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How the Handcraft Typography Can Enhance Children's Language Learning Experience

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Abstract

This study used a design experiment that instructs children on how to approach each letter to investigate typography design methodologies and manual techniques. Since children are still in the early stages of learning and the content they are exposed to is of great significance, the topic of children's education is always one that the entire community is intensely interested in discussing. According to researchers, typography is a popular medium and expressive technique in technology development, and art education is important for improving human communication. Typography with illustration may also help children achieve a clear sense of each letter's collocation by means of expression, recognition, and understanding through children's cognitive development by adding handcraft activities to each letter's characters. To approach new design considerations in typography and typeface experimentation, the current research analyses children's learning materials to consider their learning obstacles. Using an innovative design approach method in children's learning materials, this study demonstrates how children's drive to learn may be inspired and encouraged by a more engaging learning environment, leading to improved learning outcomes. Using paper-folding graphic visualization can also help kids understand the shape of each letter.

Keywords: typography, typeface, language learning, manual technique, letter learning

1. Introduction

Learning is the continuous process of gaining knowledge, information, and skills throughout life. It should not be a source of pressure for students. However, with the increasing number of examinations and tests happening in school learning activities, plenty of students complain that learning is unappealing and uninteresting. In a high-competition society, learning has almost lost its original traits. Learning can be interesting and exciting only if students can find the appropriate methods of approach rather than passive acceptance.

2. Background

According to Krashen and Tracy (1982), Piaget identified four stages of cognitive development: (1) sensorimotor stage, (2) pre-operational stage, (3) concrete operational stage, and (4) formal operational stage. However, these concepts are rarely put into reality (Newman, 2015). Children continue to learn differently in each of these four phases. According to Piaget, children's basic, natural schemes and patterns help them to understand the world at a very young age. However, these tactics and patterns usually tend to change when they become mature (Papalia et al., 2012). As a result, it is very essential to consider the characteristics of children into account when designing the framework for their teaching and learning process. Moreover, to encourage children to become more engaged in learning new things, Stephen and Tract created a natural learning technique in the early 1980s (Krashen & Tracy, 1982). The goal of this method was to ease the students' minds as much as possible while they were studying. The five underlying hypotheses of the technique are as follows: (1) input hypothesis, (2) natural order hypothesis, (3) acquisition learning hypothesis, (4) monitor hypothesis, and (5) affective filter hypothesis. In language teaching, these five theories are frequently applied (Krashen, 1982).

Previous research has demonstrated that intentionality in the choice and organization of materials can improve young children's utilization of literacy objects and associated resources, increasing their opportunities to interact with language and literacy (Neuman et al., 2008). It is essential to comprehend children's needs, interests, and preferences to arouse their interest in learning (Newman, 2015). Children would first develop pictographic symbols before regularly transitioning them to the usage of ideographic symbols, according to Wu's research on

children's multi-signification ability. Children's focus variation, contingency association, and express chain were characteristics of this process (Wu, 2013). In order to improve comprehension of words and phrases, interactive and stimulating exercises have consistently been shown to be useful strategies for reinforcing new letters or vocabulary (González, 2010). Additionally, illustrations are a valuable tool for encouraging children to make predictions, establish hypotheses, and use their current memories. Moreover, letters make up the other essential part of educational resources. Typography can be used to include them in layouts. Its primary purpose, as demonstrated by its appearance, is communication. The communication must be as concise, direct, and clear as possible for children to learn (Tschichold, 1995). Handcraft typography can be used to more effectively express ideas and explain a situation. It seeks to represent the informational structure and evolution of the explanation of the need. While a collection of typographic factors, such as illustration, color, and size variation, could also likewise be used to convey subtle expressions (Shannon et al., 1997).

3. Study Aim

This study aims to create an interactive handcraft-activity-based letter book for kindergarten children. This book is special in that it allows the students to engage with the visualized letters and illustrations by observing and participating in the folding processes of each letter and comprehending the meaning of letter composition with related words, such as "A" to "apple." This presents the key elements that should be considered when creating instructional and learning materials from children's perspectives.

Further, the design approach in this study is described. Visual construction and typography are two aspects included. An attractive and varied visual element arrangement can be achieved by a design that makes wise typographic element selections. It adapts to the design concepts gradually to develop their visual components. This improves how information communication is perceived, and the illustrated enhanced visual composition strengthens the cognitive grasp of learning and expression. In the following part, handcraft typography is used to add more layers to the visualization of activities and expand on the options for typographic expression. Children are encouraged to practice and reflect on their memorization and learning through the application of handcrafted typography. In addition, this provides students with a great deal of entertainment and inspiration as they study.

4. Children's Learning Process

According to Terrell and Krashen (1982), they were the ones who initially established the natural approach to language instruction. This method of learning new linguistic knowledge can be necessary in our situation of learning letters. As a subconscious method, we appropriated the strategy to give learning purpose. Throughout the process, the children will be involved in figuring out relationships and rules between different items in order to learn new information based on what they already know. This is called the acquisition-learning hypothesis. Children between the ages of three to six frequently demand fundamental entertainment needs and interests (Newman, 2015). It is acknowledged that when children's needs and interests are met, they learn new things more quickly and efficiently. Whenever our design uses these components, it satisfies the fundamental needs of this aspect. For example, learning activities, such as paper folding with visualized graphic elements, are highly effective because they let children feel relaxed and comfortable, which facilitates their acquisition of new knowledge.

Children in the pre-operational stage, ages three to six, are the target audience of this interactive activity-based dictionary book. In this stage, children start using words and images to represent the world. Therefore, it will be more beneficial for them to learn language if they use symbolic or graphic reasoning (Uttal et al., 1995). They can think about environments, objects, and feelings when they learn letters because they are inspired by images, especially illustrated ones with vibrant components. When pre-operational children are taught with tangible teaching tools, including visually represented activities and vocabulary images that appear on the screen, they can engage with the material and learn from it. On the other hand, to strengthen children's impression of learning letters, it is also essential to offer them a wide range of experiences during the learning process, such as a learning path where they can watch, join, explore, discover, and experience.

The "cognitive process", which is the second aspect of Piaget's theory, is divided into three stages: (1) organization, (2) adaptation, and (3) equilibrium. The organizing process combines new and advanced methods and prior knowledge to comprehend unfamiliar concepts, such as letters and words. When children encounter unfamiliar things, they attempt to arrange their thoughts in a way that makes sense to them by drawing comparisons and matches from past experiences. The next stage of adaptation is developing more sophisticated tactics and modifying them to maintain equilibrium (Eggen & Kauchak, 2007; Fetsco & McClure, 2005). After the organization process, children acquire new knowledge and integrate it with what they already know and recall, retaining it through assimilation or accommodation processes. This means that these two processes may cooperate

to produce one of the two states of disequilibrium in the perception of the world.

In the design, the letter "A" to "Z" appears to be a new visualization expression for children. The letter "A" visualization is in the paper folding activity process, which incorporates their prior understanding of the paper folding activity, illustration of specific objects, and color. Children then adjust to the new communication information by understanding the connection between the letter A, the apple illustration, and the display of color. Following the accommodation process, they can connect with each other because this is now part of their new knowledge. In our design, illustrations, and objects are the key visualized graphic elements to start with. The process then includes the handcraft activity visualization, which visualizes the changes in appearance involving the handcraft stages and life observation experiences from the letter "A" to the real object "apple," and finally constructs their knowledge connection. The activity visualization can thus express the meaning and shape composition of the letter "A" in such a way that it allows the children to understand and memorize easily.

5. Design Approach Expression

5.1 Typography

Typography is a process, a refined craft that makes language visible. Designers use type to sculpt language and give words life and force so people can speak text clearly. The best type represents text in both semantic and aesthetic ways, fulfilling both responsibilities simultaneously. Through letterforms, words, lines, and paragraphs convey messages (Cullen, 2012). Moreover, typography is an important visual tool for enhancing human communication (Pan & Schmitt, 1966; Hutton, 1987; Tantillo et al., 1995; Childers & Jass, 2002; McCarthy & Mothersbaugh, 2002), which can provide a way to inspire children's learning process and give them a better learning experience.

To begin with the first capital letter and first lowercase letter. The Roman capitals, considered the origin of all Western capital letters, possess a geometric structure based on a square foundation (Abate, 2018). The shapes were first painted on the stone. At that time, the geometric grid was used for fourteen square-shaped characters: A, C, D, G, etc. There are some letters outside this rule and system, like the letters "I" and "M". Furthermore, we can find when the letter is used in the text, the narrow letter needs more space because it looks heavier than its real size, on the other side, the wider letter needs more space (Abate, 2018). These limited possibilities for extending the typeface were why other typefaces tried to develop and be designed more uniformly when used in the text and passage.

Lowercase letters did not exist during the Roman era, and there are no historical precedents for them (Abate, 2018). As we know, the lowercase letter is smaller and thinner than the capital. The reason for this is the lowercase letter is therefore made slightly wider by the rounder and more closed forms because a lot of letters in lowercase do not occupy huge spaces, like "G "and "g" when they construct different words in the text, the space and visual effect between them is totally different. For example, now, "GOOD" and "good" show the different visual impacts for the viewers who are reading this text.

Moreover, the shape and construction between capital and lowercase have different classifications. For instance, the construction of capital is into five styles such as, two-storied, open sides, wide, medium, and narrow also the shape has five categories which in terms of round, rectangular, round-rectangle, diagonal, and diagonal-rectangle. On the contrary, for the lowercase, the construction with ascenders, descenders, wide, medium, and narrow, and the shape is separated by round, round-vertical, round-diagonal, diagonal, and vertical (Abate, 2018). All of the groups and classifications can be used to find the similarities and differences between capital and lowercase.

5.2 Visual Construction

From A to Z, each typeface has its main character and special trait. Specifically, for A, Figure 1 might be the most recognizable character, and for B, Figure 2 might be the most special trait compared with the rest of the typefaces. In this process, different comparisons and connections are considered. Even though there are different typefaces, while it's in the same family from my view, they experience the same development evolution because of social development and people's needs to transfer into different shapes and collocations with different alphabets to make people's communication more convenient (Figure 3).

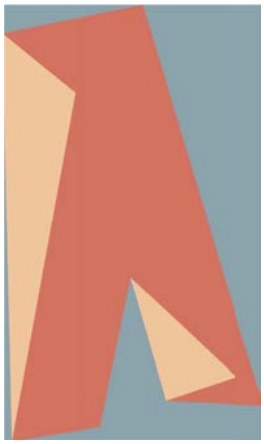

Figure 1. The visual character of the paper folding letter “A”

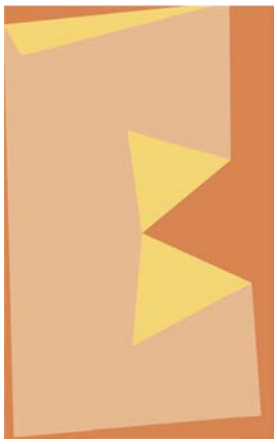

Figure 2. The visual character of the paper folding letter “B”

Figure 3. The full visual image of letter folding visualization

Apart from the shape or main character in each typeface, the color is also an important aspect in helping children distinguish each alphabet. As color is combined with different subjects or used in different areas, such as psychology, design, and visual communication, different colors will have different effects on the typography learning process. Color can be divided into two general styles, such as cold and warm, which represent different emotional expressions. For example, for psychological consideration, cold colors can make people feel peaceful;

on the contrary, warm colors will make people feel energetic and excited. For children's learning, a suitable color will bring them a good study mood and a better learning process. No matter whether cold or warm, each of them has its strength or shortage. Based on its typography traits, and combined with children's learning experience, to make better choices. In other words, try to make a balance between different color styles (Figure 4 and Figure 5).

Figure 4. Some examples of color palettes in this design approach

Figure 5. The main colors in the color palettes

6. Design of Handcraft Typography

Handcraft typography is a technical name for "handcraft letter," it uses handcraft activities such as mixing paper, folding crafts, and using illustrations to express single letters. It focuses on understanding the effect of shape by the expression of letters. The letter will be presented with visualizing graphics to elicit or transmit a specific thought or feeling. Its foundation is based on physical character and letter shape structure. In addition, the visual arrangement is first planned for space and turns into a layout. Through the shape expression, elements are combined or separated to signify the meaning of "handcraft typography".

6.1 Primary Approach

The primary approach here includes the settlement of handcrafted characters, letters, and illustrations. This connects to a letter presentation, further developing to facilitate cognition in letter learning. The appearance of letters, such as their shape in visualization, has a significant impact on the process of letter recognition. It results in a method that makes it possible to alter a typeface's design expression at a time. When establishing expression for children, it is essential to realize that their cognitive abilities for understanding letters differ from those of other developmental stages of childhood or adulthood.

Hand cooperation is considered in handcraft typography, where children's learning can be enhanced by the visual representation of letters in relation to their handmade activity. In order to produce a clear and effective learning experience for learners, with the requirement to express ideas and emotions more functionally, a successful learning experience must inspire learners' motivation to study and make connections with their relevant life experiences. For example, in Figure 6, the letter "A" is connected to a manual task, such as paper folding, followed by the folding expression below. This establishes a clear connection between learning and study so that children can participate and be involved.

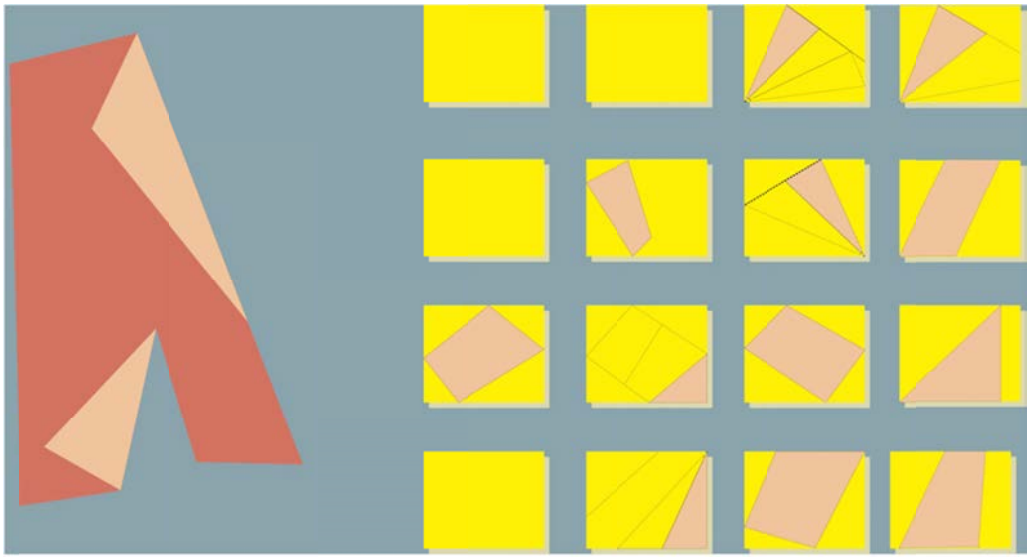

Figure 6. The paper folding visual expression of the letter “A”

After considering different characters together, composition serves as a visual framework for arranging and integrating the various letter components. It helps to create a comprehensive, all-encompassing image of handcraft typographic design. Additionally, various formats can be used, such as symmetrical and asymmetrical relationships, black and white space, and negative and positive space, to serve as important and proficient communication regarding a particular message. For negative and positive space, the function of the negative role is to support the “positive image” in a particular location. While the white space can create tension and contrast for typography, it can be used to express positive typography work by using the white space around it.

Handcraft typography incorporates activity visualization, illustration, color, and relevant letter expression, which proves that handcraft visualization is essential to handcraft typography. The primary focus of handcraft is the power of communication and the use of craft visualization, and the efficient use of handcraft visualization is crucial to improving communication effectiveness. It is evident from the experience that children can easily attracted to the display objects around the space. For instance, children, or even babies, like doing some activities (paper folding) even though they cannot comprehend what they are doing. This is because the visual phenomena that they are merely caught by the visual objects.

Based on this aspect, handcraft visualization in the form of craft visualization has the advantage of, first and foremost, catching children’s attention and seemingly managing their learning speed. On the other hand, children can learn the meaning of each letter that is hidden by using a different visualization technique. As an illustration, the letter “A” in Figure 10 can be described as an “apple” based on the meaning of the first letter, so the phrase would begin with the letter “A”. While the counter of “A” seems like a mountain, and the whole rectangle of paper looks like the platform of the paper folding activity. The character “A” will then show up by folding the whole paper and accompanied by an illustration of an apple. The counter “A” will be presented by paper folding visualization and then expressed by relevant illustration. Hence, this connection can let children observe and discover the visual shape and relevant information composition of each letter (Figure 7).

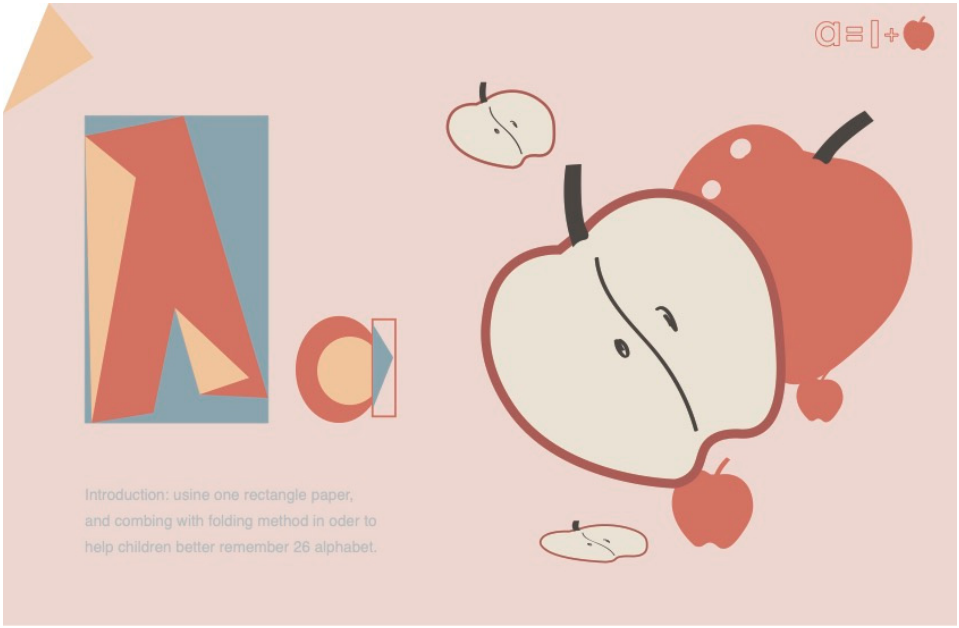

Figure 7. The full visual composition of visualization image

6.2 Interactive Communication

Communication activities are interactive and allow for interpersonal connections, and they are among the best resources for helping kids practice and solidify their understanding of new concepts. Besides, engaging in activities helps kids communicate with others and become more engaged in their learning, as those activities are relaxing and supportive. Figure 8 shows an example of paper folding instruction to reduce the difficulty level; then, the children can follow and create the right letter sequence to receive the answer using the sequence of paper folding visualization. At the same time, children's enthusiasm for participating can be increased when the interactive communication activity and letter learning are combined.

Figure 8. The example image of expression on paper folding

Recently, with the development of technology, various communication methods using different portable computer devices, especially media development, compared with handcraft material, have been promising more visually presented methods through digital resources. One of the most common media presentations is digital websites, especially nowadays, with plenty of educational resources presented online. Newman (2015) mentioned that plenty of children can manage what's on the screens with their fingertips in some way.

According to the aforementioned cognitive process, children learn to recognize and memorize new letters through observation and memory experiences. To encourage their communication, the internet interface for the letter "A" includes a few touchable buttons. Moreover, the capital letter "A" (paper folding), small letter "a", and relevant "apple" illustration elements appear on the beginning screen and then wait and trigger the children for the input process. Children use the accommodation and selection process to relate to each letter and illustration in the interface. This approach enables children to participate actively in their learning process. Such an experience makes them understand each letter shape recognition and object illustration communication (Figure 9).

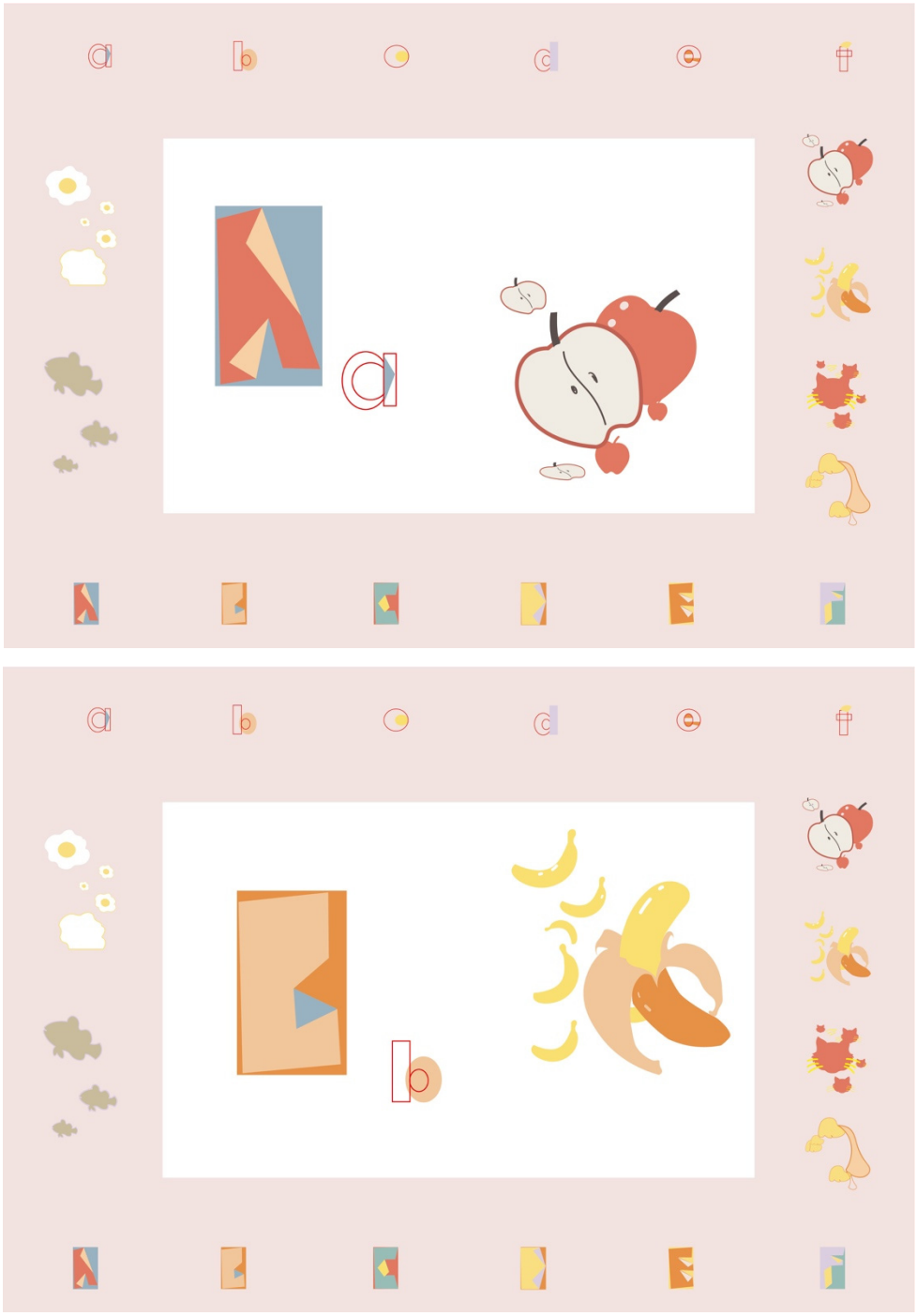

Figure 9. The screen mockup interface

7. Conclusion

This study investigates how children can learn languages through the use of handcraft typography and communication activity components, such as paper folding. Children's learning might become more dynamic and engaging, and their cognitive experience and excitement for learning could be improved by using interesting forms of typography and interactive illustrations. Letter recognition plays an essential step in language development, and it should be taught to children between the ages of three and six. The motivation for the interest and communication in learning letters should also be considered simultaneously.

By approaching a handcrafted letter book construction, this tries to create a framework for improving kindergarten children's passive learning experience. The characters in the book could be given more intricate and dynamic

meanings by having handcrafted visualizations. The children in the age group would see and engage with remarkable personalities, which would enhance their memory experiences. Moreover, they might comprehend each letter's meaning clearly and be able to associate drawing with pertinent letters through adjustments to visual aids, such as graphics and colors.

In this study, resources for teaching children to learn single letters through play and interaction with handcrafted typography have been designed with an effective approach and design mind based on the understanding of children's learning and cognitive process. Furthermore, a step-by-step analysis of the design principles for creating the visual components has been conducted. Children's perception and learnability can be enhanced and inspired by a more varied learning experience through the use of information design, handcrafted typography, and the visualization of craft graphics. In the future, research may be undertaken to examine children's attitudes in other social circumstances, including the correlation between single-letter and word-construction communication.

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Note

Note 1. A small part of the information was used in an oral presentation at The Second International Education Conference, Berlin, Germany.

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Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.