

Typography Usage in Multimedia Teaching Aid Interface Design

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ABSTRACT

Technology advancement has reshaped the digital lifestyle among the millennial education environment. The interactive digital multimedia teaching aid is applied extensively, as it can enhance and further sustain effective teaching and learning process. Significantly, lecturers became the interface designers to meet this challenge. Through text usage, typography plays a vital role as it carries the essence of communication effectively on interface design and must be applied effectively through its design principle characteristic. Towards this, there is a need to investigate how lecturers from non-creative design fields use the typography element to design the interface design of a multimedia teaching aid, as they were familiar with the visual design principle knowledge. This paper intends to provide an empirical assessment of how non-creative design field lecturers apply the typography attributes in the text element, which is one of the vital multimedia interface design elements in developing an effective multimedia teaching aid. This research is outlined from the thematic analysis of in-depth interviews among lecturers from Malaysian tertiary institutions. Although the study sample is limited, this study's outcome could significantly be extended as a guiding reference in other related or other fields of studies and interactive multimedia platforms, domestically and globally.

Keywords: *Typography, Multimedia, Interface Design, Tertiary Education.*

1. INTRODUCTION

Typography as the essence in visual communication is capable of provoking the audience [1][2], while its development to digital screen significantly enhanced effective visual communication, including the digital multimedia interface [3][4]. The exponential growth of digital technology has reformed the education landscape [5][6]. This growth further revolutionized the teaching and learning content delivery through the various digital multimedia platform [7][8]. This revolution significantly elevated the effective learning and creativity among students, as asserted by Gorra & Bhati [8].

In visual communication theory, the interface design facilitates the 'effective teaching and learning process' through a multimedia teaching aid [9]. Conjointly, typography usage in the text element plays a vital role, as it carries the essence of communication on an interface design and other multimedia features that make up the multimedia teaching aid [10][11]. Wang et al., [12] further claimed that careful consideration is required while designing typography in a multimedia interface, as

it can influence user response and interaction in the interface design.

Tertiary institution lecturers now became the interface designers in developing a multimedia teaching aid. In ensuring effective interface design, lecturers in the creative design field were capable of preparing effective interface design, as they are exposed to the creative design foundation [10][13]. Consequently, it is essential to investigate how lecturers from non-creative design courses such as science and technical field design their multimedia teaching aid, due to the lack of exposure to the principle of art and design in their area. It is critical as researchers asserted the importance of promoting well-designed multimedia teaching aid together with the learning environment, as addressed by [14] Fang & Lu, (2015) and [15]. It was further discovered that there was a lack of attention towards the interface design principles, which promoted effective learning engagement within tertiary education scope [16] [17].

Towards this research problem, this research is intended to determine how lecturers from the non-

creative design field design apply the element of typography as an essential element of the interface design in their multimedia teaching aid, which contributed to the effective teaching and learning process.

2. TYPOGRAPHY IN MULTIMEDIA TEACHING AID INTERFACE DESIGN

The swift digital revolution required a unique learning experience to be provided among the millennials through effective learning engagement [18][19]. The technology advancement capabilities could bridge students' knowledge and increase students' creativity [8][9]. Significantly, the interface screen of a multimedia teaching aid required dependable design principles guidelines to be displayed on an interface [20]. However, it was further asserted that lectures faced challenges in applying typography, color, and layout to further improve the learning process through visual stimuli of the communication design process [21][22].

As a 'front end' of an interactive multimedia product, the interface design was regarded to facilitate effectiveness in the teaching and learning process [21]. With the growing body of literature addressing the fundamental guiding principles of effective multimedia design, Gorra & Bhati [8] argued the presence of some ineffective multimedia interface design. In regards to this, a greater understanding of interface design, which meets the audience's understanding of good multimedia teaching and learning content, is essential [23][24] to meet the challenges in the learning curve through a good function interface design [25].

As an essential component in the interface design, good typography should be applied accordingly to optimize user accessibility through excellent user experience [26]. Recent research determined that legibility was affected when typography is designed poorly on a digital screen [27]. The typography design needs to be well established as it will influence how the audience interacts and respond to the typography and the whole interface as a visual image.

Numerous research towards sustaining learning motivation among students at the tertiary level through digitized interface teaching screens is ongoing. However, some researchers further asserted a lack of research being carried out towards the practical visual design guidelines to increase and sustain learning motivation among tertiary students' [16]. Furthermore, a lack of study regarding typography usage in text elements of an interface design principles characteristic guidelines should be further addressed [25].

3. METHODOLOGY

This research applied a qualitative research approach, as researchers could interpret a phenomenon based on

human experience in their natural settings through this approach, as explained by [28][29]. Through snowball methods, twelve respondents for the research setting were identified, consisting of academicians from Peninsular Malaysia, who comes with three to eighteen years of academic experience. Their field of studies was from bio-medical, toxicology, biology, engineering, and IT. Through a semi-structured in-depth interview, which consists of pre-determined open-ended questions, data were collected. The semi-structured interview was guided by a framework on the lecturers' understanding when designing their multimedia teaching aids in applying the text element's significant principle characteristics.

By applying both deductive and inductive analysis, the data collected were then transcribed and analysed using content analysis and word-based analysis [30]. This method helps identify emerging patterns of ideas in the body of text, which was then able to ascertain a set of categories, which can further calculate the occurrences that fall into each theme. The analysis themes in this research were grounded on the established principle characteristic guidelines by international scholars in preliminary research by [31] in Table 1 below.

3. RESULTS AND DISCUSSIONS

In this research, the usage of text was referred to as typography in the multimedia teaching aid. A thematic analysis was carried out towards the data collected from the in-depth interview against the guiding effective principle characteristics of text in interface design for an effective multimedia teaching aid established by scholars [31] from earlier research. From the established guiding principles established by scholars earlier, five design principles were identified: consistency, hierarchy, contrast, balance, and harmony with ten characteristic guidelines, as shown in Table 1 earlier. Once the pattern of ideas and frequency level of the word usage of design criteria were analyzed, the lecturers' way of usage for text (in this context refers to typography) in the interface design against the principle characteristic guidelines was then identified.

3.1. Consistency in Typography

As the most recommended design principle, scholars proposed the consistent usage of font, font size, placement, and colors. It was discovered that use of type, sizes, and color usage by the lecturers was maintained. It can be seen that the lecturers were concerned and aware of applying a consistent design towards their digital screen contents through the type and size of fonts and usage of colors. Table 2 below summarises the respondents' answers.

Table 2. Respondents' answers towards consistency in typography.

Respondent	Characteristic Applied
L 1	Unity in colors
L 3	Consistent type style, colors
L 5	Same color, size, font
L 10	Standard color throughout
L 11	Standardize the typeface
L 12	Apply the same typeface

3.2. Hierarchy in Typography

Applying the hierarchy of importance, which suggested text should be grouped, structurally arranged by a following order of importance. Secondly, the guideline suggested by scholars recommended that animated and underlined text should only be used for focusing concentration. These attributes applied by the lecturers towards text showed the main caption with smaller text were set in a larger size bigger type size for the title being used, slightly type size was applied for the paragraph showing a different level of importance text. Besides, two lecturers' responses reflected a more profound understanding in grouping the text in a structural manner. Some of the responses were reflected in their answers, as shown in Table 3 below.

Table 3. Respondents' answers towards hierarchy in typography sizes.

Respondent	Characteristic Applied
L 3	Big title small body text
L 7	Heading size bigger
L 10	Large title smaller subtopic

Besides, when applying animated and underlined text characteristics should only be used for focusing concentration. Five of the respondents agreed that it should be minimized to avoid distraction among the students. Some of their responses are shown in Table 4 below.

Table 4. Respondents' answers towards typography structural layout.

Respondent	Characteristic Applied
L 1	Minimum, support content
L 5	Less, not distract attention
L 8	Minimum, as support

3.3. Contrast in Typography

Towards applying the Contrast in typography with three guidelines, the lecturers majorly reflected some

fundamental understanding by not using lengthy lines in a paragraph line and not applying all capital letters in all the text on the screen. This understanding is reflected in Table 5 below.

Table 5. Respondents' answers towards typography length and caps.

Respondent	Characteristic Applied
L 1	Not too many words
L 3	Avoid all capital letters Keep 1 to 2 lines of text
L 4	Avoid putting too many words

In applying San Serif typeface in content without fancy typefaces, a medium average from the lecturers was identified to use this guideline through the answers in Table 6 below.

Table 6. Respondents' answers towards the usage of San Serif

Respondent	Characteristic Applied
L 1	Fonts without patterns
L 3	Use San Serif
L 6	Not too fancy fonts
L 7	Go for Arial font

Interestingly, one of the lecturers shared that the design was using a serif typeface. Finally, in the response towards the third characteristic where the design required a background contrast against its content, the lecturers majorly reflected an excellent usage of this design characteristic. All of their response disclosed that the background was using a plain, non-textured, non-images background. Some of their answers are in Table 7 below.

Table 7. Respondents' answers towards the usage of San Serif

Respondent	Characteristic Applied
L 2	Plain background
	Font contrast to background
L 3	Light colour background
	Dark colour font
L 4	Contrast background & text

3.4. Balance in Text

Regarding applying the grid in a column for paragraph and aligning left for the typography in a paragraph, this characteristic only showed two lecturers were aware in applying this characteristic in their design, aligned left for the text in designing the teaching aid. However, three lecturers answered also informally

Table 11. Summary on usage of typography setting in digital screen interface design by lecturers

Guideline	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	
Maintain type, size, placing & colour.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n=12
Clustering through hierarchy	✓		✓	✓	✓		✓	✓	✓				n=7
Animation/underline- focus hierarchy	✓		✓				✓						n=3
Not all Cap; short line for contrast	✓		✓	✓	✓	✓	✓	✓					n=7
San serif content, no decorative for contrast	✓	✓	✓	✓	✓	✓		✓		✓			n=8
Contrast content distinctive against screen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		n=11
Balance Align left structured Paragraphed grid column		✓	✓		✓	✓		✓		✓	✓		n=7
Minimum type of font for harmony	✓		✓			✓	✓	✓	✓	✓			n=7
Appropriate usage of text & diagram	✓		✓	✓	✓	✓				✓	✓		n=7

reflected them using this guideline. This design guideline applied are shown in Table 8 below.

L 9	Relevant image support point
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Table 8. Harmony in Text

Respondent	Characteristic Applied
L 3	Left justified
	No more than two lines
L 8	Left Justified
L 9	Simple. Using points

3.5. Balance in Text

Regarding this final guideline principle as established by scholars, it showed that all lecturers’ responses reflected the first characteristic of a Limit type of fonts used. Some of the responses are shown in table 9 below.

Table 9. Respondents’ answers towards applying column and align text

Respondent	Characteristic Applied
L 9	Simple. Using points
L 10	Maintain font till end
L 11	Standardize fonts, maintain
L 12	Apply same font each screen

For the guideline of appropriate usage of text and diagram, all lecturers’ answers significantly revealed the use of this guideline. However, their responses were reflected in various way majorly. Some of the differences in applying the approach were shown in table 10 below.

Table 10. Respondents’ answers towards appropriate usage of text and diagram.

Respondent	Characteristic Applied
L 1	Image accompanied caption
L 3	Support points with graphics
L 4	Apply same font each screen

The above investigation was conducted in achieving effective interface screen design through the usage of typography setting on a digital screen teaching aid against the five guiding principles established by scholars. The main finding emerged was that all twelve of the lecturers interviewed showed a satisfactory level of understanding towards the principle of consistency when designing their multimedia teaching aid. It was also shown in the principle of harmony by integrating text and diagram appropriately. Secondly, the Contrast principle has shown quite a high average of effective design through their level of understanding in designing the interface. Finally, the principle of hierarchy where animation and underlining should only be used for retaining focus showed a low average of knowledge in text element usage among the lecturers. The summary of respondents’ understanding in applying the typography elements towards text by lecturers in designing their multimedia teaching aid is shown in Table 11 below.

4. CONCLUSION

This research was carried out to identify the level of understanding among lecturers from the science and technical clusters in applying typography design through the effective digital screen interface by using text as the main content in the multimedia teaching aid design. From this study, the result has shown that this most crucial guiding principle identified by researchers showed that most lecturers highly understood the characteristic of consistent design principle. In Contrast, a high average of understanding of the principle of Contrast. However, the second important guiding principle suggests the application of the hierarchy of importance in the design of an interface was not effectively being applied and was least understood among the lecturers.

In conclusion, findings from this study have asserted a need to address further issues on how lecturers apply the typography settings in applying text on the

multimedia digital screen interface for their teaching aid. The interesting finding also revealed that most lecturers did not have a full understanding of the design principle characteristics of designing the interface. This finding is about insufficient knowledge and minimum understanding among the academicians to sustain an effective teaching and learning process through a well-designed digital screen interface for their teaching aid. It also anticipated that future research could investigate how other elements such as graphics, animation video, and audio of their teaching aid interactive digital screen interface design. Future research is also suggested to be carried out among other clusters such as humanities, social sciences, business, and management to sustain an effective teaching and learning process.

AUTHORS' CONTRIBUTIONS

1 & 3 designed the research framework. 1, 2 & 3 contributed to developing the research and verifying analysis, 3 & 4 supervised the study, and discussed the results. All authors discussed the results and contributed to the final manuscript.

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