

# Interaction Design and Implementation in the Application of Graphic Design Teaching Based on Autonomous Learning

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**Abstract:** As a newly-developed mobile and digitalized teaching resource platform and learning device, educational application has become a significant means to promote the reform and innovation of educational and teaching mode. Through the investigation and analysis of domestic application about design education, this research is designed to propose interaction design strategies in the application of graphic design teaching based on autonomous learning. It employs Design Connection as the practical project to construct information framework and interaction designing. And by presenting its idea through visual design, this research aims to provide a possible technical method for mobile education of artistic design.

## 1. Introduction

Recent years, with the highly popularization of smart mobile devices, applications for mobile education has seen explosive growth. New emerging forms of information society such as AI (artificial intelligence), VR (virtual reality) and Big Data have been continuously iterated and emerged, which have reduced the barriers of online education and improved the using experience of the hardware for users, and the educational approach of applying mobile platform to accept online mobile studying have been promoted in depth both in foreign and domestic education.

In the current 'Internet+' era, how to apply Internet thinking and technology to transform traditional teaching methods has become a research hotspot in the field of Internet education and informationized learning. This research focuses on interaction designing in the application of artistic design teaching to integrate the offline teaching materials and develop online teaching materials, which help improve learner autonomy, learning quality and teaching efficiency, and it also provide insight and design scheme for specialized mobile application of artistic design teaching in an open-ended and interactive style, based on autonomous learning.

## 2. The analysis on current situation of the application of graphic design teaching

In May, 2017, the author searched through App Store of Apple and Application Market of Huawei with 'design' as the Keywords. After removing those irrelevant, there were totally less than 100 applications with respect to this issue, which roughly divide into several types: artistic information synthesis, interior design, designer interaction and commercial fee design, etc. While the applications for adult artistic design teaching include only a few of them: Huke, Duia Course, which is of Duiwang Company, Shejiniu and Shejijun. Small and exquisite application for graphic design teaching has not yet been found and remained to be exploited.

### 2.1 Competitive analysis of the application of design teaching

Adopting the method of competitive analysis, this research selects and analyzes four typical specialized applications of design teaching. Through contrastive analysis of their overall performance, the research tries to learn from their merits, avoid existing shortcomings, and explore new creative ideas, to prepare for future application designing. The research will conduct a horizontal and contrastive analysis towards competitive applications in depth from three dimensions of user experience.

First dimension: on the scope level, contrast and analyze the product position and teaching

features of each competing application, focus on teasing out and summarizing the core and special functions of them.

Second dimension: on the framework level, contrast and analyze the logic hierarchy, interface layout and using process of each competing application, so as to develop the strengths and circumvent weaknesses, and prepare for the interactive framework of current program.

Third dimension: on the performance level, compare and analyze each competing product on the aesthetics and integrity of visual interface design.

Comparing the core function of the four applications, all of them video teaching took the dominant place, which had smooth playback and no stuttering. Among them, Duia Course set a mutual interaction when broadcast live video; videos on Shejiniu were mainly charge for fee, and some of them had the area for discussion and question answering; Shejijun was featured by free video teaching; Huke set comment area below the teaching video, which enabled users to upload pictures of homework. In terms of curriculum setting, Huke had the most updated and richest resource of teaching materials, which was mainly based on case teaching and covered the nuclear curriculum of advertising design generally. However, it is not so good at systematic teaching and the category labels of curriculum were repeated on the homepage. Also, there was no logical relation between the teaching content. Duia Course was the closet to the market, and most of its curricula were of high quality, which were formed in class. And it has set up several kinds of classes: class of all subjects, class of employment, contractual class, class of vocational guidance and class of appropriate teaching. This application had a specific purpose of fee charging towards targeted users, clearly providing employment training for adults who have no basic knowledge of art while had employment needs. Shejijun has a relative complete provision of advertising curriculum which offered six teaching modules of advertising curriculum in the module of videos for appropriate teaching. While Shejiniu combined graphic design and UI design into one category and provided totally seven teaching modules, but its curriculum system was confusing and not comprehensive.

Considering the core function of these four applications from the perspective of user experience, the division of their modules was similar in large and the modules of video teaching and learning record has satisfied the core needs of users on the whole. While except for Shejijun, these core functions were not open for free entirely and they all contained paid courses. For example, more than 80% of the curricula in Duia Course were charging for fee, which attached too much importance on profit and easily caused antipathy of users with the degradation of user experience. Huke provided users with one free course every day, which have satisfied the users' needs to some extent with a favorable user experience to attract and retain users. Concerning the module of learning record, all of the four applications kept track on the learning history of users to encourage them on persistent learning. On the front page of Huke, a 'Learning' label was tagged for navigation, and labels as general tutorial, learnt tutorial, collected tutorial and learning favorites were set inside. While that of others were quite simple: Duia Course displayed the history of learnt courses in 'My'; Shejijun presented the learning date in a week in 'My' and Shejiniu put daily learning duration and consecutive days of learning on the front page.

Comparing the features of the applications, Duia Course labeled 'employment' to provide users with employment recommendations which was able to conduct focused searching according to certain territory and post, and users may amend their resumes in 'My'. From initial 'teaching' which met the online learning needs, to 'employment' on later stage which met the needs of career survival offline, Duia Course gained its most glamorous added value. Huke was featured in two functions: 'Design Radio' and 'Homework Evaluation'. The former offered employment guidance and suggestions on career in audio mode, and the latter extended users' thinking of designing by comparing the cases in a before-and-after way. That has a worth of reference.

As comparing for the using process of the applications, Duia Course was relatively smooth and efficient in use. The using processes of the four applications are quite the same. Among them, Duia Course had much reasonable distribution of information framework with clear priorities in the core process and had distinctive columns; its contents were easily found and positioned with the navigation; the modules were fixed and clear, and frequently used functions were easy to find. In

contrast, Huke was inferior in using, and novice may get confused for the hardness of getting the desired content on its homepage.

In the comparison of their interface design, Huke had the finest overall visual effect. Its interface was arranged in fashion, and pictures with visual impact were applied to guide users and transmit messages, which intended to increase the chance of user browsing and clicking, and bring users with lively and interesting sensory experience which was more in line with the tastes of young users who are passionate about fun and novelty. The interface design of Duia Course, which is of Duiwang Company, Shejiniu and Shejijun were quite alike, which were concise but nondescript, with ordinary visual presentation and less notable character, and their pictures as caption were not well-designed. Therefore, these applications fail to bring favorable visual experience to users and positive psychological identification towards them could not be established.

## **2.2 Brief summary of competitive analysis**

Through the analysis conducted above, it can be found that the applications of artistic design on the market vary in quality, which only accomplish the core needs of users in function, that is, satisfying the learning needs of the majority of the users and pave the way of their career development. Huke was most outstanding in teaching content; Duia Course has formed a comparatively ecological circle which from online skill training to offline career development. While the common weakness of these applications was that they all applied the method of case-based teaching and instructed mainly a certain single skill, failing to construct a scientific and progressive teaching system from the perspective of fostering professionals majored in advertising design and creation, for which users were hard to build up the general awareness of advertising through their using, which bring a great trouble to them. Furthermore, all of the four applications were unable to create more and better added value beyond the fulfillment of basic and expected needs of users. For example, the functions on work presentation and social interaction are deficient. The glamour demands of users could not be satisfied.

We can infer from the information synthesized above that users' needs towards the applications of artistic design teaching are generally on four modules: online teaching, professional information, work presentation and social interaction. Online teaching serves as the core function of the application of graphic design teaching. The remaining modules assist and extend the teaching function, of which the adding of work presentation and social interaction could complement the functional defects of the products on the market. While satisfying the users' needs, these modules also help develop the unique feature of the application and form the product advantages for themselves.

## **3. The design strategies of the applications based on autonomous learning**

Unique value proposition would help an application step closer to an excellent product when it fulfills the needs of users and has competitive advantages already. Thus, this research presents the strategies of interaction design in the applications based on autonomous learning, which aims to offer superior experience and feelings getting by the applications of graphic design teaching, so as to generate the learning interest and intention of users, who are motivated to learn voluntarily, set objectives, select learning resources on their own, conduct self-management on the learning process and finally carry out an effective evaluation of themselves with the application.

### **3.1 Constructing knowledge system for systematized autonomous learning**

For educational applications, the teaching content is the most nuclear, and only well-designed contents are able to attract more users. Under the situation of the excess of fragmented learning in 'Internet +' epoch, there are drawbacks of scattered and partial knowledge through this means, which are unordered and incomplete in structure. Seeing that, this research mines and reorganizes the fragmented knowledge to 'restore and restructure' the knowledge of an integrated teaching system of advertising curriculum through systematization, stratification and specialization 'in a fragmental way'. It is designed to dig out, sift and optimize from the angles of learning scenario, the

method of media using and learning management of knowledge recipients, so as to construct an effective knowledge system which reflects the theme of learning exactly, and allows for systematically autonomous learning by enrolled students and beginners.

### 3.2 Sharing and discussing for personalized autonomous learning

In personalized autonomous learning, each person has distinctive interest, requirement and habit. Learners' personal needs are to be satisfied only in a condition of individualized learning. By sharing and discussing, the application would bring its superiority of teaching to full play in a form of social interaction and entertainment. For instance, by setting a function similar to circle of friends, users may be liked to or comment on each other, which reflects the appealing and interest of learning in a democratic and preferred way, to arouse students' interest of learning, and it is convenient for the communication of users simultaneously, with which they may accompany with each other and share the progress.

### 3.3 Release professional information for fragmented autonomous learning

With the rapid development of mobile Internet and new media, fragmented learning has become a normalized learning behavior and method in current 'micro' era. Fragmented learning has the benefit on unlimited learning time and space. Users may adjust their needs of learning independently according to their own learning pace and situation in a way of 'economic spent and quick return', through the utilization of massive micro resources in the application, such as 'micro tutorial', 'micro text' and 'micro video', etc. In the meanwhile, users may also acquire professional information about the frontier of artistic design in the application, to enrich their knowledge and fulfill the requirement of self-study and self-worth.

## 4. Interaction design of Design Connection based on autonomous learning

### 4.1 The design of information framework

Starting from the result of competitive analysis, the author concentrates on the core usage scenarios and laid stress on fluid experience. This research has developed Design Connection as the research program, of which a flat structure is designed, which is concise and narrow in scope, combining the requirement of interaction towards the four major functions of the application in 'Internet +' autonomous learning, as shown in Figure 1.

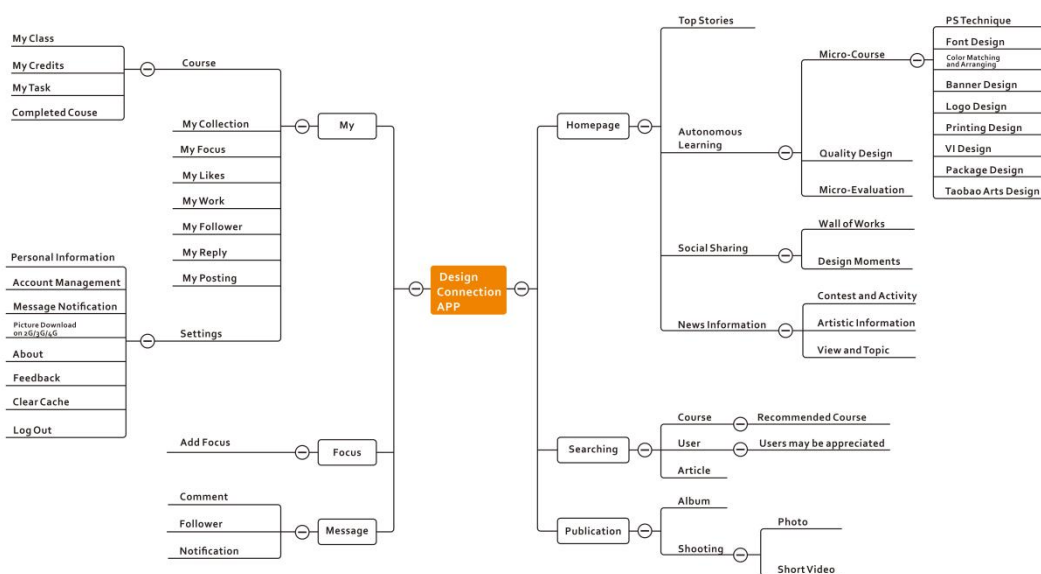


Figure 1 Information framework design of Design Connection

## 4.2 The design of interaction prototype

Homepage is the most frequently used and significant part of Design Connection, which is the main source for users to search, discover and read information. Rudder navigation is applied on the homepage and placed at the bottom of the screen, to serve as the primary menu, which is overlaid by the second and third level of menu. That is a setting which fits the users' habit with clear structure and smooth operation.

Users' autonomous learning on this application is the core function of Design Connection. Therefore, users may conduct autonomous learning using menus on the homepage, such as 'micro course', 'quality design', 'news information' and 'top stories', etc. Also, the functions of 'design moments' and 'homework wall' on this page provide social platform for users to create a favorable internal communication environment.

## 5. Visual design of Design Connection based on autonomous learning

The positioning of the product directly determines its visual character. Proper product position and visual character would increase users' sense of intimacy and engaging, so as to achieve better customer satisfaction. On this basis, from an angle of autonomous learning, combined with the result of preliminary market research, we define the visual character of Design Connection as specialized and artistic. The main color of the application is orange, and the words are black, complemented with magenta, to create an atmosphere of young and great vitality. In addition, pictures with visual impact are used to enrich the layers of interface. All of these are to ensure users a cool and relaxing visual enjoyment and try to engage in building a visual environment full of vitality and creativity to distinct with applications on the market, like Huke and Duia Course.

### 5.1 The design of icon

Icon is one of the core parts of product design, and an excellent icon design directly gives the product with fine spirits and identity. From the dimensions of functionality, usability, identifiability and artistic quality, the icon of Design Connection is invented in the governance of compact and neat visual effect, which employed a flat style with features of conciseness, Abstractness and symbolization (Figure 2) to offer guidance and transferring of message. And the designing of icon is expected to strengthen users' vigor of autonomous learning and increase the chance of their browsing, to make users focus more on learning itself.



Figure 2 Icon design of Design Connection

## 5.2 Prototype of interface

Based on the design of information framework and interaction prototype, graphs of high-fidelity on the homepage and other main interfaces are produced, as shown in Figure 3.

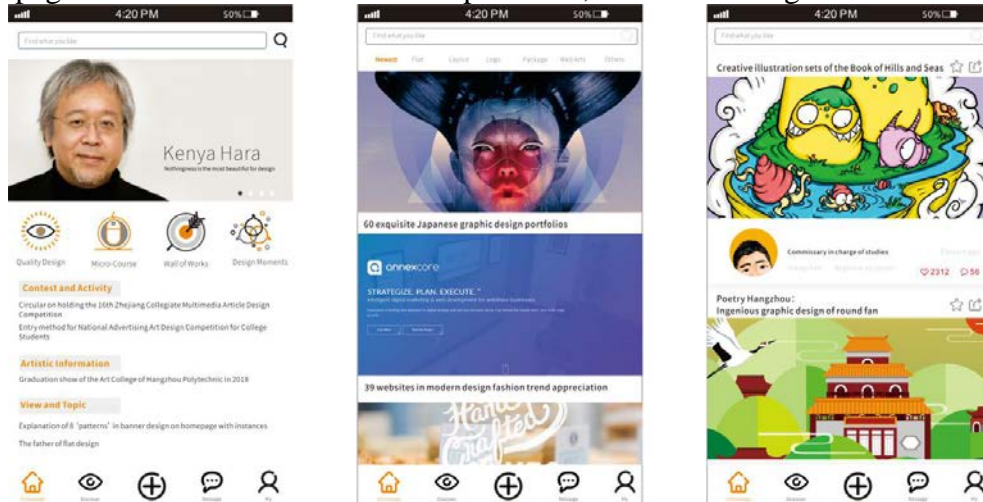


Figure 3 High-fidelity prototypes of Design Connection

## 6. Conclusion

This practical project of the research adopted a rigorous method of competitive analysis, acquired the demands and expectations of users in the applications of artistic design teaching on the aspects of autonomous learning, information sharing and social interaction. On that basis, it put forward the strategies of application designing based on autonomous learning, established reasonable information framework and completed the designing of high-fidelity prototypes in Design Connection. In the next step, the author will make further effort to realize the development of the application, founded on the research mentioned above, with the aim to provide beneficial extension with respect to the theory and practice on interaction designing accomplished on the applications of artistic design teaching, and to promote the diversified development of mobile instruction and online distance education.

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