Research on the Design of Teaching Guidance APP Based on the Peak-End Rule

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Abstract. In view of the current problems such as confusing interface, cumbersome operation, and poor experience of educational learning APPs, this paper proposes a design method for educational learning APPs based on the peak-end law, so as to improve the overall user experience. Based on the peak-end law, the literature research method and user interview method are used, combined with the service design theory, to find the peak and end time of users in the process of use, and fully explore the needs and preferences of users. On this basis, the design principles of educational learning APPs are determined, and the design practice is carried out. This method is used to help users get the best experience in the whole service process, so that they can generate continuous usage behavior. In particular, it enables student users to have an efficient learning experience, so that they can gain a sense of learning achievement, and provide a variety of design ideas for the design of such APPs.

Keywords: Peak-End Rule · APP Design · User Experience · Online Learning · Service Design

1 Introduction

The online education and learning model has developed rapidly under the impetus of the Internet trend and the form of the new crown epidemic, and has gradually formed an online learning model of "Internet + Smart Education". Mobile educational APPs have many advantages such as efficiency, convenience and interactivity, which make them stand out from educational products and attract a huge user group. Although there are many types of existing education and learning APPs, due to complex functions, cumbersome interface operations, and imperfect feedback mechanisms, the user usage rate is low and the experience is poor. Therefore, it is a very valuable research topic to improve the user satisfaction and utilization rate of such APPs through good interface design. In terms of improving user experience, the peak-end law is widely used. Lin Ying and others took the peak-end law as the starting point, fully explored the excitement and demand points in the user journey, and optimized the design of the chronic disease health management system [5]. Chen Yan and others used the peak-end law to effectively improve the design of the car ticket machine interface, which greatly improved the

fluency of machine operation and enhanced the user's psychological experience [1]. Jiang Lujunand others used the peak-end rule to obtain a good shopping experience for online shoppers, and provided an effective design idea for the online shopping service platform [4]. It can be seen from the above literature that the application of the peak-end law can accurately mine the key needs and experiences of users, and provide a more effective basis for design. Therefore, based on the peak-end law, this paper provides a clearer goal for the interface design of educational counseling APPs, so as to improve the user experience of the product and increase the utilization rate.

2   Research Background

2.1   Development Status of Educational Learning Apps Template

Education has always been a national plan. With the rapid development of society, people are investing more and more money in learning. More than 40% of parents invest about 5,000 yuan in education funds for students' extracurricular education every year, and some families even tens of thousands [3]. With the rise of the mobile Internet, the education industry is emerging in a new way. Online education and learning platforms are emerging one after another, and the form of learning is no longer limited to the traditional model. Driven by both the family and the market, the online education and learning platform has ushered in a good opportunity for development. However, due to the rapid development, the complex information and learning resources of various educational and learning apps have brought great trouble to users. The author has sorted out several popular educational and learning apps in the Android and ios app stores, and analyzed them from their functions, advantages and disadvantages. Most of the existing education counseling APPs are online education, with a lot of information and messy use, cumbersome interface operations, many advertising sales methods, and poor user experience (Table 1).

2.2   Peak-End Rule Concept

Economist Daniel Kahnchen et al. (1993) put forward the peak-end rule through a systematic and in-depth analysis of the experience [7]. The peak-end rule holds that the experience at the peak (positive and negative) and the experience at the end, which determines the overall memory of people for each experience. As shown in Fig. 1, "peak" and "end" are the "critical moment MOT" in an experience, including positive peak, negative peak and final value. People's memory experience of past things often stays at the very good or very bad and the end of the moment, and the length of time and the quality of the experience can be ignored.

2.3   The Guiding Significance of the Peak-End Rule for the Design of Teaching Guidance Apps

The rapid development of mobile education platforms has affected the service model of traditional education. Online education and learning platforms have attracted a large

Table 1. Analysis of Existing Educational Learning Apps

| Popular APP	Highlight features	Advantage	Shortcoming
掌门	One-to-one online education	Customized teaching according to the learning level of different people	1. A lot of information and complex 2. A certain fee will be charged for the acquisition of online resources
	CET-46, English, IELTS, TOEFL are more popular	For a wide range of user groups, there are many types of courses	1. Too many types of learning resources 2. The operation steps are complicated
	All classes are live online classes	Sync with school curriculum	For junior high school courses, no other courses
100	Powerful photo search function to solve homework problems	Homework Check and Tutoring Tools	There are different download versions, and the registration steps are cumbersome
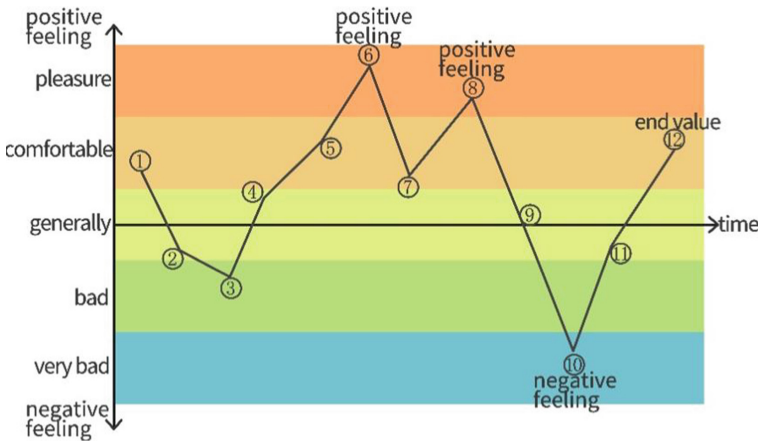
Fig. 1. Peak-End Rule experience dynamic chart.

number of users with their convenience, efficiency and rich learning resources. Students can learn and communicate anytime, anywhere. In recent years, many similar APPs have appeared on the market, but due to problems such as many options and cumbersome

operations, users lack a sense of trust and cannot obtain a good user experience. The core of the peak-end rule is to determine the key points of user experience, to deeply understand the core needs of users, and to effectively improve user experience by changing services at the "peak" and "end" points. Therefore, in the process of using the APP, the contact points of each link are recorded, and the points that the user has a deep memory of the whole process are found, and these key points are intervened in the design according to the needs of the user. The user group of educational and learning APPs is huge, and the experience it brings to users determines the utilization rate of the entire product and the economic benefits of developers.

3 The Application of "Peak-End Rule" in the Design of Educational Learning APP

3.1 Model Construction of "Peak" and "End" Key Touchpoints in the User Journey

The peak-end law determines the "peak" and "terminal" moments of the user's psychology by analyzing the user's behavior in the complete process, which is a very important link for improving the user experience. User experience specifically refers to the psychological, physical and emotional feelings before, during and after the experience [2]. In order to gain insight into the general feelings of users when using educational counseling APPs and find user pain points, the author adopts a combination of online and offline user interviews. According to the popular APPs in major application stores that have been sorted and analyzed above, 50 users are invited to develop In the survey, users include students and teachers from various middle schools and universities in Wuhan. In order to have a more detailed understanding of the emotional changes, peaks and final values of most users during the use process, analyze the behavior and emotions of users at different service contact points in different usage scenarios, understand user-centric needs, and improve user emotions. Experience and seek design points in educational counseling APP services. The user journey map is made according to the complete process of using the education counseling APP, as shown in Fig. 2. The whole process is divided into three stages: before use, during use and after use. The peak experience of the user in the entire use process is the trial listening, trial lecture and formal class stages, and the final experience is the feedback stage. Therefore, it is possible to intervene in the design of the contact points of these APP users' behaviors, enhance service, and add emotionality, so that users can have a good experience in the entire use process, and then ignore the complex information, difficult screening, and cumbersome procedures in the use process.

Wait for a bad experience. Especially for students, they are the main users of such APPs, and learning is their main purpose of using APPs, so it is particularly important for the design of touchpoints in the class stage and completion of the class stage.

3.2 Construction of Various Stakeholders of Teaching Guidance APP

In order to improve the user experience, it is necessary to fully sort out the relationship between all stakeholders in the entire system and process. The users of educational
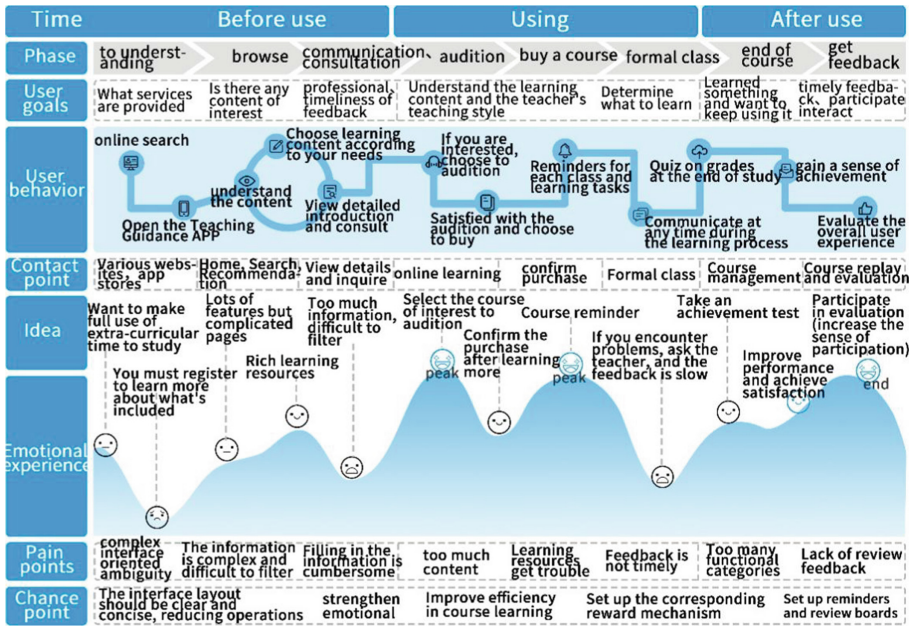
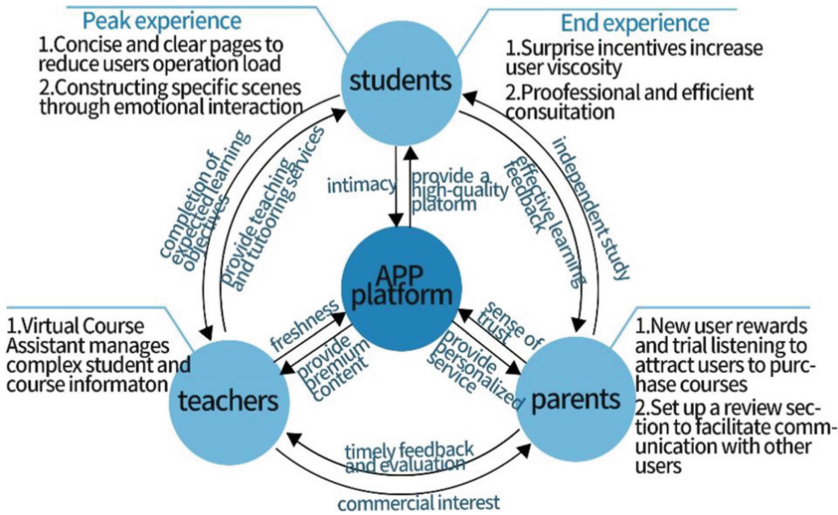**Fig. 2.** Education learning platform user journey map.

Fig. 3. Education learning APP stakeholder relationship model.

learning apps can be divided into three categories: students, teachers, and parents. In order to explore in detail the previous relationship of each stakeholder and their psychological and emotional changes, the author made a detailed stakeholder relationship diagram, as shown in Fig. 3.

The main users of this type of APP are mainly students. The peak-end design strategy of the APP is mainly to enhance students' learning experience. The figure also lists the reference strategies for the peak-end experience design, which will be explained in detail later.

4 Educational Learning APP Design Strategy Based on the Peak-End Rule

As a service product, APP for education and learning is a process in which users participate in the process of gaining experience and solving related problems under the action of service providers and service delivery systems [6]. Through the previous analysis of the user's journey map of using this type of APP, it can be found that the peak moment in the use process is the class stage. At this time, the user has determined the content and courses they want to learn, and the service experience design for this key stage will be directly Affect the user's favorability of the platform, and then determine whether the user will purchase courses and continue to use it.

4.1 Peak Time to Improve User Experience Design Method

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4.1.1 Increase the Trial Lesson Section to Attract Users

Most of the users of learning APPs are students. Their ultimate purpose is to learn effectively. Adding trial courses before the formal class is confirmed will help attract them to purchase courses. During the trial listening process, users can give feedback on the quality of the courses to improve the quality of the courses. The user's sense of participation can also judge whether the course is suitable for them in time. After the audition is over, the dropout rate can be effectively reduced and the transaction rate can be increased. The platform can expand the source of students and carry out all-round publicity, which is conducive to enhancing brand awareness.

4.1.2 Build Specific Interaction Scenarios to Enhance Emotional Experience

Most students cannot concentrate the whole time in class. Teachers can remind them during offline learning. On the online learning platform, most teachers only focus on lectures, and it is not easy to find out whether students can pay attention to the lectures. Therefore, In the process of online learning, you can add a small pop-up window with reminder function, such as: "Don't get distracted!", "Take a rest for your eyes when you are tired". Users can set the interval of pop-up reminders by themselves, which can be reminded every 10, 15 or 20 min, and the pop-up window will disappear automatically after two seconds after appearing. Similar reminder functions can give users humanized

emotional care. At the same time, during the course of listening to the class, you can add the interactive function of online note-taking of "Notes". Students can directly interact with the courseware, such as color smearing, scribbling, drawing circles, and direct handwriting marks, and using the electronic screen as a blackboard or paper notebook, and include the marked highlights in your course notebook. It can reduce the time consumed by users in the process of using paper notebooks directly, and avoid ignoring the key content mentioned by the teacher because of taking notes, which can improve the learning efficiency of students.

4.1.3 Adding Virtual Course Assistants to Ease the Difficulty of Teacher Management

In class, teachers face different students and teaching tasks, which will increase the difficulty of their management. Adding virtual course assistants can help teachers manage student information and the distribution of teaching materials. The teacher uploads the materials to the course assistant, students can download it by themselves, and the homework can also be submitted to the course assistant, and the course assistant will remind the time of handing in the homework and the time of class, which is convenient for the management and teaching of the teacher.

4.2 Ways to Lead the Ongoing Experience at the End of Service

The experience at the end of the service here refers to the state after the end of the course. The touchpoint design during this period will impress users deeply, making them ignore the bad feelings during the entire use process, and can expand users' positive publicity to the platform, which will help the platform to increase user stickiness.

4.2.1 Incentive Measures Enhance Users' Sense of Achievement

Set up learning task check-in incentives, and check-in until the end of the course can get corresponding rewards, such as gift coupons or related learning materials, to attract users to buy courses again or continue to use them. Obtaining titles such as learning pacesetters after learning to punch in can improve users' sense of achievement, help them continue learning, and meet their real needs.

4.2.2 Professional Consultation and Evaluation Section to Increase Credibility

Set up a professional consultation and evaluation section, users can give feedback or professional consultation on the problems encountered in class or further study plans, which can not only increase users' favorability and trust in the platform, but also give users "continue" The feeling of being served", thereby establishing an emotion with the platform. Users can put forward questions and suggestions in a targeted manner, and can also evaluate the service and teaching of the platform and teachers, so as to enhance the user's sense of participation.

5   Design Practice

5.1   Simple and Clear Layout

5.1.1   Simple and Clear Layout

Most of APP's page designs are based on their functional points. Good visual presentation, reasonably arranged information levels, and properly matched graphics can not only enhance brand style, enhance brand awareness, but also make it easier for users to use and pleasure. For example, the login pages of most educational counseling APPs today are cumbersome to operate, with too much information and too many steps for users to register, which will arouse users' disgust and lead to loss of users. Its quality will directly affect whether APP users can use it further. The landing page should have clear visual guidance and a simple flow of operations. The main purpose of students' login is to conduct effective learning. If the login or registration steps are cumbersome, they will lose interest and patience. As shown in Fig. 4, the login page should be concise and highlight key information. Therefore, the key information is highlighted in the form of a card design, and the user can lock to the darkest card at the first sight of opening the APP. In order to prevent new users from feeling disgusted by the cumbersome registration steps, direct entry without an account is set up to attract users to quickly enter a deeper page. Except for the login page, the layout of other pages is mostly card-style, which highlights the main information and makes the interface more balanced, standardized and concise.

5.1.2   Uniform and Appropriate Color

Proper color guidance enables users to find suitable and interesting content as quickly as possible. Knowledge learning and sharing APPs such as education counseling are different from other APPs. The overall use of dark blue on the interface gives people a rational, professional, calm, and technological feeling. The secondary color uses orange as a contrasting color, which can appropriately highlight some key information, as shown
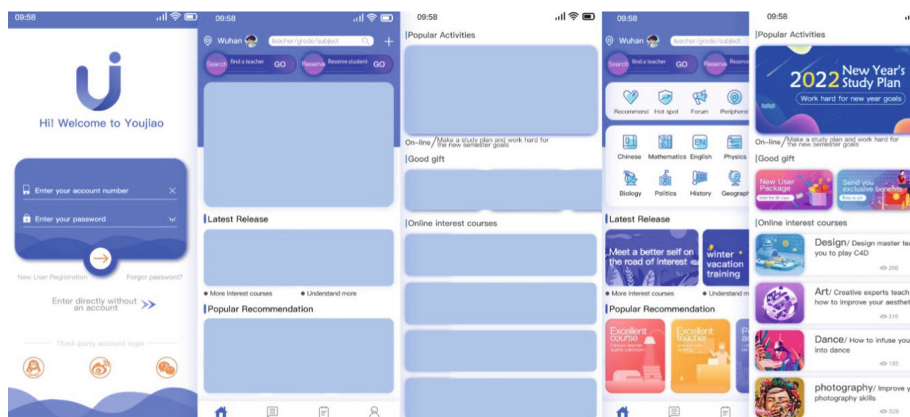

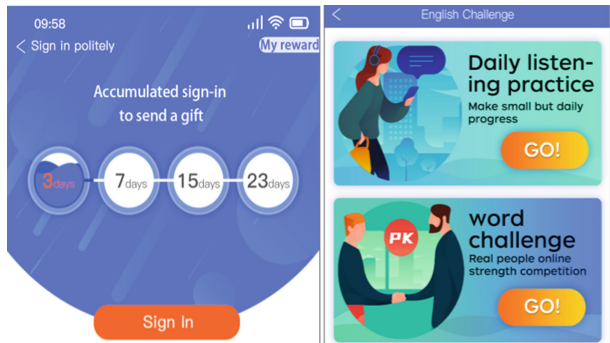**Fig. 4.** Education and learning APP landing page and other page layouts.

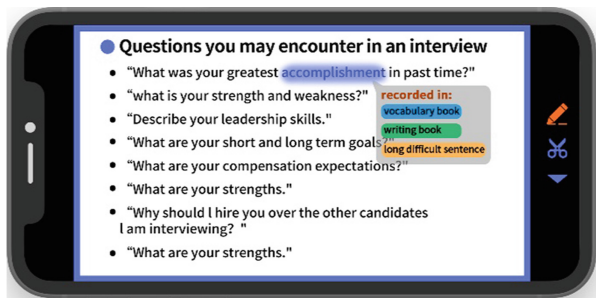**Fig. 5.** Education learning APP stakeholder relationship model.

Fig. 6. Note-taking mode in educational learning APP courses.

in Fig. 5. Using an appropriate complementary color-orange as part of the click button can appropriately guide users to click, and give users a certain degree of hint from the perspective of color psychology.

5.2 Interactive Design

In terms of interaction, the innovative design is mainly based on the function of "taking notes" when students are listening to a class. As shown in Fig. 6, during learning or listening to a class, click on the screen and the words "take notes" will appear and enter the note-taking mode. In this mode The user can interact directly on the screen, and mark important knowledge by smearing, scribbling, and drawing circles, and these operations will not affect the triggering of other interactions. After the note is over, you can double-click to exit, and other interactions can be performed at this time, such as clicking Pause, Exit, etc. The main purpose of this interaction design is to increase user freshness and improve learning efficiency through skeuomorphic emotional design.

6   Conclusion

Through the analysis of the experience "peak value" and "final value" of educational counseling APPs, the user experience can be effectively improved, and new design ideas

and strategies can be provided for such APPs. First of all, this article starts with the current situation of relevant learning apps, and combines the concept of peak-end law to conduct research on users, formulate user journey maps and stakeholder models, so as to analyze users' expectations and pain points, find design opportunities, and propose some key moments. Several methods are used to improve user experience, which are finally applied to educational coaching applications. With the increasing saturation of educational counseling platforms, only by fully grasping the psychology and needs of users, improving their sense of experience at key moments in the use process, and making them ignore other bad experiences, can the user satisfaction and utilization rate be improved. The good development of the entire platform is also of great significance.

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