



Fluency in making alternative ideas is the heart of design process

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How designers generate ideas is often vaguely stated although designers themselves know something about designing, therefore the understanding of the design knowledge is challenging. Even with these several attempts to examine design knowledge (Parsons and Campbell, 2004; Petre, et al., 2006), what fashion designers think in developing creative ideas remains largely inaccessible. Moreover, little research was studied on design expertise. In this paper, we have examined the differences between novices to professional fashion designers during the hand-sketch design idea development process based on empirical experiments.

The experimental study was conducted with eighteen participant designers in three different levels of design expertise (six entry level student designers, six advanced level, and six professionals). Each designer was given exactly the same design task which requires designing a small contemporary womenswear collection containing five outfits by hand-sketching in four hours. The designers answered to the questionnaire about his/her brief background before the task, and were asked the open-ended questions to clarify the ideas that had emerged during the design process right after the task. All design processes and the post-design interviews were video and audio recorded, and all original draft/final sketches were collected

For the analysis, we have developed a new coding map method which can re-represents the eighteen design process into the simpler form in order to compare between the design groups. We have noted that the participating designers captured intriguing visual images from the source of inspiration and used them to select *design features* in their clothing, therefore, a coding map was developed in documenting the changes of design features using a time line. Creating a coding map for the design process follows “Seven-steps”: (1) the video data of the design

process was screen-captured, (2) the researcher retrieved the salient *design features* used in the design process according to a designer's comments, (3) the used design features were identified from all draft and final sketches, (4) the identified features were classified into three different types according to the dimensionality in which it existed, (5) all design features were listed in y-axis, and the number and thumbnail images of each sketch figure were placed in the x-axis, (6) a red circle (N) was marked when a new design feature appeared, and a black circle (●) was marked when the design feature was confirmed at the final sketch, and (7) when design features changed to alternative ideas were marked according to its type : shape alternatives (S), placement alternatives (P), and texture alternatives (T). Design features which stays in same format were categorized as continuing features (C).

As a result, the emerging pattern between the coding maps of eighteen design processes reveals that the entry level student designers are likely to employ a limited number of *design features* and search for fewer *alternatives*. In contrast, the professional designers tend to capture more design features and generate a variety of design alternatives by changing the forms of design features. Another observation is that the entry level student designers change one design feature at a time when exploring alternatives, whereas the professional designers are likely to change several design features. This implies that the professional designers generate more alternatives in the same amount of time compared to the entry level student designers. These findings are consistent with Guilford's (1967) concept of divergent thinking which refers creating a variety of alternatives in idea generation stage of creative thinking. Although being creative may not necessarily correlate with being an expert, it is an important criterion to succeed in the profession since the fashion design process heavily involves creative thinking.

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