Literature Review of Peak-End Rule

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Abstract

The peak and final feelings can dominate our good or bad memory of an experience, regardless of the total proportion of good and bad feelings during the experience and the length of the experience. Nowadays, the peak-to-end law has been widely used in management, and the research on this aspect has also attracted increasing attention from all parties. Judging from the existing literature, scholars are involved in the theory and practice of the Peak-End rule. From the beginning, in order to alleviate negative experiences, such as painful medical procedures, it has been slowly applied to various service industries, especially used to improve customer satisfaction and customer loyalty. Based on this, it can be found that most of the previous experiments focused on negative experiences, but it is not clear to what extent it also applies to positive experiences. At the same time, few documents will study whether there are other boundary conditions for the Peak-End rule, and whether the peak and final value experience will be constrained by other conditions. As far as a series of positive experiments and negative experiments are concerned, there are still some differences in the experience results, and the discussion of positive experiences should be a trend in the future. In addition, the boundary conditions of the Peak-End rule should also be the focus of the future.

Keywords

Peak-End Rule; Experience; Satisfaction.

1. Introduction

With the development of experience economy, more and more companies pay attention to consumers' experience of products and service processes. In order to improve consumer satisfaction, companies and scholars are paying more and more attention to the application of the Peak-End rule. With the continuous in-depth research of scholars, at the beginning, conclusions were drawn from the negative experience of ice water experiment, colonoscopy patient experiment and noise experiment, and gradually tried to combine some positive experiences such as shopping and travel. Developed in industries such as retail, transportation and education. As long as we grasp the customer's feelings at the peak and final values, we can determine the customer's memories of the entire experience. Not only that, scholars have gradually discovered that, compared with positive peak feelings, negative peak feelings seem to have a greater impact on the overall forecast and evaluation, which has slowly opened up new areas of positive experimentation and boundary condition exploration. This article discusses the definition, content, development and application of the Peak-End rule, summarizes its development status, and puts forward the deficiencies in the past research and the prospects for future research.

2. The Content of Peak-End Rule

The famous psychologist Daniel Kahneman (Daniel Kahneman) won the Nobel Prize in Economics in 2002. At that time, he proposed that people's memory of an activity's experience

is determined by two factors, namely the peak (whether positive It's still negative) and the feeling at the end, and named it "Peak-End Rule". In the past, we may feel that the proportion of good and bad feelings in the experience process, the length of time, etc. will affect us The memory level of this event, but this theory shows that after experiencing a thing, all we can remember is the feeling at the peak and end. The "peak" and "end" here are actually the so-called "moment of truth". MOT (Moment of Truth) is the most shocking and influential management concept and behavior mode in the service industry[1].

Daniel Kahneman and Barbara Frederickson started an experiment in 1993: they put two basins of cold water in front of different participants and asked them to put their hands in. This experiment will make people feel obviously uncomfortable, one way is to put your hands in water at 14 degrees Celsius for 60 seconds, and the other is to immerse your hands in water at 1 degrees Celsius for 30 seconds after repeating the behavior. Then when the participants are doing these two steps, ask the participants which step they want to repeat. According to the inertial thinking of the public, there is very little difference between 14 degrees Celsius and 15 degrees Celsius, and the difference in feeling in the water is also minimal. Even when choosing option 2, the uncomfortable time will be delayed by 30 seconds. Of course, the painful thing is the longer the time. The shorter the better, obviously step 2 is more likely to bring discomfort than step 1. But unexpected experimental results showed that 80% of the participants were relatively more willing to try step 2 after going through the two steps. A little increase in water temperature would make most people more tolerant of cold water. Kahneman finally derives the famous Peak-End rule: the happiness or pain we feel in the worst moments and the last moments largely governs our judgment of experience. The Peak-End rule believes that people are perceptual, and when they are actually applied to economics and management, it opens up a new world-Peak-End experience.

In life, when we experience the roller coaster as an entertainment project, we will inevitably apply the Peak-End rule. As a popular item, large and small amusement parks need to queue up, and even need to line up for one or two hours during holidays, and the time spent on experience and play may only end in 1 minute. But whenever we recall this experience, most people corresponded to the excitement, thrill and pleasure brought by that minute of the roller coaster process, remembering the excitement of reaching the top of the rides in the process, and The excitement that remains at the end.

3. The Current State of the Peak-End Rule

3.1. Current Status of Foreign Research

In 1993, Israeli-American psychologist Daniel Kahneman published "WHEN MORE PAIN IS PREFERRED TO LESS: Adding a Better End" in "PSYCHOLOGICAL SCIENCE" [2], which is also the end of the peak The first appearance of the law. Since then, the academic research on this theory has not stopped since then. Searching in Google Scholar with "Peak-End Rule" as the key word, 3240 results can be obtained (as of October 2019), of which Amy M. Do, Alexander V. Rupert, and George Wolford were in the Journal of Psychology in 2008 The article "Evaluations of pleasurable experiences: The peak-end rule" jointly published by "Psychonomic Bulletin & Review" conducted a control experiment to study the influence of positivity and timing on the retrospective evaluation of material commodities, proving that the Peak-End rule applies to entities In the sales link of the product, but due to its unique perspective: the effect found in the retrospective pain assessment is used for the pleasure assessment, which has a frequency of up to 150 citations; in 2008, SIMON KEMP, CHRISTOPHER DB BURT, and LAURA FURNEAUX were published In the article "A test of the Peak-End rule with extended autobiographical events" in the journal "Memory & Cognition", the Peak-End rule event was tested by studying the overall happiness of students during vacations, and found that the duration of the vacation has an effect

on the subsequent The evaluation had no effect. Participants could not recall the details of their daily happiness changes. The data showed that the memory of peaks, valleys and final happiness was poor, and the estimation of peaks, valleys and final happiness in the recall test was different The overall recall of happiness is not particularly relevant. This article has been cited 119 times due to rigorous experimental methods and clever ideas. Searching on the subject of "Peak-End Rule" in the Web of Science core collection database of Shanghai Normal University, 427 articles can be obtained. The content covers a wide range, including medical patient treatment, software development, time evaluation, pleasure experience, monkey research, exercise intensity research, and pleasure experience evaluation, etc.

The experimental research on the Peak-End rule, in fact, initially focused on negative negative experiences, including videos, medical procedures, noise, advertising, and learning experiences. For example, in 1996, psychologists Donald Redelmeier and Kahneman of the University of Toronto conducted an experiment on patients undergoing colonoscopy. Colonoscopy is an uncomfortable process. The working principle is that the doctor inserts a flexible camera into the rectum to find Inflamed tissues or polyps, the degree of pain varies according to the degree of movement of the camera. They let the patient feel the process of removing the inspection tool directly after the inspection and the process of leaving the tool in the patient's body for a period of time and then withdrawing the two options. They found that the pain experienced by the patient during the colonoscopy was the same as the total pain level. It doesn't matter, it depends on the peak intensity of pain and the discomfort at the end of the operation [3]. In 2000, Schreiber and Kahneman conducted another experiment on noise. They let testers listen to strong noises for the same time, then stop, and then listen to weak noises for a period of time. In the end, they found that the unpleasant sound level showed obvious Peak-End effect, that is, the feeling of a period of time depends on the experience at the end point, and has nothing to do with the length of the experience process and the overall experience evaluation [4]. In 2000, Fredrickson examined experiments supporting the Peak-End rule and found that the end of a high peak often produces counter-intuitive results. That is to say, as long as the relatively less painful note ends, people are often more willing to choose objectively. More painful conditions [5]. In 2000, Ariely and Carmon found that in a hospital field study of bone marrow transplant patients, certain characteristics of daily pain experience (such as doomsday and trends) had predicted significant reports of total pain, while average pain had not. Help predict [6].

Compared with the Peak-End rule of negative experience, the Peak-End rule of positive experience has developed later. However, some studies have slowly begun to find evidence of positive Peak-End patterns. As early as 1993, Fredrickson and Kahneman observed a series of pleasant and varied video clips by study participants and found that people substantially ignored the duration of emotional episodes when conducting retrospective assessments, and they would rely heavily on one of the episodes. Two moments [7]. In 1997, Baumgartner, Sujan and Padgett et al. found that if commercial advertisements have high intensity peaks and strong positive endings, it will cause consumers to have a higher TV commercial viewing rate [8]. In 2001, Diener, Wirtz, and Oishi discovered the James Dean effect: People think that a virtual life that ends earlier but is positive is happier and more desirable than a happy but less happy life in the other five years [9]. Since then, in 2004, Rozin and Goldberg conducted a memory experiment of musical works to determine how listeners obtain an overall evaluation of the duration of past music from their moments of experience. The data shows that listeners rely on the peak emotional intensity during the selection process, and finally The moment and the moment when the emotional intensity is higher than the previous moment determines the score after the performance [10]. In 2008, Rupert and Wolford used the peak-to-end law to prove that even if positive but not ideal gifts are added, people's overall pleasure with ideal gifts will still decrease [11].

In 2009, Talya Miron-Shatz of Princeton University began to study whether there are boundary conditions for the Peak-End rule again. Through psychological experiments, he found that the gap between the experience of one day and the memory of that day is actually very small, and there is Among the experiences with positive "peak" value feeling and negative "peak" value feeling, the negative "peak" value feeling will be more predictive for the aggregate evaluation, and it determines the overall experience evaluation of this process. It's like someone went to a lively and cheerful classmate gathering, but unfortunately they found their wallet stolen when they returned home. Afterwards, I can recall that the day I felt was more pain than happiness [12].

The latest research is Eric Y. Mah and Daniel M. Inspired by the Peak-End rule in 2019, they investigated the tendency of children and adults to rely on the strongest and last moments when judging positive experiences. It is assumed that people of all ages are very Satisfaction with a desirable gift and a less desirable gift will be lower than that of a very desirable gift alone. It was found that research results for preschoolers, school-age children, young people or the elderly showed little support for positive The end-of-peak effect of, thus marking the regular boundary conditions [13]. At the same time, in June this year, Sels, Ceulemans and Kuppens used the Peak-End rule to test whether the impact of a partner's conflict after a conflict was mainly predicted by their most disgusting or pleasant emotional experience (peak) during the conflict, or by the emotion at the end of the interaction Intonation prediction, the final result shows negative and positive peaks, predicting the impact of the individual's present and part of the conflict afterwards. This finding has clinical significance for the mediation of conflict between husband and wife [14].

3.2. Current Status of Domestic Research

In 2011, due to the publication of "Thinking, Fast and Slow" by Daniel Kahneman, the Peak-End theory has gradually become widely known by domestic academic circles and readers. The book states that there are two thinking systems in our brains, which can be temporarily named System 1 and System 2. System 1 is thinking fast, and will form an automatic response mode of the brain based on life experience, and execute things as automatic procedures, such as brushing teeth and washing your face every morning; system 2 is thinking slowly, it requires a reasoning process, when something is done It requires a high degree of concentration, careful and serious thinking, and it can handle multiple tasks. Usually our life is completed by the cooperation of two systems. System 1 is online all day long. When we encounter something that needs to be dealt with, it is first operated by System 1. It is simple, fast and efficient, only when System 1 cannot solve it. When something happens, System 2 will be activated[15]. This embodies perceptual decision-making from a certain angle. Therefore, many experimental studies are based on intuitive thinking. Since Kahneman proposed the Peak-End rule, the domestic academic circles have been constantly updating the research on this theory, but its research and attention are still not as good as foreign academic circles. In contrast, a search on Google Scholar with "Peak End Law" as a keyword yielded 2,420 results (as of October 2019), and 13 articles appeared in the title. Domestic research on the "Peak-End rule" mostly focuses on economic management. Most people apply the Peak-End rule to user experience services, search for the "Peak-End rule" keywords, and everything that comes up is about economics. Literature, this also has certain limitations.

The experience at "peak" and "end" (end) dominates the good or bad feelings of an experience, and this has nothing to do with the proportion of good or bad feelings and the length of the experience. Subsequently, in 2011, Geng Xiaowei and Zheng Quanquan began to do two reviews on college students' review of the positive and negative videos after watching positive and negative videos, and college students' review of the happiness level of the entire Golden Week on the day of the holiday, three weeks and seven weeks. They found short The experience

retrospective evaluation within time conforms to the peak-final law, while the experience retrospective evaluation within a long time does not conform to the peak-final law [16].

As early as 2009, Yu Jun and Ji Cheng pointed out that the core idea of Peak-End rule is to experience humanity, experience unique culture, and experience creativity and low cost. At the same time, a benchmark company that makes good use of the peak-to-end law, the key is to establish the affinity between the experience links, maintain a smooth overall structure and pay attention to the reflection after the experience, so that customers can remember again afterwards and still have deep happy memories [17]. Peak end experience has gradually been used in enterprise customer management.

In 2011, Li Cheng and Bao Yixi began to apply the Peak-End theory in the field of psychology to user experience. They mainly conducted a series of qualitative and quantitative analysis and evaluation on product positioning, comparison of similar products, and user experience. To determine the critical moment at the end of the user experience, it will help to obtain a deeper memory and loyalty to the brand of consumers. In future product sales, it is necessary to focus more on marketing, improve CSI, and continuously improve product image[18]. In 2011, Zhang Liangying and Zhang Yuhong tried to use the Tobii naked eye eye tracker to analyze the application of the "Peak-End rule" in the 404 error page based on the status of the 404 error page, so that users can maximize the maintenance when browsing the web. A good point of interest can improve the overall user experience [19]. At the same time, in 2012, they proposed a 404 error page interface design and color matching improvement scheme based on the Peak-End rule [20]. In 2012, Li Jianwu began to apply the Peak-End rule to a series of service companies such as expressways. He tried to conduct qualitative and quantitative customer surveys based on the current status of service management of expressway companies in various regions of a province to explore how customers are accepting expressways. During the whole process of highway service, customers perceive each key moment and their core needs, propose measures feasibility and importance assessment, so as to achieve the purpose of enhancing the company's competitiveness. This research has laid the practical foundation for applying the Peak-End rule to the service management of expressway enterprises [21]. In 2014, Song Ying applied the Peak-End rule to the lottery application on the mobile phone, using the Kano model to conduct in-depth analysis and research on its user experience, solving the problem of the poor user experience of buying lottery tickets on the mobile phone, and constantly improving the design to meet user needs and expectations The product application [22].

In 2018, Zhang Kai used the FBM model to analyze the seven "peaks" and "end points" in the user journey of the travel platform "Fliggy" under the background of the economic experience. Through analysis and evaluation, combined with the current industry development trends and the current market There are product highlights and shortcomings, and based on the perspective of the peak-to-end law, design is used to create a more pleasant user experience and longer user memory for users of online travel platforms [23]. Then, with the rise of online shopping, in 2018, Jiang Lujun and Gong Miaosen explored the best experience of applying the Peak-End rule to online shopping service platforms, helping users find the points of interest for the best experience during online shopping, thereby optimizing online shopping Experience [24].

Recent studies include, in 2019, Mei Yun, Lin Ying, and Gu Xiansong added the concept of the Peak-End rule to the user experience in the chronic disease health management service system, and also constructed the key moments of the Peak-End in the user experience process. The model explores the deeply memorable points of users in the whole process, so as to intervene in the design of user behaviors at these two critical moments to achieve the purpose of reducing the threat of chronic diseases to human health, and to promote users to achieve the best in the process of managing health. Excellent experience. Emphasize that virtual reality scenes can be

integrated at the peak point, visualized interactive interface operations can be optimized, and the credibility of monitoring results can be enhanced through case analysis. At the end point, you can communicate with doctors online and sublimate the value of the product to bring good users. Medical experience [25].

4. Application of Peak End Law

The application of the Peak-End rule in the retail industry is now IKEA. Anyone who has experienced IKEA services knows that IKEA's route planning has always adopted a "single channel" model, and they only provide customers with one route. On this route, customers can fully feel the various styles of household products and shelf displays that IKEA wants to show consumers. But when buying products, customers are often troubled by a series of problems such as hard-to-find item numbers, shelves as high as buildings, too few shop assistants, and long lines for checkout. But compared to the beds and sofas in the stylishly decorated model room area that you can lie on at any time, and the delicious ice cream for a dollar at the exit, the memory of tourists has often been replaced by the latter. That is to say, the excellent experience of "peak" and "end point" in the shopping process is enough to offset other bad experience processes.

A well-known example of the Peak-End rule used in service industries such as catering is Haidilao, a well-known hot pot restaurant. Under the guidance of the service differentiation strategy, Haidilao has been providing customers with "intimate, warm and comfortable" services based on the concept of "service first, customer first". When they first went to eat, diners could not avoid the long waiting line. Originally it was a very boring and anxious process, but Haidilao cleverly provided guests with snacks, movies and nail services, which left a deep impression on the guests. Not only that, when dining, it will provide dolls to accompany the guests who come alone to dine, and there are ubiquitous small surprises, these is the Peak-End rule of Haidilao. After the meal, the delicious mints provided by the front desk before the customers go out and the small snacks that the customers take away are his end experience. With this ultimate service, Haidilao hot pot restaurant brings customers a unique Peak-End rule, produces a unique industry reputation effect and builds customer loyalty. Not only that, we can also see that in practice, more and more Many catering industries have begun to realize the effect of the peak-to-end law, paying attention to the Peak-End rule of customers' dining experience and the final value experience of customers at the end of their meal.

The application of the Peak-End rule in educational methods has been a highlight in recent years. For a 45-minute class, students' energy tends to slack in 25-30 minutes, which is the negative peak "in the teaching experience. In recent years, educational theories have gradually explored a variety of methods to optimize the "negative peak" and make it a "positive peak". For example, using anecdotes related to knowledge points to stimulate students' interest, or suddenly shifting the topic of conversation to seemingly unrelated topics to prompt students to find out their association with knowledge points are all attempts to optimize the "negative peak". Before get out of class, teachers can also use classroom summary, ambush pen and other methods to ensure that students get a deep impression of the "end point" of this class, to ensure after class learning and expectations for the next class, this is also the Peak-End rule in the educational method One of the major applications in the research.

In recent years, the Peak-End rule has begun to involve the field of communications. A typical example is China Mobile. For a long time, China Mobile strives to create products and service processes that satisfy customers as much as possible, so that they can enjoy safe, fast and comfortable mobile communication products as much as possible during use. First of all, by studying the past successful Peak-End rule service management cases at home and abroad, drawing on the merits and combining its own product characteristics, the peak point of

customer experience in mobile services is roughly set to the moments of business processing, data business experience, and machine purchase. The end point is set to the moment of leaving the service place to determine whether the satisfaction of the above moments can be achieved to produce a good memory of the overall service result; then, by sorting out the key links experienced by all customers in the mobile 100 business hall, try Find out whether the problem has a key breakthrough point, and record the key moments and Peak-End rules that have a greater impact on customer perception in the process. The experimental results prove that the Peak-End rule is applicable to this practice. China Mobile has also achieved certain results by improving the quality of this series of services. In the future service process, when encountering Peak-End rule and final value experience, It is necessary to continuously explore customer service needs and expectations, improve service intensity and attention, optimize resource allocation, improve corresponding service measures, and provide reference suggestions for improving service standard behavior for implementation.

Not only that, but the peak-to-end law has gradually been applied to some transportation industries. For most passengers, the peak of the flight experience is the take-off phase of the aircraft. Because the acceleration of the aircraft and the turbulence during the lift-off process will make passengers nervous, some airlines will use safety education videos to Lively and lovely animated images are played to ease the tension of passengers. After landing, the staff will even straighten the diagonally placed luggage at the exit of the luggage carousel, so that passengers can face up when they get their luggage. The careful optimization of these two "peaks" and "ends" will ensure that passengers have a positive impression when they recall the airline's services in the future, which is conducive to enhancing brand loyalty.

At the same time, take China Southern Airlines Co., Ltd. as an example. It has always been the top domestic airline with the largest number of transport aircraft, the most developed route network, and the largest annual passenger traffic. It has won many well-known awards and countless Qing honor. The reason why China Southern Airlines has achieved such a successful position is based on the theory of critical moments to extract seven critical moments in air services: booking, check-in, waiting, boarding, air flight, transit, and arrival. Propose corresponding measures to improve services. First of all, in the initial booking stage, in order to emphasize its convenience and reliability, China Southern Airlines took the lead in proposing a series of services such as online booking, hotline booking, WAP booking and SMS booking to meet the convenience of customer booking. In order to ensure the safety of online ticket purchases, the first domestic airline to pass VISA China's "weaknesses scan" standard to ensure the security of online passenger data and payment, avoid data theft and loss, and prevent online fraudulent transactions. At the same time, the differentiated launch of the flight punctuality inquiry service allows tourists to make choices based on the previous punctuality of the flight Or make adjustments to the itinerary. Through the identification of the seven critical moments, China Southern Airlines effectively improved service efficiency, grasped the inner feelings of customers at critical moments, improved customer satisfaction, and played a considerable role in promoting the company's customer relationship and brand building.

5. The Enlightenment of the Peak End Law

In recent years, the application of the peak-to-end law has become more and more practical. From the perspective of various industries, our memory during experience determines our perception of critical moments. Through the above theoretical analysis, it can be seen that there is still a certain difference between the results of the positive experiment and the negative experiment of the Peak-End rule. In order to satisfy the satisfaction of consumers, the application of various industries in China mainly stimulates consumers' perception of the

positive Peak-End rule, and this also has certain boundary conditions. Related theories still need to verify and study the boundary conditions.

At the same time, we can also consider whether to combine positive and negative experiences when designing experience programs to stimulate the satisfaction of consumers and experiencers, and reduce the dissatisfaction of consumers and experiencers.

Finally, imagine that when the peak and the end cannot meet the needs of the experiencer at the same time, we should choose which one to choose. While the Peak-End rule is constantly being improved, we can continue to study the comparison between peak and end points, divide different industries into positive and negative experiences, and combine the psychology of the experiencer. I believe there will be certain boundary conditions during this period. It will also be a further improvement of the theory.

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