distinct artistic styles portrayed in four Chinese literacy primer books, the *Newly Compiled Illustrated Four-Character Glossary*, *Kuiben duixiang siyan zazi*, *Qiqiao bafen tu*, and *Yizhi xutu*.

The *Newly Compiled Illustrated Four-Character Glossary* and *Kuiben duixiang siyan zazi* depict the lotus flower in a lifelike manner, employing a realistic approach to illustration. The lotus blossoms vividly in the image, with a single lotus leaf serving as a complementary element. In contrast, *Qiqiao bafen tu* adopts a more abstract representation of a lotus flower, featuring a pattern that resembles the form of a lotus but which lacks realistic details.



Pic. 7. A Pattern Formed to Visualize «Zhangli xiejiu kan zhishan» in *Yizhitu*. The pattern on the left is reprinted from Tong Xiegeng, *Yizhitu*, cit., Vol. 1, 8a. The pattern on the right is assembled by the author of this article.

Moving on to Tong's book, the lotus flower is also presented in an abstract manner, but with a greater emphasis on highlighting the irregular edges of the petals. Additionally, this book incorporates a classic line of verse: «出淤泥而不染，濯清涟而不妖» which is attributed to Zhou Dunyi¹⁰⁵.

Tong's wife proposed that the series of *yizhi* puzzle books adhere to the principle of «poetry presents a portrayal of imagery and the imagery provides a poetic sensation» [*shizhong youhua, huazhong youshi* 诗中有画, 画中有诗]¹⁰⁶. When the amount of annotated text increases and the number of pieces of Tong's puzzle is strictly limited to fifteen in total for illustrations, a question arises: how can the text and images be better integrated? In other words, how can a more effective combination of text and visuals be achieved for educational aims? One of the solutions Tong Xiegeng and his family developed was to prioritize key visual imagery, which is clearly exemplified in the samples of poetry and literary allusions of *Yizhitu*. For example, «zhangli xiejiu kan zhishan» 杖藜携酒看芝山 is a story in which one person carries a cane and a jug of wine and embarks on a solitary journey to explore the mountain. Therefore, the key words are person, cane, wine, and mountain, which could be shown by arranging the pieces of Tong's puzzle (see Pic. 7).

¹⁰⁵ Tong Xiegeng, *Yizhi xutu*, cit., 4a. For the source of this sentence, see Zhou Dunyi, *Zhou Dunyi ji* 周敦颐集, Beijing, Zhonghua shuju, 1990, p. 53.

¹⁰⁶ Zhu Meijun, «ba» in Tong Xiegeng, *Yizhitu*, cit., Vol. 1.

The key visual imagery of the poetry and literary allusions of *Yizhitu* can be summarized into seven categories: natural landscapes, figures, actions, objects, architecture, plants, and animals. Natural landscapes include the sun, the moon, water (including rivers, lakes, seas, and pools), and mountains. Figures include children, men, and women. Key visual imagery in the other categories is listed in Table 1 and Pic. 8.

By summarizing and analyzing key visual imagery, it can be concluded that poetry and allusions of *Yizhitu* predominantly focus on human characters, with a majority of the selected poems and allusions centered around male protagonists. While female characters and children are also featured as protagonists, they make up a smaller proportion¹⁰⁷. Natural landscape features such as

¹⁰⁷ On the significance of children in Chinese history, see, for example, Wang Deyi 王德毅, *Songdai de yanglao he ciyou* 宋代的养老与慈幼, «Guoli zhongyang tushuguan guankan 国立中央图书馆馆刊», n. 11, 1968, pp. 369-388; T.H.C. Lee, *The Discovery of Childhood: Children Education in Sung China (960–1279)*, in S. Paul (ed.), *Kultur: Begriff und Wort in China and Japan*, Berlin, Dietrich Reimer Verlag, 1984, pp. 159-202; C. Furth, *Concepts of Pregnancy, Childbirth, and Infancy in Ch'ing Dynasty China*, «The Journal of Asian Studies», vol. 46, n. 1, 1987, pp. 7-35; A. Behnke Kinney (ed.), *Chinese Views of Childhood*, Honolulu, University of Hawai'i Press, 1995; Xiong Bingzhen, *Youyou: chuantong Zhongguo de qiangbao zhi dao* 幼幼: 传统中国的襁褓之道, Taipei, lianjing chuban shiye gongsi, 1995; Zhou Yuwen 周愚文, *Songdai ertong de shenghuo yu jiaoyu* 宋代儿童的生活与教育, Taipei, Shida shuyuan youxian gongsi, 1996; Jiang Feng 蒋风, Han Jin 韩进, *Zhongguo ertong wenxueshi* 中国儿童文学史, Hefei, Anhui jiaoyu chubanshe, 1998; Xiong Bingzhen 熊秉真, *Anyang: jinshi Zhongguo ertong de jibing yu jiankang* 安恙: 近世中国儿童的疾病与健康, Taipei, lianjing chuban shiye gongsi, 1999; T.H.C. Lee, *Education in Traditional China: A History*, Leiden, Brill, 2000; S.R. Fernsebner, *A People's Playthings: Toys, Childhood, and Chinese Identity, 1909–1933*, «Postcolonial Studies», vol. 6, n. 3, 2003, pp. 269-293; Anne Behnke Kinney, *Representation of Childhood and Youth in Early China*, Stanford, CA, Stanford University Press, 2004; Bai Limin, *Shaping the Ideal Child*, cit.; Keith Nathaniel Knapp, *Selfless Offspring: Filial Children and Social Order in Medieval China*, Honolulu, University of Hawai'i Press, 2005; Ping-chen Hsiung, *A Tender Voyage: Children and Childhood in Late Imperial China*, Stanford, CA, Stanford University Press, 2005; D.E. Mungello, *Drowning Girls in China: Female Infanticide since 1650*, Lanham, Md, Rowman & Littlefield Publishers, 2008; C. Kubler, *Imagining China's Children: Lower-Elementary Reading Primers and the Reconstruction of Chinese Childhood, 1945–1951*, «Cross-Currents: East Asian History and Culture Review», vol. 7, n. 1, 2018, pp. 153-196; M. Mih Tillman, *Raising China's Revolutionaries: Modernizing Childhood for Cosmopolitan Nationalists and Liberated Comrades, 1920s–1950s*, New York, Columbia University Press, 2018; Wang Zijin 王子今, *Qin Han ertong de shijie* 秦汉儿童的世界, Beijing, Zhonghua shuju, 2018; Cong Ellen Zhang, *Performing Filial Piety in Northern Song China: Family, State, and Native Place*, Honolulu, University of Hawai'i Press, 2020; Xiong Bingzhen, *Youyi yu youmeng: jinshi Zhongguo shehui de mianyan zhi dao* 幼医与幼蒙: 近世中国社会的绵延之道, Taipei, lianjing chuban shiye gongsi, 2018; Guilin, *Guangxi shifan daxue chubanshe*, 2021. On Chinese women's direct or indirect participation in the historical process, see, for example, D. Ko, *Teachers of the Inner Chambers: Women and Culture in Seventeenth-Century China*, Stanford, CA, Stanford University Press, 1994; S. Mann, *Precious Records: Women in China's Long Eighteenth Century*, Stanford, CA, Stanford University Press, 1997; G.S. Fong, *Herself an Author: Gender, Agency, and Writing in Late Imperial China*, Honolulu, University of Hawai'i Press, 2008; J. Judge, *The Precious Raft of History: The Past, the West, and the Woman Question in China*, Stanford, CA, Stanford University Press, 2008; Weijing Lu, *True to Her Word: The*

Tab. 1. Key Visual Imagery of Poetry Excerpts and Literary Allusions in *Yizhitu*

Category	Key visual imagery
Actions	扫 sweep, 扣 knock, 扶 support, 杖藜 lean on a walking stick, 携酒 carry wine, 逐水 following the water, 夜语 talk at night, 吹角 blow the horn, 送酒 deliver wine, 弹 play, 题壁 inscribe on a wall, 卧 lie down, 橹摇 row, 振衣 shake out clothes, 濯足 wash feet, 独钓 go fishing alone, 拾 pick up, 举 lift up, 折 fold, 织 weave, 采菱 pick water chestnuts, 晓妆 do one's morning makeup, 浣纱 wash clothes, 倚 lean on, 穿针 thread the needle, 添香 add incense, 题诗 compose a poem, 画纸 draw, 敲针 tap a needle, 囊萤 catch a firefly in a bag, 读书 read, 进履 present one's shoes, 醉眠 fall asleep drunk, 赏雨 appreciate the rain, 拜 bow, 炼石 refine stone, 奔 rush, 跨 cross, 投 throw, 当垆 sell wine, 舞 dance, 盗盒 steal the box, 教子 teach children, 举案 lift the tray
Objects	纸屏 paper screen, 床 bed, 船 boat, 扉 door, 书案 desk, 地炉 floor hearth, 茶鼎 tea set, 灯 lamp, 杯 cup, 蓑衣 straw raincoat, 桂棹 paddle, 琵琶 lute, 奚囊 poetry bag
Architecture	瑶台 platform, 寺 temple, 墙 wall, 楼 building/tower, 亭 pavilion, 栏 railing, 高阁 tall pavilion, 茅店 thatched inn, 桥 bridge, 璇宫 elaborately decorated palace, 天台 terrace, 茆屋 thatched house
Plants	红杏 red apricot, 柳 willow, 芭蕉 banana, 梧叶 sycamore tree leaves, 紫薇花 crape myrtle flower, 花 flower, 荷 lotus, 菊 chrysanthemum, 叶 leaf, 林 forest, 梅 plum blossom
Animals	蝴蝶 butterfly, 雀 sparrow, 蛙 frog, 鸥 gull, 羊 goat, 雁 wild-goose, 鸡 rooster, 马 horse, 蜻蜓 dragonfly, 鹤 crane, 虎 tiger, 龙 dragon, 牛 ox, 鲤 carp, 兔 rabbit, 凤 phoenix, 鹅 goose

Pic. 8. Key Visual Imagery of Poetry Excerpts and Literary Allusions in *Yizhitu*. Organized by the author of this article.

the sun, moon, and mountains, as well as man-made structures like buildings and walls, serve as backdrops for the characters' actions. The characters exhibit a wide range of behaviors, and everyday objects, plants, and animals are used as supplementary elements in their activities. This harmonious interplay between humanity and the natural world lies at the heart of traditional Chinese painting aesthetics¹⁰⁸.

As the series developed, from *Yizhitu* to *Yizhitu qianziwen*, the importance of imagery relative to text increases. The text of *Yizhitu* consists of traditional Chinese poetry, allusions, and classical passages. In *Yizhi xutu*, it solely comprises Chinese classical passages, with relatively longer word counts. In *Yizhi zitu*, the text also consists of Chinese classical sentences with a relatively large number of words. In contrast, *Yizhi yanjitu* adopts a minimalist approach with four-word titles. These concise titles capture the essence of the content, allowing readers to grasp the main themes at a glance. *Yizhitu qianziwen* is comprised entirely of images, devoid of any textual annotations. There is a gradual reduction in textual explanations throughout Tong's books, particularly from the first book, *Yizhitu*, to the final book, *Yizhitu qianziwen*. In the first few books, the side notes are abundant, sometimes even surpassing the number of patterns. However, in *Yizhitu qianziwen*, the example does not include textual explanations. This deliberate shift indicates Tong and his family's increased focus on the significance of pictures in the learning process.

This tendency of emphasizing images was quite prevalent in the late Qing Dynasty. Publications such as *Dianshizhai Pictorial* [*Dianshizhai huabao* 点石斋画报] and *Enlightenment Pictorial* [*Qimeng huabao* 启蒙画报] served as prime illustrations of this phenomenon¹⁰⁹. In the 19th century, with the popularization of public education in Europe and America, the reading population

Faithful Maiden Cult in Late Imperial China, Stanford, CA, Stanford University Press, 2008; Liu Yongcong, *Caide xianghui: Zhongguo nüxing de zhixue yu kezi* 才德相辉: 中国女性的治学与课子, Hong Kong, Sanlian shudian, 2015; Weijing Lu, *Arranged Companions: Marriage and Intimacy in Qing China*, Seattle, University of Washington Press, 2021.

¹⁰⁸ The discussion here about the relationship between humanity and the natural world in traditional Chinese painting was inspired by Mr. Tong Yili 童以立, who is the sixth-generation descendant of Tong Xiegeng. Thanks to Mr. Tong Yu's introduction, I gained privileged access to Mr. Tong Yili, who works on the development and spread of the yizhi puzzle nowadays. Mr. Tong Yili reminds me to pay attention to the philosophical foundation of traditional Chinese painting. For representative references on traditional Chinese painting, see Michael Sullivan, *Symbols of Eternity: The Art of Landscape Painting in China*, Stanford, CA, Stanford University Press, 1979; Wen Fong, *Beyond Representation: Chinese Painting and Calligraphy, 8th-14th Century*, New York, Metropolitan Museum of Art, 1992; J. Cahill, *The Lyric Journey: Poetic Painting in China and Japan*, Cambridge, MA, Harvard University Press, 1996; Wu Hung, *The Double Screen: Medium and Representation in Chinese Painting*, London: Reaktion, 1996; Wen Fong, *Between Two Cultures: Late-Nineteenth- and Twentieth-Century Chinese Paintings*, New York, Metropolitan Museum of Art, 2001.

¹⁰⁹ Chen Pingyuan 陈平原, *Zuotu youshi yu xixue dongjian: wan Qing huabao yanjiu* 左图右史与西学东渐: 晚清画报研究, Beijing, Shenghuo dushu xinzhi sanlian shudian, 2018.

experienced tremendous growth. At the same time, the emergence of technological advancements such as photography, printing, gas lamps, electric lights, steamships, and so on provided people with greater opportunities and improved conditions for reading. Changes in reading methods, reading materials, and reading habits intensified the viewers' demand for images corresponding to the text. With the maturation of printing technology, from the birth of photography in 1837 to the appearance of movies and projectors in 1895, the world gradually entered a new era of images¹¹⁰. Under the influence of the ideology of pragmatism, Chinese people became aware of the importance of technology. As a result, they initiated a series of movements aimed at improving China's level of technology and adopting Western technologies¹¹¹. This, in turn, led to a growing emphasis on images among the Chinese population. As Kang Youwei 康有为 (1858–1927) put it, «Nowadays, all trades and industries rely on images» [今工商百器皆籍于画]. «Without improvement in imagery» [画不改进], «there is nothing to be said about trades and industries» [工商无可言]. «This is why I, a humble person, hold a deep appreciation for imagery and engage in discussions about it» [此则鄙人藏画、论画之意]¹¹². It was precisely the need to enhance technology that prompted people to value images, ultimately propelling late Qing society into the «era of global images».

In pedagogy, the incorporation of images alongside text significantly enhances the quality of learning, especially for children, as pictures have a captivating effect on their attention. Considering children's limited literacy skills, an excessive number of complex characters can lead to disinterest and difficulty in sustaining focus during the learning process. The combining of pictures and text is a characteristic of children's books, but also encompass various formats such as books, magazines, and newspapers. As Chen Pingyuan said, «Compared to intricate or abstract texts, images are more intuitive, vivid, tangible, and accessible when it comes to conveying knowledge and expressing viewpoints»¹¹³. Within these “visual languages”, pictures, including illustrations, photography, icons and symbols, play an indispensable role¹¹⁴.

¹¹⁰ Liu Yang 刘杨, “Zuotu youshi” zai wan Qing: “shijie tuxiang de shidai” yu wan Qing de tuhui fuxing 左图右史”在晚清: “世界图像的时代”与晚清的图绘复兴, «Mei yu shidai», n. 10, 2015, pp. 53–55.

¹¹¹ These movements include the Hundred Days' Reform and the Self-Strengthening Movement. See I. Hsü, *The Rise of Modern China*; R.E. Karl, Peter Zarrow (edd.), *Rethinking the 1898 Reform Period: Political and Cultural Change in Late Qing China*, Boston, Harvard University Asia Center, 2002; L.S.K. Kwong, *A Mosaic of the Hundred Days: Personalities, Politics, and Ideas of 1898*, Cambridge, MA, Harvard University Press, 1984; M. Clabaugh Wright, *The Last Stand of Chinese Conservatism, The Tung-Chih Restoration, 1862–1874*, Stanford, CA, Stanford University Press, 1957.

¹¹² Kang Youwei, *Wanmu caotang cang Zhongguo huamu* 万木草堂藏中国画目, Taipei, Wenshizhe chubanshe, 1977, pp. 9–10.

¹¹³ Chen Pingyuan, *Zuotu youshi yu xixue dongjian*, cit., p. 57.

¹¹⁴ Li Quanhua 李全华, Li Li 李莉, and Zhu Liang 朱良, *Ertong duwu chatu yishu* 儿童读物

Firstly, pictures possess the ability to capture children's attention effectively. The juxtaposition of pictures and words allows for the amalgamation of abstract and figurative elements, which tends to be more captivating for children. For instance, the subjects in *Yizhi zitu* and *Yizhitu qianziwen* are abstract, while their patterns are figurative. When children explore these patterns, they engage in the process of learning by deciphering the strokes of each Chinese character. While traditional China did have literary primers with illustrations for children as discussed earlier, Tong Xiegeng's puzzle and books go a step further. This educational toy not only provides children with a visual understanding of the pictures but also empowers them to actively explore and demonstrate how the puzzle pieces can be combined through engaging in hands-on interaction.

Secondly, pictures serve the purpose of visually representing the textual content, aiding children with limited literacy skills in comprehending the conveyed information. The series of *yizhi* puzzle books often revolves around idioms, allusions, and poems, some of which may pose challenges for children's comprehension. However, the integration of the fifteen puzzle pieces helps children grasp the meaning by deepening their understanding of these idioms, allusions, and poems. Literacy education was important to children's education in traditional China. According to Wang Yun 王筠 (1784–1854), «during the period of childhood nurturing, prioritizing literacy is essential» [蒙养之时, 识字为先]¹¹⁵. Compared with the earliest literacy textbooks, *Shi Zhou pian* 史籀篇 and *Cang Jie pian* 仓颉篇¹¹⁶, Tong's books provide a full explanation of the texts with the help of his puzzle, which greatly contributes to enhancing children's literacy skills. Meanwhile, Tong's puzzle offers players an opportunity to enhance their understanding of geometry through diverse puzzles featuring various shapes that are both visible and tactile. According to Bai Limin's research, traditional Chinese mathematics did not have specialized terminology for the symbols used in contemporary mathematics, relying instead on Chinese characters to represent mathematical concepts¹¹⁷. Particularly, arithmetic concepts were intertwined with language instruction and at times intertwined with lessons on religion and ethics¹¹⁸. One notable advantage of Tong's puzzle lies in its integration of visual instruction with language education, effectively transforming abstract geometric forms into tangible realities.

Lastly, the combination of image and text has both aesthetic and intellectu-

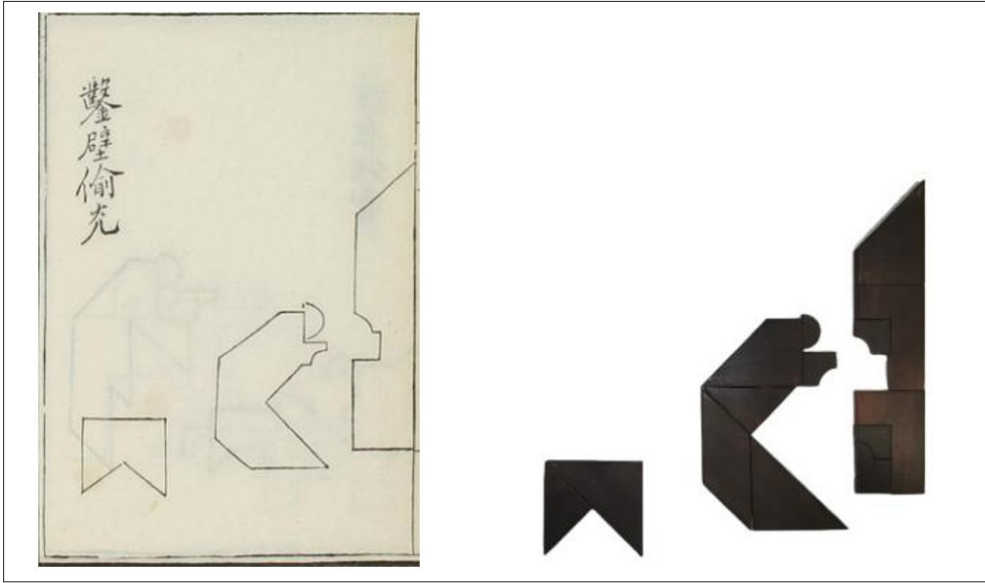
插图艺术, Hangzhou, Zhejiang daxue chubanshe, 2008, pp. 1-3.

¹¹⁵ Wang Yun, *Jiao tongzi fa* 教童子法, Beijing, Zhonghua shuju, 1985, p. 1.

¹¹⁶ Ban Gu, *Han Shu*, cit., *juan* 卷 30, “yiwenzhi” 艺文志 10, p. 1721. For an introduction to these literacy textbooks, see Needham, *Science and Civilisation in China*, cit., Vol. 6, pp. 194-200.

¹¹⁷ Mathematics includes geometry, arithmetic, algebra, and analysis. See *Mathematics*, <<https://doi.org/10.1093/OED/1186886445>> (last access: 26.11. 2024).

¹¹⁸ Bai Limin, *Shaping the Ideal Child*, cit., pp. 137-148.



Pic. 9. The Proverb *Zaobi touguang* in *Yizhitu*. The pattern on the left is reprinted from Tong Xiegeng, *Yizhitu*, cit., vol. 1, 26b. The pattern on the right is assembled by the author of this article.

al impacts on children. The pictures within the series of *yizhi* puzzle books are visually appealing, characterized by clarity and distinct features. For instance, in the pattern *zaobi touguang* (see Pic. 9), the protagonist is depicted as bent over, facing a wall, engrossed in reading a book. The missing piece of the wall signifies the transmission of light. The protagonist's distinctive features are outlined with just a few strokes, subtly cultivating children's aesthetic perception and stimulating their imaginative capabilities. Simultaneously, children can expand their vocabulary through the accompanying side notes, enhancing their literacy efficiency with the aid of pictures.

4. Legacy and Lessons: The Enduring Significance of an Edutainment Exemplar

4.1. Challenging the Conventional Bias against Games for Children

Games are initially regarded by traditional Chinese literati as a beneficial and educational experience. For instance, the *Record on the Subject of Education* [Xueji 学记] states that when «a student of talent and virtue pursues his studies» [君子之于学也], he should «withdraw in college from all besides»

[藏], and «devote to their cultivation» [修], or «occupy with them when retired from it» [息], and «enjoy himself» [游]¹¹⁹. This supports a learning approach that values leisure and entertainment. Similarly, the *Analects* poses the question, «Are there no checkers or chess players?» [不有博弈者乎], affirming that scholars who participate in these games are still considered worthy [*xian* 贤] individuals¹²⁰. Moreover, the *Analects* outlines four essential requirements for individuals: «Fixing the mind on the right way» [志于道]; «holding fast to it in the moral character» [据于德]; «Following it up in kindness to others» [依于仁]; «take the recreation in the polite arts» [游于艺]¹²¹, highlighting the value of engaging in artistic activities for personal growth and cultivation. The idea of «taking the recreation in the polite arts» not only promotes the integration of study and leisure but also contributes to the development of one's temperament.

However, the ancient scholars also emphasize the need for moderation when it comes to games. For example, Yan Zhitui 颜之推 (531–ca. 597) acknowledges in *Family Instructions for the Yen Clan* [*Yanshi jiaxun* 颜氏家训] that Go is «a refined game» [雅戏], but «it makes people self-indulgent and neglectful of other duties» [令人耽愤, 废丧实多], so «people should not play it often» [不可常也]¹²². After that, perceptions of games have changed over time, and people have come to view games as activities that merely waste time and distract from academic pursuits. One example is Han Yu 韩愈 (768–842), who explicitly states that «diligence leads to success, while idleness leads to failure» [业精于勤, 荒于嬉]¹²³. Song Confucianism offers similar suggestions, viewing games as detrimental to educational development. For instance, Zhu Xi 朱熹 (1130–1200) annotates the hexagram *meng* 蒙 as follows: «Only by getting rid of external temptations can one be absolutely upright and pure» [惟捍其外诱, 全其真纯]¹²⁴. Wang Yinglin 王应麟 (1223–1296) simply includes the phrase «diligence has merit while play has no advantage» [勤有功, 戏无益] as a concluding phrase in the *Trimetrical Classic*¹²⁵.

Meanwhile, although the mainstream view on games in late imperial China is negative, there are individual scholars who recognize their value. For example, Wang Shouren 王守仁 (1472–1529) writes in the following in article «Xunmeng dayi shijiaodu Liu Bosong deng» [训蒙大意示教读刘伯颂等]:

In general, the nature of children is to enjoy play and be wary of strict

¹¹⁹ *Li Chi*, cit., Vol. 2, p. 85.

¹²⁰ *The Analects of Confucius*, cit., p. 851.

¹²¹ *The Analects of Confucius*, cit., p. 331.

¹²² Yan Zhitui, *Family Instructions for the Yen Clan: Yen-Shih Chia-Hsün*, Engl. transl. by Teng Ssu-yü, Leiden: E.J. Brill, 1968, p. 207.

¹²³ Han Yu, *Jinxue jie* 进学解 in *Songshu keben tangrenji congan* 宋蜀刻本唐人集丛刊, Shanghai, Shanghai guji chubanshe, 1994, Vol. 28, *juan* 卷 12, p. 308.

¹²⁴ Zhu Xi, *Zhouyi benyi* 周易本义, Beijing, Zhonghua shuju, 2009, p. 56.

¹²⁵ Wang Yinglin, *Sanzijing* 三字经, Hong Kong, Tiandi tushu youxian gongsi, 2003.

constraints, much like the initial sprouting of plants. If allowed to grow freely and unhindered, they will thrive. However, if subjected to disturbances and restrictions, their growth will be stunted. When it comes to educating children, it is crucial to let them follow their own interests and provide them with ample encouragement. By doing so, their inner joy will be nurtured, leading to continuous progress and improvement.

[大抵童子之情，乐嬉游而惮拘谨，如草木之始萌芽，舒畅之条达，摧扰之则衰。今教童子，必使其趋向鼓舞，中心喜悦，则其进自不能已。]¹²⁶

Overall, while the ancients believed that games possess a certain degree of educational value, benefiting physical and mental development, the purpose of traditional education amounted to the idea that «by excelling at learning, one can be an official» [学而优则仕], that is, education functioned to cultivate “gentlemen” and “sages,” so as to realize the social ideal of “regulating the family, governing the country and the world.” Achieving this ideal required diligent study and rigorous practice, while play was considered a mere waste of time and a hindrance to ambition.

This concept is not only supported by the above traditional Chinese classics but also reflected in literary works. For example, in *Dream of the Red Mansions*, the protagonist «is strongly criticized for playing outside every day, which gradually leads to laziness towards work» [日日在外游嬉，渐次疏懒了工课]¹²⁷. This means that pursuing an official career often necessitated sacrificing games as a prerequisite. In terms of the most effective paths to academic achievement and becoming an official, traditional idioms like «tying one’s hair on the house beam and jabbing one’s side with an awl» [头悬梁，锥刺股]¹²⁸ and «enduring the hardest hardships makes one extraordinary» [不受苦中苦，难为人上人]¹²⁹ encapsulate the strong emphasis on diligence; naturally, in this context, games were synonymous with wasting energy and neglecting one’s duties. With the advent of formal schooling, games became diametrically op-

¹²⁶ Wang Shouren, *Wang Yangming xiansheng chuanxilu* 王阳明先生传习录, Lixing yaolan faxingsuo, 1933, pp. 104–105.

¹²⁷ Cao Xueqin 曹雪芹 (1715–1763?) and Gao E 高鹗 (ca. 1738?–ca. 1815), *Honglou meng* 红楼梦, Shanghai, Shanghai guji chubanshe, 2003, Vol. 1, p. 147.

¹²⁸ The idiom comes from ancient stories about how assiduously people studied. Sun Jing 孙敬 (dates unknown) would incessantly read books from dawn to dusk alone. When he felt tired or fatigued, he would tie his hair to the beam of the house, so that the moment he began to nod off, his head would be jerked back and this would immediately rouse him, and he could continue reading. See Li Fang, *Taiping yulan*, vol. 2, *juan* 卷 363, “renshibu” 人事部 4, «toushang» 头上, 7 (p. 1674). During the Warring States Period, Su Qin 苏秦 (?–284 BCE) would use an awl to jab at his own thigh, whenever he felt sleepy to make sure he stayed awake and lucid enough to be able to continue reading. Later, people started to tell these stories in order to encourage young people to study hard. See Sima Qian, *Shiji*, cit., vol. 7, *juan* 卷 69, «liezhuan» 列传, 9, p. 2242.

¹²⁹ Feng Menglong, *Jingshi tongyan* 警世通言, Beijing, Huaxia chubanshe, 1994, *juan* 卷 24, p. 235.

posed to learning, leading to a prolonged separation and conflict between the two realms. This perception was deeply rooted in traditional China's understanding of knowledge and education, where acquiring knowledge was seen as inheriting and propagating the cultural achievements of one's predecessors. Diligent study is considered sufficient for this purpose, leaving no room for play, where time and energy can be wasted. Consequently, games were viewed as an unproductive behavior that hindered education. As Anne Behnke Kinney has said, there was «a dim view of play» in traditional China¹³⁰. Due to the enduring emphasis on painstaking study in traditional China and the time and energy commitment required by games, they inevitably became activities that were perceived as contrary to children's education.

Xiong Bingzhen presents similar arguments, stating that under the dominant objective of pursuing academic success and official positions through study, the upbringings of the sons of literati families in the Ming and Qing dynasties neglected the modern concept of balanced education, which includes the cultivation of aesthetics, physical fitness, and moral virtues alongside intellectual development. Even the traditional Confucian emphasis on the Six Arts (archery, charioteering, calligraphy, mathematics, music, and ritual), as well as the cultural pursuits of poetry, calligraphy, painting, and the game of Go, were often sidelined. The ideal boy they trained was a quiet and withdrawn “bookworm”, who lacked interest in play, had few friends, and rarely engaged in outdoor or physical activities¹³¹.

However, the *yizhi* puzzle revolutionized the traditional understanding of children's play and games in Chinese culture. Tong Xiegeng, a visionary individual with a deep appreciation for children and games, dedicated himself to exploring various language games and board games. Recognizing the educational potential of the *yizhi* puzzle, Tong seamlessly integrated it into children's learning experiences. Tong's motivation for creating the *yizhi* puzzle was driven by his desire to bring joy and amusement to both himself and others. His genuine enthusiasm for games and his family's shared love and interest in it fueled their efforts to design an array of captivating patterns in the *yizhi* puzzle book series. As a result of its innovative approach and educational value, Tong's puzzle quickly gained recognition as a highly recommended toy for children's entertainment. It not only provided endless hours of fun but also encouraged critical thinking, spatial reasoning, and creativity among young minds¹³².

¹³⁰ A. Behnke Kinney (ed.), *Chinese Views of Childhood*, cit., p. 12.

¹³¹ Xiong Bingzhen, *Tongnian yiwang*, cit., pp. 114-115.

¹³² Wang Lang 王郎, *Zenyang yangcheng ertong de kuaile 怎样养成儿童的娱乐*, «Mengjiang xinbao 蒙疆新», April 8, 1941, p. 3.

4.2. Promoting a Child-Centered Perspective

In traditional China, the concept of “rituals” held great significance as the ethical rules and standards of behavior upheld by Confucians. Unfortunately, this mindset led to a lack of proper understanding of children, who were often treated as miniature adults, especially in the Neo-Confucian understanding¹³³. They were burdened with an abundance of rules, disregarding their unique needs and perspectives. Likewise, in medieval Western society, there was a lack of awareness of the distinction between children and adults, or even young people¹³⁴. Regrettably, Chinese children were often dismissed and ignored, being seen as incomplete and ignorant. Even when giving praise, society favored mature children over innocent ones. Traditional beliefs dictated that childhood was merely a preparation for adulthood, and all aspects of a child’s life, including play, were seen as groundwork for their future roles. Consequently, children were dressed in adult clothes, held to adult standards, and subjected to indoctrination through the *Four Books* and *Five Classics*, as if these texts were a catalyst for maturity. This adult-centered approach in traditional Chinese culture resulted in the undervaluing of children as individuals, overlooking their distinctive qualities, physical and mental development, and intrinsic worth. Children were expected to hasten the end of their childhood and swiftly assimilate into the adult-dominated society. Their lives revolved around and were subordinate to adults, leaving little room for their own experiences and needs. Traditional Chinese society believed that a child already possessed an “adult” within them from the moment of birth. Consequently, all the rules and teachings were not solely intended to guide their childhood but also to instill the principles that would shape their entire lives. The focus was not on fulfilling the immediate needs of a three- or four-year-old but rather on nurturing the emergence of that latent “adult” within them, allowing it to gradually take form¹³⁵.

¹³³ Bai Limin, *Shaping the Ideal Child*, cit., 41.

¹³⁴ P. Ariès, *Centuries of Childhood: A Social History of Family Life*, Engl. transl. by R. Baldick, New York, Vintage Books, 1962, p. 128. However, it does not mean that there was not a concept of childhood in the Middle Ages; rather, the Middle Ages were rather more enlightened and progressive in their attitudes to childhood and treatment of children than later centuries. See S. Shahar, *Childhood in the Middle Ages*, London, Routledge, 1990. For further references on Western children, see L. DeMause, *The History of Childhood: The Untold Story of Child*, London, Bellew Publishers, 1974; L. Stone, *The Family, Sex and Marriage in England 1500–1800*, London, Weidenfeld & Nicolson, 1977; L.A. Pollock, *Forgotten Children: Parent–Child Relations from 1500 to 1900*, Cambridge, Cambridge University Press, 1983; H. Cunningham, *Children and Childhood in Western Society since 1500*, London, Longman, 1995; J.A. Schultz, *The Knowledge of Childhood in the German Middle Ages: 1100–1350*, Philadelphia, University of Pennsylvania Press, 1995; C. Heywood, *A History of Childhood: Children and Childhood in the West from Medieval to Modern Times*, 2nd ed., Cambridge, Polity Press, 2018.

¹³⁵ Xiong Bingzhen, *Tongnian yiwang*, cit., 38.

The series of *yizhi* puzzle books not only identifies children as being among its intended audience, but also takes into account children's specific needs effectively. *Yizhitu qianziwen*, inspired by the *Thousand-Character Classic* that was designed specifically for children to learn characters, serves as an excellent example. The educational aims, content, and methods employed in Tong's puzzle series are highly beneficial for children's mental and physical development. As a result of its widespread popularity and development, the *yizhi* puzzle was officially recognized as a toy for students. It was also used as a prize for students in primary and secondary schools. For example, in 1915, with the approval of the Ministry of Education of the Nanjing National Government, the series of *yizhi* puzzle books issued by the Commercial Press was officially sanctioned for use in schools as prizes in recognition of educational achievement¹³⁶.

In terms of the significance and role of those prizes in elementary education, Wu Zhenwei 吴震威 argued that schools could motivate students to pursue knowledge and regulate their behavior by offering prizes¹³⁷. At that time, the prizes prepared for primary and secondary school students typically included books, pens and ink, postcards, and educational toys¹³⁸. For example, to reward students for their diligence, schools in Cangkou gave pencils as prizes¹³⁹. During Children's Day activities, Jiangxi Province awarded children's books, Froebel's gifts, and other prizes to schools¹⁴⁰. Hengyang Middle School in Hunan Province prepared ink cartridges as prizes for the outstanding students in the climbing competition and the words on the ink containers were different according to their ranking¹⁴¹.

Among these toys and prizes, the series of *yizhi* puzzle books gained immense popularity and was included in a list of «ideal children's books and educational games»¹⁴². Tong's puzzle significantly enriched the range of educational toys available at the time. Its widespread appeal led to the Commercial Press reprinting these books and even publishing the first volume on En-

¹³⁶ *Pi Tong Danian yizhitu liuce ji yizhi tuban yifu zhunzuowei xuexiao jiangpin yuanshu ji tuban cunbu beian* 批童大年益智图六册及益智图板一幅准作为学校奖品原书及图板存部备案, «Jiaoyu gongbao 教育公报», n. 10, 1915, p. 112.

¹³⁷ Wu Zhenwei, *Shuo xuexiao zhi jiangpin* 说学校之奖品, «Shaonian (Shanghai 1911) 少年 (上海1911)», n. 6, 1916, pp. 4–5.

¹³⁸ *Shangwu yinshuguan faxing xuexiao jiangpin* 商务印书馆发行学校奖品, «Shishi xinbao 时事新报», June 11, 1918, 1.

¹³⁹ *Minzhong qinxue, xuexiao faji jiangpin* 民众勤学, 学校发给奖品, «Cangkou minzhong 沧口民众», April 1, 1936, 1.

¹⁴⁰ *Lingzhi benjie ertongjie jinian dahui ge canjia biaoyan ji jianzi bisai yousheng xuexiao lingqu jiangpin* 令知本屆儿童节纪念大会各参加表演及毽子比赛优胜学校领取奖品, «Jiangxi jiaoyu xunkan 江西教育旬刊», vol. 5, n. 9, 1933, pp. 23–27.

¹⁴¹ *Jianxun: faji dengji denggao bisai jiangpin* 简讯: 发给登高比赛奖品, «Hunan shengli Hengyang zhongxue xiaowu huibao 湖南省立衡阳中学校务汇报», n. 17, 1936, pp. 1–2.

¹⁴² *Jiupan weidao zhi ertong duwu ji jiaoyu youxipin* 久盼未到之儿童读物及教育游戏品, «Huabei ribao 华北日报», May 6, 1929, 1.

glish-language subject matter titled *English Alphabets and Figures Constructed with the Puzzle Square*¹⁴³. When promoting the *yizhi* puzzle, the Commercial Press praised its adherence to educational principles, its alignment with children's preferences, and its attractive price and quality¹⁴⁴. These advantages contributed to its exceptional popularity in comparison to other toys in the market. Numerous authors of articles discussing toys, games, and children's education during the Republican period, agreed that, functioning as both a handicraft and a mathematical game, the *yizhi* puzzle offered a rich, engaging experience for children¹⁴⁵. Enthusiasts of the puzzle even explored its potential to create Chinese characters and phrases through innovative combinations. An example of this is the phrase «Never forget the May 30th Massacre» [勿忘五卅惨案], which showcased the puzzle's application in conveying significant political messages. This illustrates how toys can subtly influence and educate children¹⁴⁶.

The puzzle was even recommended to cultivate the creativity of Scouts. Liu Chengqing 刘澄清, who authored numerous books on scout education, emphasized that children possess inherent creativity, as they naturally engage

¹⁴³ The English title of this book was given by its author. Zhang Jusun 章鞠孙, *Yingwen yizhitu* 英文益智图, Shanghai: Shangwu yinshuguan, 1933.

¹⁴⁴ *Zizhi ertong wanju* 自制儿童玩具, «Shishi xinbao», January 7, 1918, 1. It should be noted that a set of *Yizhitu*, *Yizhi xutu*, *Yizhi zitu*, *Yizhi yanjitu* published by the Commercial Press in Shanghai in 1924 was priced at 2 *yuan*. An *yizhi* puzzle set included with these books cost only 0.3 *yuan*. *Yizhitu qianziwen* published by the Commercial Press in Shanghai in 1923 was priced at 1.4 *yuan*. According to a survey of prices in Shanghai in 1920, the average labor price was 0.4 *yuan* per person per day. See *Shanghai shiyunian lai wujia zhi diaocha* 上海十余年来物价之调查, «Yinhang zhoubao 银行周报», vol. 4, n. 2, 1920, pp. 57-58. This means that an average person only needs to work for nine days to buy a complete set of books and an *Yizhitu* set for their child.

¹⁴⁵ Bao Qiong 宝琼, *Ertong yu wanju zhi guanxi* 儿童与玩具之关系, «Zhonghua funüjie 中华妇女界», vol. 1, n. 9, 1915, p. 39; Lu Shoujian 卢寿箴, *Yuer yiban* 育儿一斑, Shanghai, Zhonghua shuju, 1920, p. 118; Bao Yangzhi 鲍仰之, *Yizhitu butu* 益智图补图, «Funü zazhi (Shanghai)», vol. 7, n. 7, 1921, p. 107; Bao Yangzhi, *Yizhitu butu*, «Funü zazhi (Shanghai)», vol. 7, n. 11, 1921, p. 105; Bao Yangzhi, *Yizhitu butu (xu)* 益智图补图 (续), «Funü zazhi (Shanghai)», vol. 7, n. 12, 1921: 98; Li Jinhui 黎锦辉, *Xinzhu Guoyu jiaoxuefa* 新著国语教学法, Shanghai, Shangwu yinshuguan, 1925, p. 183; *Shanxi shengli disan shifan fushu xiaoxue jinkuang cuoyao* 山西省里第三师范附属小学近况撮要, «Zhonghua jiaoyujie 中华教育界», vol. 15, n. 8, 1925, p. 123; *Wanju he guohuo* 玩具和国货, «Zhonghua jiaoyujie», vol. 17, n. 10, 1929, p. 61; Song Dao 诵道, *Xiaogongyi: yizhiban* 小工艺: 益智板, «Wuxi tongbao 无锡童报», n. 65, 1931, p. 13; Zhang Xuelin 张雪林 and Su Zhaoxiang 苏兆骧, *Xiaopengyou youxi* 小朋友游戏, Shanghai, Beixin shuju, 1931, vol. 1, p. 23; He Mingzhai 何明斋, *Xiaoxue gongyong yishuke jiaoxuefa* 小学工用艺术科教学法, Shanghai, Shangwu yinshuguan, 1933, p. 63; *Mingri ertongjie, Xi'an kuoda qingzhu, yejing ertongnian shishihui choubei jiuxu, sheng minjiaoguan juban ertong xingfu zhanlan* 明日儿童节, 西安扩大庆祝, 业经儿童年实施会筹备就绪, 省民教馆举办儿童幸福展览, «Xijing ribao 西京日报», April 3, 1936, 4; Yu Ziyi 俞子夷, *Suanshu youxi: yizhi tuban* 算术游戏: 益智图板, «Zhengzhong ertong 正中儿童», n. 23, 1946, p. 15; Chen Bangxian 陈邦贤, *Xiuxi yu jieyu* 休息与节欲, Nanjing, Zhengzhong shuju, 1947, p. 34.

¹⁴⁶ Li Yuanqing 李元庆, *Yizhitu*, «Xuesheng wenyi congkan 学生文艺丛刊», vol. 4, n. 5, 1927, p. 1.

in activities like drawing houses or people using bricks, chalk, or sticks on the ground without any formal instruction. These expressions of creativity highlight the need to harness their unique characteristics and provide suitable training, enabling them to make significant contributions to the country in the future. Playing with the *yizhi* puzzle, Liu asserted, represented an excellent method for nurturing their creative abilities¹⁴⁷.

Furthermore, Tong's puzzle served as a valuable tool for educational assessments. Chen Xuanshan 陈选善, a famous educator in modern China, believed that educational assessments could be divided into two types: verbal and non-verbal. Verbal assessments, such as the Binet-Simon Intelligence Scale, heavily rely on verbal questions and answers, but are not suitable for children with visual and hearing impairments. Additionally, if the examiner and the child do not share a common dialect, it can impact the accuracy of the assessment. Consequently, most assessments for young children utilized visual materials, such as pictures. The *yizhi* puzzle perfectly fulfilled the requirements of this type of assessment. During the test, children were tasked with placing various wooden blocks in the correct positions, and their intelligence level was determined based on the time taken and the accuracy of their placement¹⁴⁸.

Tong's puzzle also held a significant role in family education, serving as a source of family entertainment. Parents and children could engage in solving the puzzle together, fostering happiness and promoting good health. For instance, a book discussing the educational psychology in the 1940s defended that this approach was effective in eliminating illness and enhancing overall well-being¹⁴⁹. According to one Republican era writer, when teaching children how to play with the puzzle, it was crucial to encourage them to discover new patterns independently and to develop a genuine interest in the game. One effective strategy for this was to limit the number of patterns shown to children each day, as this could prevent them from becoming bored and gradually encourage them to explore further¹⁵⁰. As children became more adept at solving the puzzle, they would naturally find themselves more engrossed and motivated to pursue new patterns and challenges. In 1946, Zhang Shengyi 章绳以 commented that toys, including the *yizhi* puzzle, satisfy children's innate desire to play, and parents should focus on guiding children to unleash this natural inclination rather than stifling it¹⁵¹. The widespread use of Tong's puzzle

¹⁴⁷ Liu Chengqing, *Youtongjun de liangyou* 幼童军的良友, Changsha, Shangwu yinshuguan, 1940, pp. 84–85.

¹⁴⁸ Chen Xuanshan 陈选善, *Jiaoyu ceyan jianghua* 教育测验讲话, Shanghai, Shijie shuju, 1947, p. 8; Id. *Jiaoyu xinlin* 教育心理, Shanghai, Shangwu yinshuguan, 1948, p. 59.

¹⁴⁹ Xu Songshi 徐松石, *Jiating jiaoyu yu ertong* 家庭教育与儿童, Shanghai, Shangwu yinshuguan, 1931, p. 102.

¹⁵⁰ Fan Quan 范铨 and Wang Jinglu 汪静庐 (comp.), *Jiating yule* 家庭娱乐, annot. Zhong Jinglan 仲靖澜, Shanghai, Puyi shuju, 1933, p. 8.

¹⁵¹ Zhang Shengyi 章绳以, *Jiashixue gailun* 家事学概论, Shanghai, Zhongguo wenhua fu-

zle in late Qing and Republican China confirms its contribution to the greater emphasis on a child-centered perspective on children in modern China.

Conclusion

By combining entertainment with education, Tong's puzzle not only challenged young learners but also instilled values of moral education, intellectual stimulation, and aesthetic appreciation. Intellectually, the puzzle served as an educational aid, enhancing children's understanding of various subjects. Its geometric nature also promoted spatial awareness and mathematical skills, providing a rich, multidimensional learning experience. The book series incorporated detailed explanations and classical references, fostering a deeper appreciation of Chinese literature and history. Morally, it incorporated stories and examples that highlighted virtues such as loyalty, integrity, perseverance, and respect for elders. These narratives, drawn from Chinese classics and historical anecdotes, aimed to instill ethical values in young minds. The inclusion of exemplary female figures further emphasized the importance of moral education for all members of society. Aesthetically, the puzzle encouraged players to explore and appreciate beauty in everyday objects and nature. The abstract yet detailed designs required keen observation and artistic creativity, allowing players to engage with art and culture in a meaningful way. The integration of traditional calligraphic styles and poetic imagery further enriched the aesthetic experience. Pedagogically, Tong's approach combined visual and textual elements, enhancing the learning process. The puzzles not only captured children's attention but also aided in their comprehension and retention of information. By gradually reducing textual explanations in favor of visual representation, Tong emphasized the importance of imagery in education, aligning with the broader societal shift toward visual learning in the late Qing Dynasty. By transforming Confucian teachings into geometric puzzles, he created a bridge between traditional Chinese learning and modern educational methods. This puzzle became both a vessel for ancient wisdom and a precursor to future educational trends, its design mirroring China's intellectual transformation during its transition from tradition to modernity.

As Colin Heywood says, toys and games were historically a means «to encourage the intellectual and physical development of the young», as well as to amuse them¹⁵². The concept of combining play with education, making learning enjoyable, is a common educational philosophy in contemporary times. However, this was not a prevalent idea during Tong Xiegeng's era. When

wushe, 1946, pp. 287–288.

¹⁵² Heywood, *A History of Childhood*, cit., p. 179.

Tong, nearing the age of fifty, invented the *yizhi* puzzle, it is uncertain whether he was driven by concerns for his country or if he envisioned it as a tool to empower the younger generation as the hope for the nation's future. Nonetheless, it is evident that Tong Xiegeng valued the importance of children and sought to contribute to their education and recreation. His efforts were not in vain, as evidenced by the widespread use of this toy in late Qing and Republican China. This popularity was also influenced by the May Fourth Movement, after which the recognition of children's roles and their significance to the nation was heightened. The movement's emphasis on cultural renewal and social progress created fertile ground for reimagining childhood as a formative period requiring purposeful nurturing – a stark departure from earlier views that often dismissed children's agency. This ideological shift likely amplified public receptiveness to educational tools like the *yizhi* puzzle, aligning its playful pedagogy with the era's burgeoning nationalist aspirations. Until now, Tong Xiegeng and his puzzle continue to motivate us to think about the intrinsic value and significance of children, recognizing them as an important social group in their own right.