

Redesigning PowerPoint™ Presentation Slide Based On Gestalt Law of Screen Design to Capture Learners' Attention

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Abstract

Lectures are consisting of two components which are content and delivery. Both components are essential elements for creating an interesting lecture. How good the lecture is dependent upon the quality of the delivery. However, lecture is best suited for elaborating certain information and is not the best method for convey large amounts of information. Large amount of information is better presented in text format, so that students can access whenever they need it. Therefore, many lecturers find PowerPoint™ is useful in enhancing lectures and emphasizing key point to their students. Nevertheless, mistakes in making the slide design can lead to a room full of bored looks. In order to improve the presentation slide design Gestalt Law of screen design such as balance/symmetry, continuation, closure, figure-ground, focal point, isomorphic correspondence, prägnanz, proximity, similarity, simplicity, and unity/harmony were consulted. To test the usefulness of these laws in visual screen design they were applied to the redesign of a presentation slide design, 'System Development Environment'. The original presentation slides were redesigned according to these principles. The new screen designs were then evaluated by distributing questionnaires to students to compare the designs. The students were also asked to rate the value of using the Gestalt design principles in the redesign, both for improving the product's appearance and improving its value for learning. The results show a very positive feedback from the students. Therefore, this principle should be implemented in designing other presentation slide in order to capture learners' attention.

Keywords: Presentation slide, Gestalt Law, Screen Design

1. Introduction

PowerPoint™ is a great tool for teaching and learning where it can add a new dimension that allowing teachers to explain certain concepts, while

accommodating all learning styles. In proper way, PowerPoint™ can be one of the most powerful tools for spreading information. Presentations with accompanying PowerPoint™ visuals are ubiquitous. Microsoft claims there are more than 400 million PowerPoint™ users, collectively making an estimated 30 million presentations each day (Caplan, 2005). There are many ways of using PowerPoint™ to enhance the effectiveness of classroom instructions. The followings are some example on how PowerPoint™ can be used to enhance the effectiveness of lecture in classroom:

- The presentation can be enhanced by embedding graphics, animation and audio elements.
- Add flair to presentations with slide and bullet transitions and animated effects.
- Lessons in class can be more organized and flexible.
- Students easy to read the text on a PowerPoint™ presentation rather than to read notes that are written on an overhead projector or chalkboard.
- Student interest can be stimulated through the use of graphics and cartoons.
- There are many tools are available for use with PowerPoint™, so experiment to see what works best for you and your students.

Based on all the features included in PowerPoint™, Birnbaum and Frey (2002) founds that students preferred PowerPoint™ lectures over traditional lectures using a blackboard or whiteboard. The benefits of using PowerPoint™ can be achieved if it use effectively. Employed inappropriately, PowerPoint™ could potentially confuse students and make learning a difficult process. Doumont (2005) and Katt (2006), argue that PowerPoint™ is a tool that can be used effectively or ineffectively depending on the practices of the presenter.

There are several factors involved with determining the overall quality of any presentation developed using software such as PowerPoint™. Visual factors, such as color, graphics and layout, along with factors concerning the text, such as the size of the writing and the length of text passages, are considered important (Claude et al., 2004). In order to improve the presentation slide design Gestalt Law of screen design such as balance/symmetry, continuation, closure, figure-ground, focal point, isomorphic correspondence, prägnanz, proximity, similarity, simplicity, and unity/harmony were consulted.

According to Allan (2003), the most common abuses in PowerPoint™ use for teaching and learning include the visually poor and/or boring slide; too much text is put on a slide detracting from its legibility; excessive use of graphics and also inappropriate use of multimedia options. Therefore this paper attempts to evaluate learners' perception towards their enhancement of attention after the presentation slide is redesign using Gestalt Law of screen design.

2. Gestalt Law of Screen Design

Gestalt theory suggests that we perceive an object as a whole rather than just the sum of its parts (Silla, 2003)]. Every individual perceptual element has its own nature and characteristics but the nature of individual elements alone cannot account for how a group of elements will be perceived (Chang and Nesbitt, 2006). There are over 114 laws of Gestalt Theory, with many of them applying directly to visual forms, historically artists and designers have focused on a handful of perceptual laws to improve their two dimensional works, such as paintings, photographs, posters, book covers, and so on (Graham, 2008). Some of the laws are taken to be applied in designing user interface. There are 11 principles that usually applied in designing interface as followings:

- i. Law of Balance
- ii. Law of Continuation
- iii. Law of Closure
- iv. Law of Figure-Ground
- v. Law of Focal Point
- vi. Law of Isomorphic Correspondence
- vii. Law of Pragnanz (Good Form)
- viii. Law of Proximity
- ix. Law of Similarity
- x. Law of Simplicity
- xi. Law of Unity/Harmony

The principles that had been employed in redesigning the presentation slide are the Law of Figure-Ground, Simplicity, Proximity, Similarity and Balance. Table 1 shows how the Gestalt Laws might usefully inform the slide design practices.

2.1 Law of Figure-Ground

This is the fundamental law of Gestalt that helps to identify objects (figure) as distinct from their background (ground). This law of perception is dependent upon contrast. Images and text must be visible to be understood (Graham, 2008). An example of the use of this law is the color of the text. People can read words appear in slide because of the contrast level between the text and the background. So, it can be said that figure-ground principles refers to the relationship between background and foreground (Bahrudin et al., 2010). The figure-ground law had been implemented in redesign the introduction slide of the course where the white background is chosen to increase the legibility of the image and white color is chosen for the text (Figure 1).

2.2 Law of Simplicity

The simplification works well if the graphical message is already uncluttered, but if the graphics are complex and ambiguous the

simplification process may lead to unintended conclusions (Chang, 2001). Visual perception tends toward a simple and consistent organization of elements. Simple and self-contained structures stand out better from their background. In interface element design, structures that are simple will facilitate concentration on the actual contents. The implementation of this law in redesign the slide is the simplification of the actual content to point form because it is hard for learners to read too many words on the slide (Figure 2).

2.3 Law of Proximity

Items that are spatially located near each other seem part of a group, while items that are apart are perceived as separate. In Figure 2, the elaboration of the project feasibility such as operational, technical and economics are arranged below the elements. The arrangement of box that is near each other shows that there are parts of the group.

2.4 Law of Similarity

Similarity occurs when objects look similar to one another. When similarity occurs, an object can be emphasized if it dissimilar to the others (Zheng, 2009). At the boundaries between one object and another, the principles of similarity allow one to distinguish the objects (assuming they contain dissimilar elements). In interactive designs, keeping text, shapes, links, and animated elements similar increase the tendency of the learner to believe the objects belong together. The principles also reinforces about the usefulness of color, size, shape and orientation to encode categorical variables (Few, 2006). Figure 3 shows that the same color used to categorize the same elements. The same color will help learner to understand that there are three elements to be considered in determining project feasibility. The bounding box also used to increase the tendency of the learner to track the box in the boundary.

2.5 Law of Focal Point

The principle of focal point refers to elements in a display that catch a person's attention. People will perceive the elements as focal point if the attributes of those elements are significantly different from others. There are many methods in visual displays to create focal points such as using different colors and using relative position or shapes. Color is one of the most powerful visual elements that can be used in design. Color can accentuate, highlight and guide the eye to essential points or links; identify recurring themes or be used to differentiate between elements; and trigger feelings and associations (Smith, 2006). In Figure 4, the use of image increase the tendency to attract learners rather than without image.

2.6 Law of Balance/Symmetry

A visual object will appear as incomplete if the visual object is not balanced or symmetrical (Fisher et al., 1999). Based on Figure 5, the

image is located at the center of the slide. In order to create balance slide, the cloud callout point were arranged symmetrically so that the slide will seem to be balance.

3. Data Analysis

The redesigned of “Determining Requirement and Analysis” presentation using the selected Gestalt law slide was evaluated. There were 50 participants involve in the evaluation which are the students that attending Fundamental of System Analysis and Design course. A set of questionnaire had been distributed among them to evaluate the new slide design. The questionnaire is divided into two sections. The first section sought the students’ opinions about the quality of the redesigned presentation slide (Table 2). Overall of the evaluators rated that the new slide as more effective with better visual attraction than the original version.

The second section of the survey (Table 3) asked the participants to directly evaluate how useful the selected Gestalt laws were for the redesign of the PowerPoint™ presentation slide appearance. Based on the responses shown in Table 3, the implementation of selected law in redesign the presentation slide were found to be useful as the means of the responses are all above 4. Most of the respondents rated above 4 which indicate that they are agree that the redesigned slide look well rather than the previous. There is only one law which is Proximity Law that 10% of the respondents rated 3 for the scale. Therefore, it appears that students can recognize the value of the selected Gestalt laws to visual interface design hence captured their attention from multimedia designed using such principles.

4. Conclusion

Gestalt Theory has been highly influenced from a range of disciplines including in designing interactive media. This paper has explored a wider range of Gestalt laws that is often recommended for visual design of educational software. There are six laws have been distilled from the Gestalt literature and these laws were applied to redesign PowerPoint™ presentation slide in order to improve its appearance and educational effectiveness hence increase learners attention. The user evaluations indicate that all the identified Gestalt laws are beneficial for visual screen design and learning effectiveness.

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Appendix

Table 1. Relationship between Gestalt Theory and interface design for educational purposes.

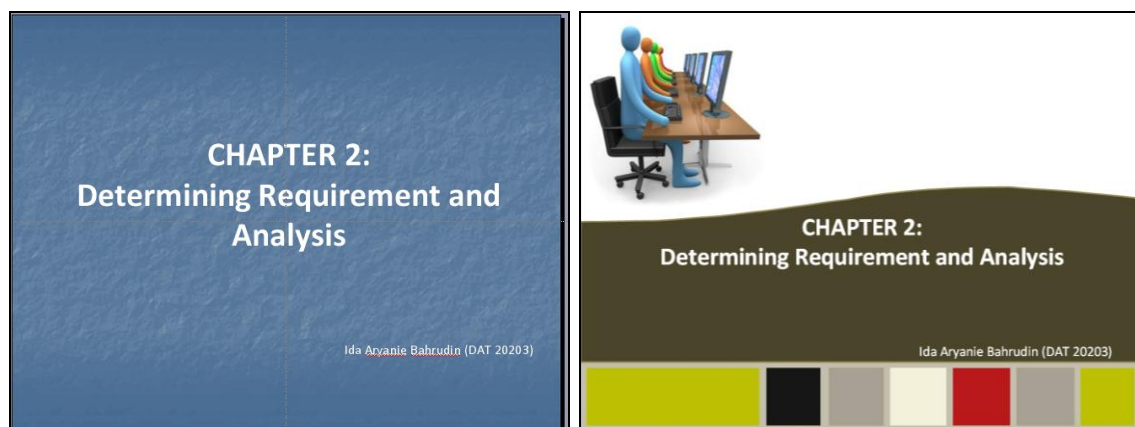
Gestalt Theory	Application to Interface Design
Figure-Ground Contrast	Effective distinctions between text and graphics
Simplicity	Eliminating unnecessary complexity in text and graphics
Proximity	Paying attention to the position of related elements
Similarity	Grouping things together to focus learner attention
Focal point	The use of color to attracts learner focal point
Continuation	Focusing on the continuation of lines and shapes to attracts learners' eyes

Question (N= 50)	Yes	No
Do you find that the new presentation slide design is better than previous version?	100%	0
Was learning easier with the new presentation slide design?	100%	0
Are the layout of text and graphics in the slide in organized arrangement?	100%	0
Do you find that the new presentation slide capture your attention?	100%	

Table 3. Value of Using Selected Gestalt Laws in Visual Design Presentation Slide

Visual principle based on Gestalt laws (N= 50)	Scale					Mean
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Figure-Ground Contrast				70	30	4.3
Simplicity				65	35	4.4
Proximity			10	30	60	4.0
Similarity				78	22	4.2
Focal point				68	32	4.3
Continuation						

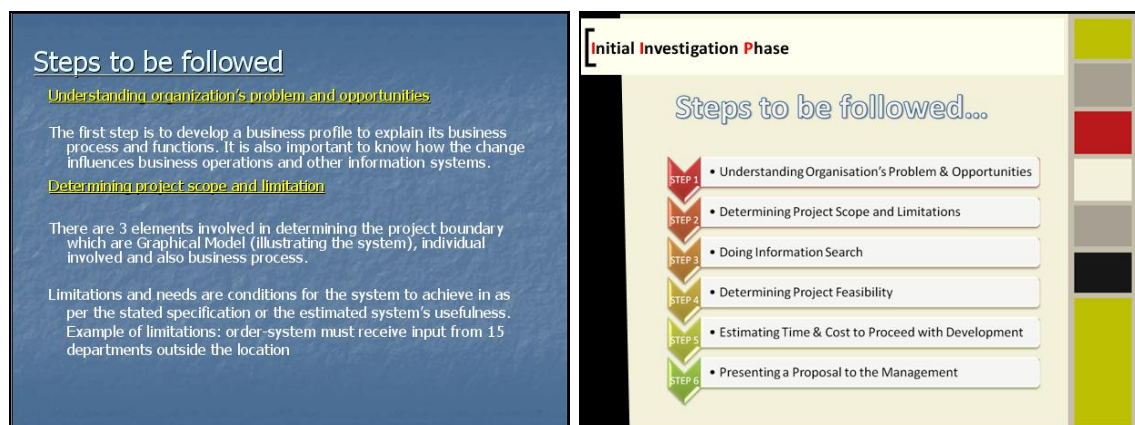
(Answer key: 5 = Very well, 4 = Well, 3 = Neither well nor poorly, 2 = Rather poorly and 1 = Very poorly)



(a) Original Slide

(b) Redesign of Introduction Slide

Figure 1. The implementation of Figure-Ground Law to the original slide.



(a) Original slide with cluttered text

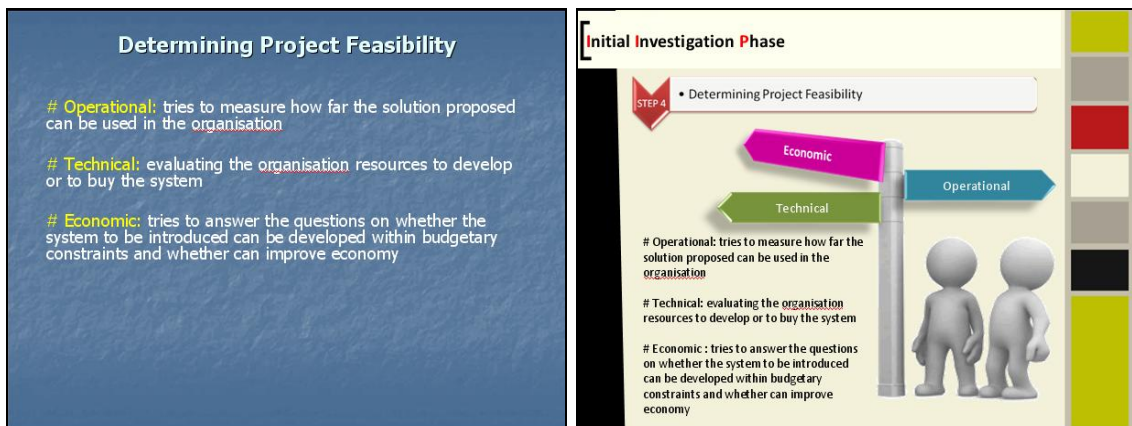
(b) All text simplified into point form

Figure 2. The implementation of Simplicity Law to the original slide.



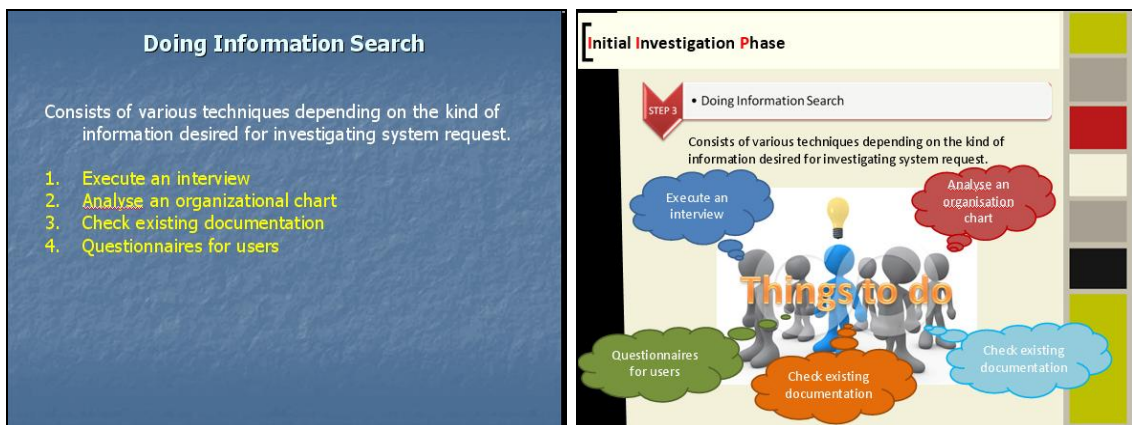
(a) Original slide without indicator to differentiate the different elements (b) The implementation of Proximity and Similarity Law

Figure 3. The implementation of Proximity Law and Similarity Law to the original slide.



(a) Original slide (b) The image attract learners attention

Figure 4. The implementation of Focal Point Law to the original slide.



(a) Original slide (b) Law of Balance

Figure 5. The implementation of Balance Law to the original slide.