

Development of Print Media for Learning Motivation Using Creative Designs in Printing, Decorating, and Book Making

Tanapon Tangpanyavareekul, King Mongkut's University of Technology Thonburi, Thailand
Suchapa Netpradit, King Mongkut's University of Technology Thonburi, Thailand
Wannarat Wirachkul, King Mongkut's University of Technology Thonburi, Thailand

The Asian Conference on Education 2024
Official Conference Proceedings

Abstract

The print media are currently focused on impressive design, creative graphic, and special production techniques to stand out among electronic media. The objective of this study was to create a motivated book sample to promote print media for learning enhancement by using creative design of printing, decorating, and book making. The graphic arts were designed to choose by learners in 3 themes: carnival, underwater, retro through online questionnaires, and the carnival theme was the most interesting. The mock-up of hard cover book sized of 10.63 x 12.28 inches was made by using 350-g art card paper for cover and 260-g art card paper for text with 10 die-cutting pages. The colorful graphic arts were printed on the paper with a wide color gamut of 7-color digital press. The die-cutting pages and pop-up 3D paper art was made using a digital cutter. The content in a book was included of printing systems, printing materials, product samples, special techniques of printing, production process and coating methods. The qualities of the book were evaluated by 3 experts in a printing house. The satisfactions were evaluated by the learners, staffs in the printing house and consumer samples using online questionnaire of 5-level rating scale. The qualities of content, illustration, character, and composition were very good level. The satisfaction regarding to the effectiveness, motivation and book format was very high level. Therefore, the print media using various creative designs could be applied for learning motivation and at the same time promotion of print media production.

Keywords: Print Media, Learning, Design, Book

iafor

The International Academic Forum
www.iafor.org

Introduction

Advances in technology and digital media are playing an increasingly important role today. To stand out among electronic media, the print media must be improved by focusing on impressive design, creative graphics, and special techniques. To promote print media and provide graduates with practical skills and knowledge about printing technology. Four-year undergraduate programs focusing on printing techniques, materials, and processes, including hands-on experience through projects and practical sessions have been developed at many educational institutions.

There are several techniques to make and decorate the books in the post-press which is the final stage of the printing process which turns the printed materials into printed products such as coating, lamination, die-cutting, folding, binding, trimming, etc. The die-cutting is a technique giving your book a completely unique look and makes it stand out from any other product. The process is used to cut shapes out of the material rather than straight trimming. Die cutting is often used for art books allowing the reader to be interested in the decorative designs, bullet holes, and many shape edges. The coating or lamination significantly improved color accuracy and increased contrast, making the printed material more visually appealing, enhance the print quality and the durability. There are two primary types of coatings frequently used in the industry; matte and glossy, each offering distinct advantages based on the desired visual effect and functionality.

Many instructors are looking for ways to get their students hands-on in the post-press course and excited to attend the practice class. As an educational developer and a teacher assistant for undergraduate students at the department of Printing and Packaging Technology, King Mongkut's University of Technology Thonburi (KMUTT), the real example of print media was made to enhance learning and understanding of book making with various decoration techniques. The objectives of study were to design and produce a motivated book sample to promote print media for learning enhancement by using creative design of printing and decorating, to evaluate the qualities of print media by experts, and to assess the satisfaction of instructors and learners sample group. This teaching technique not only helps the students to have more skills, experience, and inspiration for print media production and value adding, but also fostering their self-learning in printing technology.

Methodology

The requirement of instructors for suitable methods of book as a print media production were surveyed using the questionnaire with a Google Form. The Adobe Illustrator was used for graphic design and the Adobe Acrobat Pro was used for book layout and imposition. The appropriate graphic design was selected through three teams as follows:

Theme 1: Underwater that is cool tone blue

Theme 2: Carnival that is warm tone red color

Theme 3: Retro that is grey color

The structure and format of book mockup) was created on the real blank paper and the die-cut work with a digital cutting machine was tested for approval. After decision, the PDF file of graphics designed by the Adobe Acrobat Pro was sent to print with the Hp Indigo 12000 Digital Press which can create special hi-fi color printing with 7-color printing: Cyan, Magenta, Yellow, Black, Orange, Violet, and Green for eye-catching. The printed sheet was then laminated with the gloss and matte film before making the die-cut edges with innovative

shape design using ZUND G3 L2500 machine. The book was assembled into a butterfly-style binding with glue spray to make a special book.

The qualities in the format structure and graphics of the book were evaluated by three experts in printing technology. The satisfaction assessment was performed by five instructors and a sample group of thirty persons including graduated students, alumni, and others involved in printing through an online questionnaire of Google Form with 5-point scale, as shown in Table 1.

Table 1: The Criteria of 5-Point Rating Scale for Evaluation

Scale	Scale Interval	Opinion for Quality	Description for Satisfaction
5	4.50-5.00	Excellent	Very Satisfied
4	3.50-4.49	Good	Satisfied
3	2.50-3.49	Average	Neutral
2	1.50-2.49	Poor	Dissatisfied
1	1.00-1.49	Very Poor	Very Dissatisfied

Results and Discussion

After requirement analysis, the mock-up of hard cover book sized of 10.63 x 12.28 inches was then made by using 350-g art card paper for cover and 260-g art card paper for text with 10 die-cutting pages, as shown in Figure 1. The pop-up pages inside the book were made of 260 gsm Silk Card paper. The sticker samples attached in the book were paper and PP material. The graphic images in the book included of 22% drawing, 37% photography, and 41% cartoon. The desired layout format is Step & Repeat and the selected graphic style is Carnival theme with 89% popular voting, as shown in Figure 2.

Figure 2 shows the book cover made from 350 gsm art card paper printed with the design of Carnival theme that is warm tone red color and die-cut window as pocket flap for easy holding. A matte plastic film lamination technique was applied for protection and enhanced durability. The back cover showed a graphic design continuous strip from the front cover.

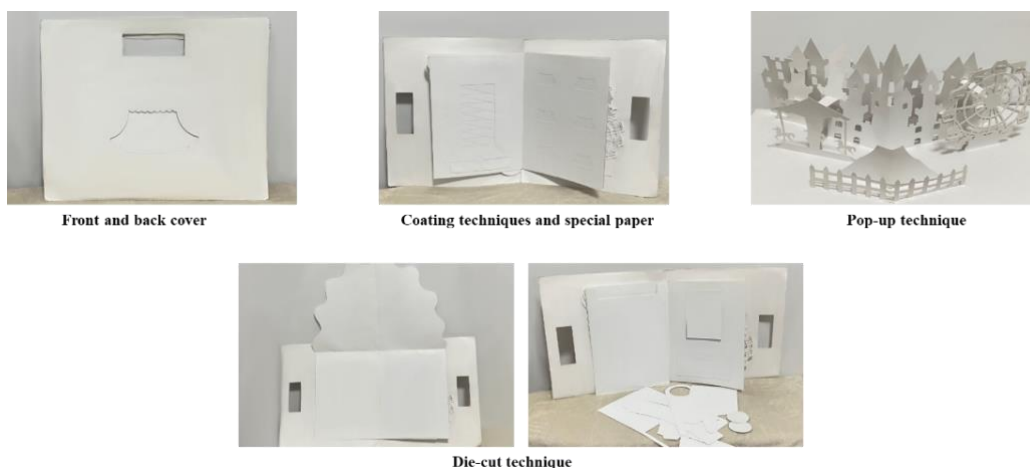


Figure 1: Mockup of Book Creating for Decision Before Real Making



Figure 2: Front and Back Cover of Book



Figure 3: Inside the Book

Figure 3 shows the art card paper of 260 gsm used for book content inside with die-cutting techniques such as window cut, rounded edge cut, or wave-like pattern cut. The book was finished using a butterfly-style binding, making open flat at 180 degrees. The content in book was included of information about printing systems, printing materials, product samples, special techniques of printing, production process, coating methods and plastic film lamination. The book also showed comparison of gloss coating and matte coating. There are various parts to play with or can be slid in and out. The left side of the page includes a business card holder, photo frame, cup sleeve, and door hanger while the right side of the page includes post-it notes size of 3.14 x 4.44 inches and stickers size of 1.96 x 1.96 inches, as shown in Figure 4. There was a pop-up of papercut attached to the book which stand up 90° and become 3D when the book was unfolded, as shown in Figure 5.



Figure 4: Examples of Various Techniques



Figure 5: Pop-Up Technique

The 3D Paper Arts are designed in a Carnival theme, consisting of a castle, carousel, swing and fence. Assembling the pop-up design involves applying glue to the die-cut pieces and

attaching them to the base of the book. The qualities of book were assessed by 3 experts in print media relating to content, visual aspect, character side, and components in book.

Table 2: Content Quality Assessment by 3 Experts

Topics for Evaluation	Mean score	S.D.	Level
1. Clarity and conciseness of presented content	4.75	0.50	Excellent
2. Continuity of content used in presentation	4.50	0.58	Excellent
3. Appropriateness of content for target audience	4.50	0.58	Excellent
4. Alignment of content with objectives and matter	4.75	0.50	Excellent
5. Accuracy of content	4.75	0.50	Excellent
Average score	4.5	0.58	Excellent

Table 3: Illustration Quality Assessment by 3 Experts

Topics for Evaluation	Mean score	S.D.	Level
1. Easy for Application	4.5	0.58	Excellent
2. Quality, Beauty and Colors of Illustrations	5	0	Excellent
3. Clarity in Visual Communication	4.75	0.5	Excellent
4. Stimulating Interest	5	0	Excellent
5. Consistency of Illustrations with Content	4.75	0.5	
6. Appropriateness of Illustrations Quantity	4.5	0.5	Excellent
Average score	4.79	0.35	Excellent

Tables 2 and 3 show the average score results of quality assessment in content and in illustrations which were rate as excellent.

Table 4: Satisfaction Assessment by 5 Instructors Due to Efficiency for Teaching/ Learning

Topics for Evaluation	Mean score	S.D.	Level
1. Beauty of Design	4.6	0.89	Very Satisfied
2. Relationship between Illustrations and Content	4.6	0.89	Very Satisfied
3. Clearly Visible of Text	4.4	1.34	Satisfied
4. Easy for Reading	4.4	0.89	Satisfied
5. Motivation of Book Structure	4.6	0.89	Very Satisfied
Average score	4.52	0.98	Very Satisfied

Table 5: Satisfaction Assessment by 5 Instructors Due to Print Media Format

Topics for Evaluation	Mean score	S.D.	Level
1. Portability of Book	4.4	0.89	Satisfied
2. Appreciation in Book	4.6	0.89	Very Satisfied
3. Easily Understand for Learners	4.4	0.89	Satisfied
4. Promote more Learning	4.4	1.34	Satisfied
Average score	4.45	1.0	Satisfied

Tables 4 and 5 show the average score results of satisfaction assessment by 5 instructors in efficiency for teaching/ learning and print media format which were rated as very satisfied and satisfied, respectively.

Table 6: Satisfaction Assessment by 30 Graduating Students, Alumni, and Involved Person in Printing Due to Efficiency for Teaching/ Learning

Topics for Evaluation	Mean score	S.D.	Level
1. Beauty of Design	4.8	0.89	Very Satisfied
2. Relationship between Illustrations and Content	4.7	0.59	Very Satisfied
3. Clearly Visible of Text	4.27	0.69	Satisfied
4. Easy for Reading	4.4	0.67	Satisfied
5. Motivation of Book Structure	4.8	0.55	Very Satisfied
Average score	4.59	0.60	Very Satisfied

Table 7: Satisfaction Assessment by 30 Graduating Students, Alumni, and Involved Person in Printing Due to Print Media Format

Topics for Evaluation	Mean score	S.D.	Level
1. Content in Printing Technique	4.6	0.49	Very Satisfied
2. Information and Knowledge Gaining	4.67	0.6	Very Satisfied
Average score	4.64	0.55	Very Satisfied

Tables 6 and 7 show the average score results of Satisfaction assessment by 30 graduating students, alumni, and involved person in printing in Efficiency for teaching/learning and print media format which were rated as very satisfied.

Conclusion

The quality evaluation of content and illustrations falls into the “Excellent” category. The satisfaction evaluation from instructors regarding usability and the format of the printed media showed rated as “Very Satisfied”. Additionally, the satisfaction evaluation from the sample group, including graduating students, alumni, and individuals involved in printing, regarding usability and the format of the print media, resulted in “Very Satisfied”. The designers have created innovative print media, highlighting materials and special techniques clearly, meeting the requirements of our instructors. The results achieved the intended objectives and serve as an excellent example for learning motivation in print media production with special technique for value added to overcome the electronic media.

References

- Corsi, A. M., Tanusondjaja, A., Lockshin, L., & Tan, P. J. (2021). Behavioural and psychographic characteristics of supermarket catalogue users. *Journal of Retailing and Consumer Services, University of South Australia*, 20–25.
- Rathee, R., & Rajain, P. (2019). Role colour plays in influencing consumer behaviour. *Deenbandhu Chhotu Ram University of Science and Technology*, 215–221.
- Zhang, Y., Yu, R., Shi, X., & Hong, K. (2022). *Visual communication design in print advertising under new media environment*. Jiangsu University of Science and Technology, 8–10.

Contact email: tanapon.tan@kmutt.ac.th