Interactive Computational Graphic Design

**Reference 1**

**Citation:**

Hansen, S. M. (2019). public class Graphic\_Design implements Code { // Yes, but how? }: An investigation towards bespoke Creative Coding programming courses in graphic design education. https://doi.org/10.7146/aulsps-e.340

**Author:**

Stig Møller Hansen is a Senior Associate Professor at Aarhus University where he teaches graphic designers how to code. Hansen uses the term computational graphic design instead of 'creative coding', which is a term that more aptly describes the medium. He is an active member of the community online and shares his ideas to other students globally.

**Summary:**

Prof. Hansen’s dissertation investigates how programming is being taught to graphic designers as part of their curriculum. The dissertation covers the challenges of teaching programming to non-programmers, design students specifically in this case. Hansen wrote three papers in which he tackled these three issues: mapping of the current programming courses that are taught in design schools, comparing the learning style of graphic design students and students in more technical disciplines and lastly a proposal of a hands-on method to introduce programming to graphic design students.

**Context:**

Hansen's work acts as a great starting point to assess what are the necessary steps to take in order to learn programming from the perspective of a graphic designer. Understanding the way graphic designers learn programming specifically will help unravel the way in which to learn this new medium and able to apply it. These two disciplines are taught using different methodologies, however there is still a way to be able to bridge the gap between them in a method that is more effective. Hansen's dissertation provides a plethora of resources and insights that are invaluable to understanding the current state of programming within a graphic designer's education and existing learning style(s).

**Reference 2**

**Citation:**

Madsen, R. (n.d.). Programming design systems. https://programmingdesignsystems.com/

**Author:**

Rune Madsen is a designer, artist, and educator who uses programming as his primary design medium. His specialty lies in code-based design projects including but not limited to: digital interfaces, custom design tools, design systems and dynamic branding projects.

**Summary:**

Programming design systems <https://programmingdesignsystems>.com/introduction/

Programming Design Systems is a free and online book that discusses how to use a design system and what a design system is through the medium of programming. The book is currently a work in progress but is still dense with information regarding the medium and concepts.

**Context:**

This book shares similar themes Martin Lorenz's book Flexible Visual Systems within the added context of programming. It expands on ideas related to visual systems and further cements these concepts with the use of coding as its primary medium; both in explanation and practice. The book paves the way to learning how to program while keeping design in the forefront. Considering programming is usually taught to more technical degrees, utilizing a guide that is created for designers in mind will help smooth out the learning curve. Different graphic design fundamentals, from shapes, colors and layouts are covered in the book (and more in the future), all within the context and use of programming.

**Reference 3**

**Citation:**

Levin, G., & Brain, T. (2021). Code as creative medium: A Handbook for Computational Art and Design. MIT Press.

**Authors:**

Golan Levin is an artist, engineer, researcher, and educator. He teaches interactive and computational new media arts, "studio courses in computer science" at Carnegie Mellon University. Tega Brain is an artist and environmental engineer. She teaches Integrated Digital Media at New York University. Her work tends to reimagine the link between technology and the environment.

**Summary:**

“Creative Code as a Medium” acts as a comprehensive resource and guidebook that covers a variety of alleyways in the field of computational art and design. The book encompasses a selection of exercises and references to guide you to integrate programming into your design workflow.

Context:

This book provides an extensive collection of resources and examples that showcase how to utilize programming to create interactive and engaging design. The book’s curated exercises and references offer valuable insights into the practical application of coding techniques in the context of graphic design. The exercises are on the more abstract side, however, which requires prerequisite knowledge of programming before being able to execute them effectively, making this book work better as supplementary resource instead of a starting point for complete beginners, at least for the exercise related content of the book. It may be difficult to engage with at this stage of the research; however, the density and quality of the exercises and references make it a valuable addition to the literature review.

**Reference 4**

**Citation:**

Pratt, A., & Nunes, J. (2012). Interactive design: An Introduction to the Theory and Application of User-centered Design. Rockport Pub.

**Authors:**

Andy Pratt is a creative lead at Google. He was an adjunct Professor at the School of Visual Arts in their MFA program "Designer as Entrepreneur". He was also a co-instructor of an online workshop where he teaches students to collaborate with both developers and clients. On the other hand, there is limited biographical information available about co-author Jason Nunes in the sources consulted for this literature review.

**Summary:**

This book acts as a comprehensive guide to the principles of user-centered interactive design aimed at college students and young professionals. It focuses on a variety of mediums and access points covering topics from fundamental design principles to more nuanced interface design principles.

**Context:**

The book provides a strong foundation to the principles of interactive design that the main research emulates through the medium of programming. Both the theory and application are covered in this book to help further understand how to make and implement these design decisions. While the book predates the current era of short-form content and rapid technological advancements (written in 2012), the fundamental principles it covers remain valid and applicable. The core concepts of interactive design, such as user engagement, usability, and visual communication, transcend specific technologies and platforms. Further exploration of the application of these principles are for the primary research question to unfold and conduct.