Problems that E-book Learners in Taiwan Encounter When Producing E-books

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Abstract
As digital devices become a necessity in modern life, digital reading has become more and more popular in people’s daily lives, and digital publishing has also become a very important form of publication in the publishing industry. Therefore, this study reviewed the current status of e-book production and curriculum design in Taiwan, compiled the “Analytic Hierarchy Process Questionnaire on Common Problems with E-book Production” based on past literature and experts’ opinions, and conducted a questionnaire survey. Analytic Hierarchy Process (AHP) was then conducted on the collected data with Expert Choice 11 software to sort out and conclude the most commonly seen problems of e-book production. By exploring the most commonly seen problems that e-book learners encounter when engaged in e-book production, this study looks to provide a reference for e-book producers’ competence training.

Keywords: digital publishing, e-book production, analytic hierarchy process (AHP)
1. Research Motivation and Objective

Since e-book production relates to ease of reading and readability, correctness and reading comfort of an e-book’s content typesetting is one of the key factors that determine an e-book reader’s success. In the future, the hardware for e-book readers will focus on color screens, soft materials, touch-screens, and UI design (Lam, Paul, et al. 2009; Sung-Ming Song, 2010). In particular, the arrangements of images and text, amount of content, and layout of electronic publications have significant influence on readers’ comprehension (Exiu-Ping Ye etc., 2011).

How can a txt e-book convert from its original Adobe InDesign typesetting to the ePub typesetting that is suitable for mobile devices such as mobile phones, PC, tablets, etc.? Would the layout and relevant metadata be correct? Does the typesetting conform to the industrial standard? For students who are first exposed to e-book production technology and operating workflow, many production-related problems can be avoided through accumulation and dissemination of knowledge. Therefore, this study expects to find out the most commonly seen problems that e-book learners encounter when producing an e-book.

Due to the diversified types of e-books, generalized e-book types are included in this study discussion of “pan e-book” production. In terms of software operation, discussion focuses mainly on e-book production with Adobe InDesign, and the formats discussed include PDF, ePub, HTML5, FLASH, so that the study may fulfill the situation and needs of Taiwan industries and school education nowadays.

2. Literature Review

2.1. Current status of e-book production curriculum design in design-related departments of Taiwan technological and vocational colleges

According to the information on Taiwan’s technological and vocational education course website (Ministry of Education, 2014), private colleges offer more varieties of courses than public colleges. Digital publishing courses are offered for both four-year degree programs and two-year vocational programs, but more courses are offered for four-year degree programs. The number of colleges offering digital publishing courses increased from 36 in the 2010 Academic Year to 53 in the 2014 Academic Year; the number of departments offering digital publishing courses increased from 46 in the 2010 Academic Year to 84 in the 2014 Academic Year; the number of courses offered also increased from 114 in the 2010 Academic Year to 154 in the 2014 Academic Year. The number of digital publishing-related courses offered has been increasing exponentially year by year, showing that all types of colleges in Taiwan have begun to emphasize the training of talent in digital publishing. In five years, over 20,000 students have studied digital publishing-related courses, and the relevant statistics are shown in Table 1.
By analyzing the type of departments offering the courses, the study has found that departments offering digital publishing courses are mainly in the digital design fields, such as design, communication, and multimedia. The percentages of courses offered as compulsory and elective are around the same, indicating that the training of digital publishing ability has become an inevitable trend in the field of digital design.

2.2. Workflow of e-book production

E-books mainly provide text-based reading service, which are distinguished as black and white illustrated books (E-ink as carrier) and colored illustrated books (LCD as carrier). For value-added e-books, digital devices provide multimedia-assisted functions for reading (Bon-Yao Ju, 2011). According to the British National Qualifications Framework published in 2012, book publishing practitioners’ digital publishing ability should include distribution strategy planning for digital publications, management of metadata, and familiarization with the operation of digital software. It is also stressed that the digital publications produced need to fulfill the requirement of making readability a priority (Creative Skillet Organization, 2012).

Analyzing e-books from the perspective of professional abilities, the study found that art design, printing and digital publishing project management, typesetting, editing, and production are among the skills mentioned by research institutions in past studies (Hong Kong Printers Association, 2008; The Publishing Training Centre, 2009). Liao & Pan (2010) compiled the 16 indicative professional skills for digital publishing practitioners engaged in e-book production by means of questionnaire survey; among these skills, the important ones are display design (e.g., tool bar, buttons), understanding the principle of “user interface” design, understanding production methods for print media, understanding different e-reader interfaces, design content integration, and understanding how to convert digital files into different formats.

2.3. E-book specifications and content configuration


In the user guide of Adobe InDesign (Adobe, 2014), the most commonly used software by publishing professionals, it can be found that functions of Adobe
InDesign are divided into “work area”, “layout”, “font style”, “print style”, “form”, “long document function”, “drawing”, “shape”, “border and object”, “transparency effect”, “colors”, “interactive document”, etc., and these operational items can be seen as the most important functions when producing publications. Overall speaking, digital publishing tasks require more diversified professional abilities than traditional publishing, and therefore represents a more suitable medium of information for modern life (Heilmann & Linna, 2001).

From the above literature review, it can be seen that during e-book production, text typesetting and configuration are the most important parts in the process of e-book production. The characteristics of digital media have to be accounted for, e-book script and screen arrangement must be considered, and there is also the additional task of the production of audio/visual materials; only the printing workflow such as proof making and proofreading in traditional publishing work can be skipped. The workflow of digital publishing, in proper order, should be: manuscript production, layout design, and final draft export. For the content, the work includes: compilation of text and image data, file creation, type and sequence arrangement, creation of master edition, creation of style, development of layout structure, text and image input, text and image grouping, setting interactive effects, and finally export preview and uploading for publication, etc.

3. Research Method and Implementation

3.1. Research method
This study was conducted via questionnaire survey. Based on the results of literature review and experts’ opinions, the “Hierarchical Structure Questionnaire on Common Problems with E-book Production” was developed as the data collection tool for this study.

3.2. Research subjects
Seasoned digital publishing professionals with “practical experience in the production of digital publications” are the targets for distributing the questionnaire. A total of 17 questionnaires were sent, with 12 valid responses received after deducting 5 invalid questionnaires. 100% of the respondents are female; college-educated and university-educated respondents each account for 50% of respondents; 66% of the respondents have 3-5 years of publishing experience and 33% have 10 or more years of experience.

3.3. Research tool
The questionnaire on common problems with e-book production was developed on the basis of literature review and collection of relevant data. The structural hierarchical content of “questionnaire on common problems with e-book production” includes “file storage and management”, “page setting”, “text and form setting”, “image setting”, “color highlight”, “interactive setting”, and “tool palette setting”. Selected items of the hierarchies were then compared to see the frequency that common problems occurred. As an answering design, the selected items were arranged in pairs and compared on a 9-point scale.
3.4. Data processing

For data processing, Expert Choice 11 was used to conduct hierarchical analysis. In order to test the consistency of ratings given by decision-makers when doing paired comparison, the “consistency index” (C.I.) may be used. When C.I. = 0, it means the judgments are consistent; when C.I. > 0.1, it means the judgments are erroneous and inconsistent; when C.I. ≤0.1, it means that though the judgments are not consistent, the bias is acceptable. However, when the question becomes complex, meaning when there are more judgments to be made for the paired comparison, the orders of the pairwise comparison matrix will increase, making it more difficult to maintain the consistency of judgments. Therefore, Saaty (1990) proposed the so-called “random index” (R.I.) to get the “consistency ratio” (C.R.) by adjusting the different degrees of C.I. changes under different orders. Under matrices of different orders, the consistency ratio can be obtained after adjusting C.I. with R.I. The matrix consistency is considered satisfactory only when C.R. ≤0.1, and the formula is C.R. = C.I. / R.I. Table 2 shows the R.I. values when n =1~15.

<table>
<thead>
<tr>
<th>n</th>
<th>R.I.</th>
<th>N.</th>
<th>N.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.58</td>
<td>0.9</td>
<td>1.24</td>
</tr>
<tr>
<td>A</td>
<td>1.32</td>
<td>1.41</td>
<td>1.45</td>
</tr>
<tr>
<td>A</td>
<td>1.49</td>
<td>1.51</td>
<td>1.48</td>
</tr>
<tr>
<td>A</td>
<td>1.56</td>
<td>1.57</td>
<td>1.58</td>
</tr>
</tbody>
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4. Data Analysis

Regarding the most commonly seen problems when learning e-book production, hierarchical content of “common problems with e-book production” was identified through the hierarchical analysis questionnaire and literature review, including 7 items – “file storage and management”, “page setting”, “text and form setting”, “image setting”, “color highlight”, “interactive setting”, and “tool palette setting”. The questionnaire is presented as 9-point scale evaluation, and the 9-point scale includes 5 rating values which are 1, 3, 5, 7, and 9, representing “equally prone to error”, “fairly prone to error”, “relatively prone to error”, “often prone to error”, and “very often prone to error”. Questionnaire analysis was conducted with Expert Choice 11. Meanwhile, consistency ratio is tested; if CR is smaller than 0.1, considerable level of consistency is achieved; on the contrary, if CR is smaller than 0.1, it means significant consistency is achieved. Finally, weighting of abilities at each hierarchy was found out, which represents the frequency of occurrence for the most commonly seen problems with e-book production, and the overall weighting of the commonly seen problems with e-book production was generated, as shown in Table 3.
Table 3: Weight analysis of the most commonly seen problems with e-book production

<table>
<thead>
<tr>
<th>Common problems</th>
<th>Weight</th>
<th>Weight percentage</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive setting</td>
<td>.219</td>
<td>21.9%</td>
<td>1</td>
</tr>
<tr>
<td>Color highlight</td>
<td>.155</td>
<td>15.5%</td>
<td>2</td>
</tr>
<tr>
<td>Image setting</td>
<td>.150</td>
<td>15%</td>
<td>3</td>
</tr>
<tr>
<td>Tool palette setting</td>
<td>.133</td>
<td>13.3%</td>
<td>4</td>
</tr>
<tr>
<td>Text and form setting</td>
<td>.122</td>
<td>12.2%</td>
<td>5</td>
</tr>
<tr>
<td>Page setting</td>
<td>.115</td>
<td>11.5%</td>
<td>6</td>
</tr>
<tr>
<td>File storage and management</td>
<td>.105</td>
<td>10.5%</td>
<td>7</td>
</tr>
</tbody>
</table>

C.I = 0.010  R.I = 1.32  C.R=0.007<0.1

The results of this study found the following order of weighting for the most commonly seen problems that digital publishing professionals encounter when producing e-books: first, “interactive setting” with a weight percentage of 21.9%; second, “color highlight” with a weight percentage of 15.5%; third, “image setting” with a weight percentage of 15%; followed by “tool palette setting” (13.3%), “text and form setting” (12.2%), “page setting” (11.5%), and finally “file storage and management” with a weight percentage of 10.5%.

Consequently, for the professional that participated in this study, the most frequently occurring problem among the seven common problems of e-book production was the “interactive setting” of e-books, followed by “color management” and “image setting”.

5. Conclusion

5.1. Current status of e-book production curriculum design in Taiwan

As more and more diversified e-book editors have been introduced to the market, users are able to produce their digital publications more rapidly, but some editors are use an independent system, while others are based on InDesign. Therefore, learning InDesign is the foundation of e-book production, but educational institutions should still encourage learners to learn about more digital publishing techniques and formats, such as XML webpage language training, for boosting competitiveness.

In recent years, the digital publishing industry has seen more and more art editors or editors from the traditional publishing industry become digital editors. However, the industry not only requires technological enhancement, but also lacks talent in planning and marketing, and these publishing talents need to have broader vision so as keep up with user and market demands. Thus, instructors are advised to introduce and analyze the functions and characteristics of e-books from a broader perspective, instilling in learners the concepts and production techniques required for pan-e book production, so that learners may engage in self-study in the future; they can design
digital publications in different formats for different types of e-books and content, and eventually become professional digital publishing workers.

5.2. Most commonly seen problems when learning e-book production
Seven of the most commonly seen problems when learning e-book production were found in this study, and after prioritizing through hierarchical analysis, “interactive setting” was found to be the production problem with greatest frequency weighting, making it the most frequently occurring problem; “color highlight” is the second most common problem; “image setting” is the third most common problem; and these are followed by “tool palette setting”, “text and form setting”, “page setting”, and finally “file storage and management”.
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