

## Users' Switching Intention from Free to Paid Knowledge Q&A Services: A Brand Extension Perspective (Postprint)

**Authors:** Yi Ming, Shan Siyuan, Deng Weihua

**Date:** 2023-04-01T00:00:00+00:00

### Abstract

[Purpose/Significance] From a brand extension perspective, this study investigates the factors influencing users' willingness to transfer to paid Q&A services, providing insights for knowledge Q&A platforms to enhance paid Q&A service quality and promote users' transfer willingness.

[Method/Process] Through retrospective verbal protocol tests, this research examined 15 users' cognitive perceptions regarding the native Q&A platform, its free Q&A services, and paid Q&A extension services; clarified the brand extension relationship between free and paid Q&A services; and constructed a structural equation model to explore the internal mechanism by which brand extension relationships influence users' willingness to transfer from free to paid Q&A.

[Results/Conclusion] Paid Q&A is not an entirely novel phenomenon; brand extension plays a significant role in users' formation of new cognition toward paid Q&A services. Users experience four types of brand extension relationships: perceived brand fit, perceived product fit, perceived connection, and perceived differentiation. Specifically, perceived brand fit and perceived differentiation exert significant positive effects on the willingness to transfer to paid Q&A, with their influence mechanisms comprising both direct effects and indirect effects via extension attitude. Perceived connection influences the willingness to transfer to paid Q&A through its effect on extension attitude. Parent brand quality negatively moderates the relationship between perceived fit and the willingness to transfer to paid Q&A.

## Full Text

### From Free to Fee: Research on Knowledge Q&A Service Transfer Intention from the Perspective of Brand Extension

Yi Ming<sup>1</sup>, Shan Siyuan<sup>1</sup>, Deng Weihua<sup>2</sup> <sup>1</sup>School of Information Management, Central China Normal University, Wuhan 430079 <sup>2</sup>College of Public Administration, Huazhong Agricultural University, Wuhan 430070

**Abstract:** [Purpose/Significance] From the perspective of brand extension, this study explores the factors influencing users' transfer intention toward paid Q&A services, providing references for knowledge Q&A platforms to improve paid Q&A service quality and user willingness to pay. [Method/Process] Through retrospective verbal report testing, we examined 15 users' cognitive perceptions of native Q&A platforms and their free Q&A services and paid Q&A extension services, analyzed the brand extension relationship between free and paid Q&A services, and constructed a structural equation model to explore the internal mechanism by which brand extension relationships influence users' transfer intention from free to paid Q&A services. [Result/Conclusion] Paid Q&A is not an entirely new phenomenon; brand extension holds significant value in shaping users' new cognition of paid Q&A services. Users experience four types of brand extension relationships: perceived brand fit, perceived product fit, perceived connection, and perceived difference. Among these, perceived brand fit and perceived difference have significant positive effects on paid Q&A transfer intention, operating both directly and indirectly through extension attitude. Perceived connection influences paid Q&A transfer intention through extension attitude. Parent brand quality negatively moderates the relationship between perceived fit and paid Q&A transfer intention.

**Keywords:** brand extension; transfer intention; free Q&A; paid Q&A

**Classification Number:** G250

The emergence of knowledge payment has transformed traditional concepts and methods of knowledge acquisition, driving the diversified development of social knowledge service systems and forming a relatively complete industrial ecosystem in China. Faced with enormous market demand for knowledge, independent knowledge payment apps such as Dedao, Zaixing, and Shidian Ketang have launched successively. Meanwhile, several influential domestic online knowledge platforms have also seized the opportunity to expand their paid businesses. For example, Zhihu, Weibo, Baidu Knows, and Douban have launched paid knowledge services including Zhihu's "Zhihu Live" (Zhi Hu), Weibo Q&A, Baidu Wenda, and Douban Time. Current mainstream knowledge payment models include paid Q&A, paid subscriptions, and user rewards [1], among which paid Q&A is the earliest form of knowledge payment characterized by one-on-one interactions between questioners and answerers, and between answerers and eavesdroppers. Compared with other knowledge payment models, paid Q&A offers more flexible and effective interaction, shortening the knowledge dissem-

ination process between communicators and providing more targeted content oriented toward user needs [2]. However, from the perspective of new technology or service adoption [3], end-user adoption behavior is the key constraint to paid Q&A service development.

A review of existing literature reveals that current research has primarily focused on the commercial operation of paid Q&A [4-5] and knowledge dissemination in paid Q&A models [6-7]. In recent years, scholars have begun to examine user behavior and intention in paid Q&A, exploring influencing factors such as individual needs and cost-benefit analysis from the perspective of user cognition, while research analyzing paid intention factors from the Q&A platform service perspective remains scarce [8-10].

Platforms such as Zhihu have evolved from free Q&A to paid Q&A services, and the birth of their paid services has an inseparable relationship with their native platforms (referring to knowledge Q&A platforms hosting free services) and free services. In the preliminary research stage, we surveyed users of several Q&A platforms and found that users who had experienced paid Q&A services had almost all previously used the platform's free Q&A services. As stated in reference [11], people's acceptance of technology products often depends on their use of another related technology product. Brand extension theory, born in the marketing field, scientifically explains the relationship between extension products and their extension brands and parent brands with core products, and has been successfully applied to traditional fast-moving consumer goods and internet products. It has also been applied in academic research on user acceptance intention or behavior toward extension products [12-13].

It is important to note that brand extension theory originated in traditional product sectors, while knowledge Q&A services possess unique information attributes such as virtuality, interactivity, and knowledge characteristics that naturally differ from traditional products. These differences raise two key questions regarding the extension phenomenon of knowledge Q&A services: (1) What brand extension relationships exist between the original free Q&A brand and its core free Q&A service and the paid Q&A extension service and its extension brand? (2) How do brand extension relationships influence original free Q&A users' transfer intention from free to paid Q&A services? Based on these research questions, this paper designs two rounds of empirical studies.

## Brand Extension Theory

Brand extension theory is an important concept in marketing, referring to a brand strategy where companies leverage existing brands (parent brands) to enter new business areas by launching new products or services (extension products) to the market [14]. Brand extension strategy helps new products quickly gain market acceptance and shorten the time to market, making it particularly important for corporate marketing [15]. Although brand extension originated in traditional industries, many internet companies have also begun to use brand

extension for product expansion. For internet companies, extension products are digital, virtual information technology products or services. Successful cases abound, such as Tencent's QQ Mail, QQ Games, QQ Music, and Alibaba's Taobao, Tmall, and Alipay, demonstrating the effectiveness of internet companies using brand extension strategies to develop diversified information product systems.

Existing brand extension research has achieved significant results in revealing user evaluation attitudes, acceptance intentions, and behaviors toward brand extensions, identifying several important influencing factors. In 1990, renowned brand experts D.A. Aaker and K.L. Keller proposed in their classic brand extension evaluation model that parent brand quality, perceived fit between extension products and parent brands, and manufacturing difficulty of extension products are the main factors influencing user acceptance of brand extensions [14]. Subsequent research has largely built upon this classic model [16-18], focusing on factors reflecting brand extension relationships such as perceived fit and perceived connection.

Specifically, perceived fit is paramount among these factors, referring to the similarity users perceive between extension products and their extension brands and parent brands with core products. Literature has extensively discussed dimensions for comparing similarity, proposing strategies for comparison across product categories, brand image, product features, usage contexts, manufacturing processes, and more [19-20]. Meanwhile, the influence of perceived fit on user behavior has been confirmed by numerous studies [21-24], establishing its key position among influencing factors.

Perceived connection refers to the visible degree of interaction between different network products or services as perceived by users, typically manifested through hyperlinks on the parent product of internet companies [11]. Since hyperlinks are a special feature of the online environment, perceived connection represents a brand extension relationship with internet characteristics. It differs from fit in that while fit reflects the relationship between extension products and original brands/products from the perspective of product features and brand concept consistency, connection reflects their interaction degree from the perspective of hyperlink recommendations and business relationship closeness [25]. P.J. Song et al. first introduced the connection factor when exploring search engine brand extensions [26], and subsequent research has extended the definition, measurement, and impact of this factor on user behavior [27-29].

From the brand extension perspective, the development of knowledge Q&A platforms from free to paid Q&A is also a result of brand extension. Users of original free Q&A services transitioning to paid services can be considered recognition and acceptance of the paid Q&A extension product. Brand extension theory provides a new research approach for exploring users' transfer intention from free to paid knowledge Q&A services. Therefore, this study uses brand extension theory as its theoretical foundation to examine how brand extension relationships influence this transfer intention.

## Verbal Reports on Knowledge Q&A Platform Brand Extension Relationships

Using the domestic Q&A platform Zhihu and its paid knowledge Q&A service as examples, we address research question (1). To answer this question, exploratory research models examining brand structure can provide insights, such as the honeycomb model, brand identity system, and 360-degree brand management. Among these, the honeycomb model is a brand structure model proposed by Japan's Dentsu advertising agency based on brand identity system theory. A complete honeycomb model consists of seven brand elements: core brand values, symbolic symbols, authoritative basis, emotional benefits, functional benefits, brand personality, and typical user image [30]. Existing research has successfully applied the honeycomb model to internet brand extension practice, using it as an effective tool to measure the association between extension products and parent brands with core products—by employing two honeycomb models, one primarily describing the parent brand and its core product, and the other describing the extension product and its extension brand, and comparing the two models to derive association judgments [31-32].

This study uses the Zhihu Q&A platform as an example to analyze what brand extension relationships exist between Zhihu's paid Q&A extension service (Zhi Hu brand) and its core free Q&A service (Zhihu brand). Based on the application of the honeycomb model to brand extension and drawing on previous successful cases, this paper argues that the honeycomb model has certain feasibility for analyzing Zhihu's brand extension.

### Research Design and Process

The ultimate beneficiaries of knowledge Q&A services are users, so clarifying the essence of brand extension relationships means clarifying user-perceived brand extension relationships under subjective cognition. User perception is a subjective cognition with implicit characteristics, and verbal reports are an effective method for studying human implicit psychology. As a small-sample research method, it demonstrates good applicability and superiority in individual information behavior research [33], among which retrospective verbal reports can help users recall their thought processes. Therefore, this paper first uses the retrospective verbal report method to reveal users' cognition of platform services and brand-related information during their knowledge Q&A service experience.

Early verbal report methods did not allow providing report outlines to subjects, resulting in overly general or incomplete reports that were difficult to analyze [34]. To avoid this problem, based on K.A. Ericsson's recommended principles for designing verbal report prompts [35], we designed verbal report prompts to provide subjects with a reporting framework that would better address research questions.

In the formal research process, we searched for non-anonymous users who had left paid service experience comments in Zhihu's paid consultation comment

section within the past three months and sent them test invitations sequentially. During this period, 15 users responded to our invitation, and we ultimately collected 30 valid samples (paid Q&A verbal reports and free Q&A verbal reports) from these 15 subjects. For subsequent analysis convenience, we created files for subjects and named them A-O respectively, storing verbal report text materials in individual documents.

### **Analysis of Verbal Report Results**

We read and analyzed the 30 verbal report materials individually. Based on the semantic classification of sentences in the verbal reports, we used the Dentsu honeycomb model to analyze both Q&A services item by item to identify internal connections, and drew honeycomb model diagrams as shown in Figure 1 [Figure 1: see original paper]:

Symbolic symbols are visual identifiers used by brand-corresponding products to convey brand concepts. Verbal reports showed that subjects paid considerable attention to visual elements such as color tones, design styles, and icons, though six subjects stated they did not pay much attention to external elements since they used Q&A platforms to search for information.

Core values are the central and most essential elements in the honeycomb model. We examined users' perception of core values using the psychological vocabulary method [37]. For example, Subject I used two sets of words—“rational, expressive, positive energy” and “authentic, approachable, professional”—to express the connotations of Zhihu and its core free Q&A service and Zhi Hu and its paid Q&A extension service. Overall, most subjects had relatively consistent perceptions of the core values of both Q&A services: Zhi Hu and the paid Q&A extension service basically inherited and further developed the core values of Zhihu and the free Q&A service—creating a valuable, content-rich, and attitude-driven knowledge sharing platform.

Authoritative basis reflects the basic facts that embody brand value, corresponding to characteristic information of brand-referenced products, such as product quality and historical reputation. Verbal reports showed that more than half of the subjects affirmed Zhihu's position among domestic knowledge Q&A platforms and considered the platform's resident answerers as important resources shared by both Q&A services. As Subject E stated: “There are several well-known answerers on Zhihu that I follow and recognize, who are also the ones I'm willing to pay for consultation.”

Brand personality characteristics are anthropomorphic features users assign to brands. We obtained subjects' perceptions of brand personality through the brand personification method [36]. For example, Subject G stated: “Free Q&A is like a student counselor—broad knowledge, thought-provoking, and down-to-earth. Paid consultation is like a private highly-educated mentor—quick responses and profound conversation.” Overall, most subjects had relatively consistent image perceptions of both Q&A services, viewing them as highly educated

talents, mentors, guiding lights, and other knowledgeable roles or images that can provide solutions for users.

Additionally, verbal reports indicated that most subjects had distinctly different perceptions of the three brand elements: functional benefits, emotional benefits, and typical user image. Paid Q&A offers functions such as eavesdropping, one-on-one private consultation, and voice Q&A that free Q&A lacks. Differences in functional experience subsequently lead to different emotional feelings. As Subject H stated: “(Free Q&A) Since the questions aren’t very urgent, I’m not in a hurry. (Paid Q&A) After asking a question, I have expectations. The questioning method is also simple and direct, not verbose. After all, paid consultation has limits on frequency and time, so I cherish the opportunity to interact with the other party.”

Typical customers represent ideal consumer images. Subjects generally believed that Zhi Hu and the paid Q&A extension service target user groups oriented toward urgent problem-solving (Subject F), having certain economic foundations (Subject A), and entrusting private questions to professionals (Subject G). Compared with free Q&A user groups, this audience positioning appears more narrow.

Furthermore, Zhihu users’ verbal reports also documented how users discovered paid Q&A services through hyperlinks between free and paid Q&A service pages. As Subject K described: “When browsing publicly, I came across some questions. When I clicked to view related answers, I found that the answerer had opened a paid Q&A service and attached a paid link.” Subjects’ recall of this memory point confirms that paid Q&A extension services are not independent but maintain business connections with original services through internal links, thus demonstrating that the two Q&A services have “connection” as a special brand extension relationship.

Through verbal report analysis, we can preliminarily identify the types of brand extension relationships between the two Q&A services: perceived fit, perceived difference, and perceived connection. Among these, perceived fit is specifically reflected in symbolic symbols, factual basis, core values, and brand personality; perceived difference is specifically reflected in functional benefits, emotional benefits, and typical user images; perceived connection, as a brand extension relationship unique to the internet, also exists in the knowledge Q&A context and is manifested through link forms. This addresses research question (1).

## **Empirical Study on Factors Influencing Paid Q&A Transfer Intention**

Regarding research question (1), we used the qualitative method of user verbal report testing to identify types of brand extension relationships. Building on this, to address research question (2), we employed structural equation modeling with Partial Least Squares (PLS-SEM) for quantitative analysis to further

answer “how brand extension relationships influence users’ transfer intention toward paid Q&A extension services.”

## Theoretical Hypotheses and Research Model

**Influence of Perceived Fit on Paid Q&A Transfer Intention** When brands expand into new categories, the issue of fit arises [38]. Perceived fit is essentially consumers’ subjective judgment of similarity between extension products and their extension brands and parent brands with core products [39]. Perceived fit exists at two levels: product-level fit and brand-level fit [40]. The former refers to similarity between the parent brand’ s core product and the extension product. The latter develops from the former, emphasizing the inclusiveness of parent brand conceptual meaning during the extension process [41]. Perceived fit is an important psychological factor influencing users’ brand extension decisions. According to the affective transfer model, users’ attitudes and emotions toward the parent brand can transfer to the brand’ s extension products through the mediating role of perceived fit. When perceived fit is high, users’ positive feelings toward the parent brand smoothly transfer to extension products, promoting positive evaluation and consumption intention toward extension products [42]. D.A. Aaker et al. demonstrated that perceived fit helps form favorable evaluation and acceptance intention toward brand extensions, but low perceived fit can stimulate negative associations and affect acceptance intention toward new extension products [14]. D.C. Smith et al. noted that if perceived fit increases, users’ perceived risk toward new products decreases while their willingness to try new products increases [19]. In internet contexts, existing research also supports the positive role of perceived fit in promoting virtual extension service usage [28-29].

Paid Q&A services are the product of brand extension practice in knowledge Q&A platforms. As previously verified, users perceive fit between paid and free Q&A services in symbolic symbols, authoritative basis, core values, and brand personality. As previously mentioned, symbolic symbols and authoritative basis belong to characteristics of brand-corresponding products, while core values and brand personality more belong to brand characteristics. Therefore, users’ fit perception of the two Q&A services includes both product-level and brand-level perceptions. The higher users’ fit perception, the more easily their emotions toward the original free Q&A service and parent brand transfer to the extension service, and the more likely they are to develop transfer intention toward the paid Q&A extension service. Therefore, this paper proposes:

H1: Perceived brand fit positively influences users’ transfer intention from free Q&A to paid Q&A.

H2: Perceived product fit positively influences users’ transfer intention from free Q&A to paid Q&A.

### **Influence of Perceived Connection on Paid Q&A Transfer Intention**

Connection, as a special type of internet brand extension relationship, refers to the visible degree of interaction between different network products or services. Connection evolved from relationship research, where relationship degree refers to the closeness of relationships established between people or organizations during communication. Communication triggers evaluations of interpersonal relationships, and the relationship degree established through communication also influences information recipients' trust in information transmitters [43]. Similarly, links trigger users' evaluations of relationships between linked parties, and users' trust in original products can transfer to linked parties (i.e., extension products) through hyperlinks provided by original products, thereby stimulating users' acceptance intention toward extension products.

Existing research shows that perceived connection directly or indirectly influences users' acceptance intention toward internet extension products. P.J. Song et al. empirically verified that perceived connection can enhance quality perception and adoption intention of online technology extension products [26]. Shan Miyuan et al. validated in the internet finance context that users' perceived connection significantly influences their evaluation and usage intention toward brand extensions [11]. Wang Meixia verified in the internet brand community context that higher user perceived connection leads to correspondingly higher attitudes and usage intention toward extension products [27].

In this study' s context, links on the original Q&A service interface leading to the paid Q&A interface form the basis of perceived connection. The verbal report test also preliminarily proved the existence of internal link paths between paid Q&A and original free Q&A. Therefore, when users perceive higher connection between the two Q&A services, they develop more trust in the paid Q&A extension service, and their attitudes and transfer intention toward the latter also improve. Therefore, this paper proposes:

H3: Perceived connection positively influences users' transfer intention from free Q&A to paid Q&A.

### **Influence of Perceived Difference on Paid Q&A Transfer Intention**

Many brand extension studies explore users' acceptance intention toward extension products based on user-perceived fit, rarely considering how non-correspondence perceptions affect extension product acceptance intention. As the honeycomb model in research question (1) shows, users' perceptions of extension products and their extension brands and parent brands with core products are not completely corresponding—that is, brand extension practice will not produce two identical products, otherwise brand extension would lose its meaning. Domestic scholar Wang Han believes that brand extension involves “cognitive asymmetry” phenomena, meaning users' perception of a certain aspect of the original product and brand may not necessarily find a corresponding item in their cognition of extension products and extension brands, and even if found, users' cognitive results may not be consistent

[44]. Unfortunately, although users' "cognitive asymmetry" phenomenon has attracted scholarly attention, its influence on users' acceptance intention toward extension products has not been empirically verified. Considering that academia has not provided a standardized concept for this phenomenon, to correspond with the "perceived fit" factor, this paper names this "cognitive asymmetry" phenomenon "perceived difference."

The verbal report results for research question (1) showed that users' perceived differences mainly come from functional benefits, emotional benefits, and audience images provided by Q&A services. The author believes that if paid Q&A services develop new functions for specific user groups, causing users to perceive high differences in functional benefits, emotional benefits, and audience images between paid and free Q&A, users are more likely to increase transfer intention due to special functional needs. Therefore, the author attempts to propose a hypothesis between perceived difference and transfer intention:

H4: Perceived difference positively influences users' transfer intention from free Q&A to paid Q&A.

**Mediating Role of Paid Q&A Extension Attitude** Research on personal attitudes and their effects on personal behavior has always been a very important topic in social psychology [45]. Attitude refers to users' feelings and tendencies toward something. Many studies have shown that users' attitudes toward products and brands have very important predictive effects on their purchase intention [46], making attitude an important antecedent variable of behavioral intention. Whether brand extension strategies succeed and whether users accept extension products are closely related to users' brand extension attitudes. The ultimate goal of brand extension is to stimulate users' strong usage intention and actualize their usage behavior with minimal investment. When users hold positive attitudes of recognition and trust toward brand extension results, they are likely to exhibit strong usage intention toward extension products, while negative extension attitudes generally have low possibility of translating into action.

Similarly, when knowledge Q&A platforms add paid Q&A services, original platform users' positive attitudes toward this brand extension strategy will stimulate their transfer intention from original free Q&A to paid Q&A. Therefore, this paper proposes:

H5: Paid Q&A extension attitude positively influences users' transfer intention from free Q&A to paid Q&A.

On the other hand, attitude, as the variable closest to behavioral intention, is also an important mediating variable that transmits cognition to individual behavioral intention. Verbal report results have shown that users form perceptions of extension relationships such as fit, connection, and difference when comparing the two Q&A services. This perception or cognitive result forms an important basis for users to develop attitudes toward paid Q&A extension services, which

in turn generates behavior tendencies related to extension services. That is, users' extension attitudes can transmit the influence of perceived fit, perceived connection, and perceived difference on transfer intention. Therefore, this paper proposes:

H6a-H6d: Paid Q&A extension attitude mediates the influence of perceived brand fit, perceived product fit, perceived connection, and perceived difference on users' transfer intention.

**Moderating Role of Parent Brand Quality** Parent brand quality is the overall evaluation of a product's superiority relative to other alternatives [47] and is an important variable that cannot be ignored in brand extension. Users' experience with knowledge Q&A services is the most direct way to perceive service quality. The role of parent brand quality in brand extension has always been controversial. D.A. Aaker et al. showed that parent brand quality negatively moderates the influence of perceived fit on extension product acceptance intention, meaning that for high-quality brands, even if extension products and extension brands have low similarity with parent brands and core products, consumers still have high evaluation and acceptance tendency toward extension products [48]. Domestic scholar Ma Jinjun et al. further verified the moderating role of parent brand quality in the context of internet catering brand extension [49].

In this study's context, users' evaluation of original free Q&A service quality mainly comes from past usage experience, which also influences their judgment of extension services. The higher the quality of the knowledge Q&A service brand, the smaller the influence of perceived fit on users' transfer intention. Therefore, to further understand the internal mechanism between brand extension relationships and paid Q&A transfer intention, we include parent brand quality as a moderating variable to explore its effect between the two. Therefore, this paper proposes:

H7a: Parent brand quality negatively moderates the influence of perceived brand fit on paid Q&A transfer intention.

H7b: Parent brand quality negatively moderates the influence of perceived product fit on paid Q&A transfer intention.

In summary, this paper constructs an initial research model of factors influencing paid Q&A transfer intention based on brand extension, as shown in Figure 2 [Figure 2: see original paper]:

### Data Preparation

We collected empirical data through a questionnaire survey. Based on the theoretical hypotheses above, we designed questionnaire items totaling 20 questions. Except for perceived difference measurement items adapted from verbal report

content, measurement items for other variables were adapted from mature domestic and international scales. All items were measured using a 7-point Likert scale. Items for each variable and literature sources are shown in Table 1 :

**Table 1** Items and Literature Sources for Model Variables

Variable	Items	Literature Sources
Perceived Product Fit (FP)	1. I believe Zhihu' s free Q&A and its paid Q&A belong to the same type of service2. I believe Zhihu' s free Q&A and its paid Q&A have similar quality perception3. I believe Zhihu' s free Q&A and its paid Q&A have similar usage scenarios	[40-50]
Perceived Brand Fit (FB)	4. I believe Zhihu' s paid Q&A service aligns with the concept conveyed by the Zhihu brand5. I believe the core value of the Zhihu brand is reflected in its paid Q&A service6. I believe Zhihu' s launch of paid Q&A service is logical	[40-51]

Variable	Items	Literature Sources
Perceived Connection (L)	7. I can notice links to paid Q&A services on the Zhihu interface <sup>8</sup> . I believe Zhihu uses pop-ups and other methods to recommend its paid Q&A services to me	[11]
Perceived Difference (D)	9. I believe there will be differences in user groups between Zhihu' s free Q&A and paid Q&A <sup>10</sup> . I believe there will be differences in functions between Zhihu' s free Q&A and paid Q&A <sup>11</sup> . I believe Zhihu' s paid Q&A will bring me different emotional experiences from free Q&A	Adapted from verbal report content

Variable	Items	Literature Sources
Parent Brand Quality (Q)	12. The Zhihu platform is very convenient to use 13. The Zhihu interface design is very simple and beautiful 14. The Zhihu platform runs very smoothly (with normal internet speed and computer)	[53-54]
Paid Q&A Extension Attitude (E)	15. I quite like Zhihu' s paid Q&A service 16. I believe Zhihu' s paid Q&A service will be welcomed 17. I think Zhihu' s paid Q&A service is attractive	[53-54]

Variable	Items	Literature Sources
Paid Q&A Transfer Intention (T)	18. I would consider trying Zhihu's paid Q&A service19. Among similar paid Q&A services, I would prefer Zhihu's paid Q&A service20. The possibility of me switching to Zhihu's paid Q&A service in the future is very high	[55]

The target of this study's questionnaire was Zhihu users. Since our survey sample selection was based on having some understanding and perception of the Zhihu knowledge Q&A product, we used the item "Are you a Zhihu user?" to identify research subjects, excluding samples with the option "never used" (i.e., having no perception of the Zhihu product). Through online questionnaire distribution, we collected 383 questionnaires, excluding 59 non-Zhihu users and 21 questionnaires with identical options, resulting in 303 valid questionnaires with an effective rate of 79.1%. Demographic characteristics of the valid sample are shown in Table 2 .

### Data Analysis

This study used structural equation modeling with Partial Least Squares (PLS-SEM) to test causal relationship hypotheses in the proposed model. Compared with other structural equation models, PLS can still produce satisfactory results with small sample sizes [56], making it very suitable for this research context. Therefore, this study specifically used Smart-PLS 3.2.7, a PLS algorithm-based analysis software, to test the model.

**Reliability, Validity, and Common Method Bias Tests** Good reliability and validity are important indicators for measuring scale quality. As shown in Table 3 , all variables' item factor loadings ranged between 0.732-0.903, Cronbach's  $\alpha$  coefficients ranged between 0.692-0.875, and Composite Reliability

(CR) values ranged between 0.882-0.923, all exceeding recommended values [57-59], indicating good scale reliability. Convergent validity AVE values for each variable ranged between 0.639-0.800, exceeding recommended values [60], indicating satisfactory convergent validity. As shown in Table 4, correlation coefficients between variables were all smaller than the square root of their AVE values, indicating good discriminant validity.

We used Harman's single-factor method for common method bias testing [61]. Exploratory factor analysis of the seven variables revealed that the first extracted factor accounted for only 30.091% of variance, indicating no serious common method bias problem in this study.

**Path Relationship Testing** Using Bootstrap sampling with 5,000 iterations, path relationship test results are shown in Table 5. Except for H2, H3, and H6b, all other hypotheses were supported.

**Table 5** Path Relationship Testing

Hypothesis	Path	Coefficient	t-value	Result
H1	Perceived Brand Fit → Transfer Intention	0.227	2.717	Supported
H2	Perceived Product Fit → Transfer Intention	-0.086	1.479	Not supported
H3	Perceived Connection → Transfer Intention	0.059	1.207	Not supported
H4	Perceived Difference → Transfer Intention	0.257	4.050	Supported

Hypothesis	Path	Coefficient	t-value	Result
H5	Extension Attitude → Transfer Intention	0.331	5.314	Supported
H6a	Perceived Brand Fit → Extension Attitude	0.363	5.283	Supported
H6b	Perceived Product Fit → Extension Attitude	0.046	0.691	Not supported
H6c	Perceived Connection → Extension Attitude	0.239	4.237	Supported
H6d	Perceived Difference → Extension Attitude	0.170	2.776	Supported

**Mediating Effect Testing** We further tested mediating effects using the Bootstrap method. As shown in Table 6, according to t-values for mediating paths, extension attitude's mediating effects were significant between perceived brand fit ( $t=3.360$ ) and transfer intention, perceived connection ( $t=3.103$ ) and transfer intention, and perceived difference ( $t=2.427$ ) and transfer intention, but not significant between perceived product fit ( $t=0.684$ ) and transfer intention. Confidence interval results also verified these conclusions, with all intervals except perceived product fit's (which contained 0) excluding 0.

**Table 6** Mediating Effect Testing of Extension Attitude

Path	Indirect Effect	95% CI
Perceived Brand Fit → Transfer Intention	0.120** (3.360)	[.066, .209]
Perceived Product Fit → Transfer Intention	0.015 (0.684)	[-.032, .067]
Perceived Connection → Transfer Intention	0.079** (3.103)	[.038, .146]
Perceived Difference → Transfer Intention	0.056* (2.427)	[.018, .109]

Note: Values in parentheses are t-values. \* indicates  $p < 0.05$ , \*\* indicates  $p < 0.01$ .

**Moderating Effect Testing** We generated moderating effect 1 (with parent brand quality as moderator, perceived brand fit as independent variable, and transfer intention as dependent variable) and moderating effect 2 (with parent brand quality as moderator, perceived product fit as independent variable, and transfer intention as dependent variable), and conducted path relationship testing. Path analysis results are shown in Table 7, with both moderating effects being significant.

**Table 7** Path Coefficient Testing of Structural Model with Moderating Variables

Path	Coefficient	t-value
Perceived Brand Fit → Extension Attitude	0.363	5.078
Perceived Brand Fit → Transfer Intention	0.196	2.457
Moderator 1 → Transfer Intention	-0.153	2.642

Path	Coefficient	t-value
Perceived Product Fit → Extension Attitude	0.046	0.684
Perceived Product Fit → Transfer Intention	-0.112	1.919
Moderator 2 → Transfer Intention	0.154	2.531
Perceived Connection → Extension Attitude	0.239	4.163
Perceived Connection → Transfer Intention	0.052	1.024
Perceived Difference → Extension Attitude	0.170	2.782
Perceived Difference → Transfer Intention	0.230	3.793
Extension Attitude → Transfer Intention	0.362	5.965

In summary, research results basically support previous hypotheses. The final structural equation model is shown in Figure 3 [Figure 3: see original paper].

## Results and Discussion

### Cognitive Formation of Brand Extension Relationships

Research question (1) used the domestic Q&A platform Zhihu as a case study. On one hand, through dual honeycomb models and user perception perspectives, we observed brand extension relationships between Zhihu and its extended paid Q&A product and Zhi Hu brand. The honeycomb diagrams show that when

Zhihu practiced brand extension, it focused on extending similarity in four elements: core values, brand personality, symbolic symbols, and authoritative basis, while extending differentiation in functional benefits, emotional benefits, and typical user images. In addition to the similarity and differentiation levels reflected in the honeycomb diagrams, Zhihu also extended at the business association level—establishing internal links from the free Q&A interface to the paid Q&A interface.

On the other hand, retrospective verbal reports also reflected users' cognitive characteristics of brand extension relationships: users' cognition of brand extension relationships is essentially a process of cognitive formation and transformation. Users start from initial contact and use of free Q&A services to form cognition of the service and its brand information; then based on existing cognitive experience, they form new cognition of paid Q&A extension services and their brand information; subsequently through subjective cognitive comparison, fit relationships, difference relationships, and connection relationships between the two Q&A services are established in cognition.

### **Direct Effects of Brand Extension Relationships on Transfer Intention**

From the path coefficients in research question (2), perceived brand fit has the most obvious total effect on paid Q&A transfer intention. However, product-level perceived fit has a non-significant negative effect on paid Q&A transfer intention. This result indicates that compared with surface-level Q&A services, users focus more on intrinsic core values. As J. Baudrillard's concept of symbolic consumption points out, modern consumption is no longer limited to surface-level product value consumption but focuses on intrinsic value consumption [62]. If users perceive that free and paid Q&A services under the same knowledge Q&A platform are consistent in value culture, their recognition of the original service's core value will smoothly transfer to the extension product through this fit, forming the same core value recognition for the paid Q&A extension service and generating strong transfer intention.

The influence of perceived difference on paid Q&A transfer intention is second only to brand fit and superior to perceived connection, mainly because the functional characteristics of paid Q&A services themselves constitute their difference from original free services. Although free communities have large collections of shared information, paid services more easily create product associations of "payment = customized service." Therefore, if users cannot have their needs satisfied by original free Q&A, they will more readily accept knowledge payment and develop payment tendency.

Additionally, the hypothesis that perceived connection directly influences transfer intention was not verified. The reason may be that internal links only help users discover paid Q&A extension services but cannot directly stimulate their payment intention and subsequent behavior. In summary, among these brand extension relationships, perceived brand fit and perceived difference can

directly stimulate user transfer intention—one by mobilizing emotional participation from core values, the other by directly satisfying users' differentiated service needs from functional changes. Excessive product-level fit leads to reduced perceived service characteristic gaps, while perceived connection mainly plays a guiding role in helping users discover new services, thus they cannot directly stimulate user transfer intention.

### **Mediating Role of Extension Attitude**

Extension attitude not only has a significant positive influence on users' paid Q&A transfer intention but also plays a mediating role between brand extension relationship factors and transfer intention. Extension attitude plays a partial mediating role between perceived brand fit and transfer intention, and between perceived difference and transfer intention, while playing a complete mediating role between perceived connection and transfer intention. In other words, only when perceived connection causes changes in extension attitude will transfer intention be formed. The mediating role of attitude further uncovers the effective paths through which users' perceived fit, perceived connection, and perceived difference influence paid Q&A transfer intention, representing an important mediating factor revealing the mechanism of knowledge Q&A platform brand extension effects.

### **Moderating Effect of Parent Brand Quality**

Parent brand quality has a significant negative moderating effect on the relationship between perceived fit and paid Q&A transfer intention. The more satisfied users are with the quality of the original free Q&A service, the smaller the influence of perceived fit on paid Q&A transfer intention. This is consistent with D.A. Aaker's research conclusion [49]. Parent brand quality is the core component of brand equity. Successful experience with free Q&A increases users' recognition of the platform. Once users encounter paid Q&A services launched by the platform, the halo of the parent brand creates a "halo effect" in users' minds.

This study incorporates brand extension theory-related factors into research on paid Q&A transfer intention, fully leveraging the mixed-method advantages of verbal reports and structural equation modeling. It not only deeply understands users' cognitive formation process of brand extension relationships but also quantitatively analyzes influencing factors of paid Q&A transfer intention. This has certain guiding significance for deeply understanding the internal mechanism by which brand extension relationships influence users' transfer intention from original free Q&A to paid Q&A and for improving the utilization rate of paid Q&A extension services.

Comprehensive insights from the two rounds of empirical studies provide practical implications:

- (1) Overall, when Q&A platforms introduce paid Q&A services through brand

extension, they should explore a more flexible brand extension path from both internal and external perspectives combining their own conditions and market demand. Macroscopically, a balance must be achieved between fit and difference: neither 脱离 the value positioning of the Q&A platform brand and its core service in the online knowledge market, nor 过度契合导致延伸服务缺乏特点. Therefore, the author suggests that knowledge Q&A platforms implementing paid Q&A service brand extension can “seek difference within similarity”—ensuring extension services inherit core brand values while demonstrating differentiation.

- (2) Q&A platforms need to explicitly express the relationship between paid Q&A and original free Q&A, and enhance users’ perceptions of brand fit, difference, and connection according to users’ identification process of brand extension relationships. Regarding fit, Q&A platforms should establish unique and stable core concepts, improving the inclusiveness of platform core culture to enable smooth continuation into extension services. Regarding differentiation, Q&A platforms should make users recognize product differentiation design. For example, addressing questioners’ multi-dimensional consultation needs, platforms could change the traditional one-on-one consultation model between questioners and answerers by introducing a “joint Q&A mechanism” that allows answerers to collaborate in providing Q&A services for questioners. Regarding connection, Q&A platforms can add paid Q&A reminder functions on the original free Q&A interface and use pop-up prompts to inform users that they can use paid services to resolve doubts when necessary, thereby enhancing users’ connection perception.
- (3) Q&A platforms should emphasize the mediating mechanism of users’ extension attitudes on paid Q&A transfer intention. Platforms can establish incentive systems to attract more answerers to open paid Q&A services. Since answerers can directly divert large numbers of fan users to the paid platform, they can leverage answerers’ influence to convert large numbers of free users, thereby stimulating users’ positive extension service attitudes and improving their paid Q&A transfer intention.
- (4) Q&A platforms should emphasize the moderating mechanism of parent brand quality. Q&A platforms should take measures to maximize the quality of the platform itself and its core free Q&A services, such as improving knowledge quality supervision and optimizing the organization of knowledge resources to enhance parent platform quality, thereby expanding the boundaries of paid Q&A extension services acceptable to users and leaving greater innovation space for paid Q&A service development.

This study has some limitations: First, the verbal testing phase only examined a single knowledge Q&A platform, limiting the selection of research subjects. Second, the effective sample size in the questionnaire empirical study was still insufficient. Future research should expand the scope of Q&A platform survey subjects and increase sample size to ensure generalizability of results. Addition-

ally, with the help of brand extension theory, future research could explore the feedback effects of paid extension services on original free services to complement this study' s findings.

## References

- [1] Yan Jianyuan, Qin Fen, Li Kai. Research on the business model of subscription-based online knowledge payment [J]. Chinese Journal of Management, 2019, 16(9): 1405-1414.
- [2] Meng Jian, Sun Xiangfei. Digital knowledge communication: Creation, production, consumption, boundaries—Academic thinking on cognitive surplus and knowledge monetization in the internet era [J]. Journalism Lover, 2017, 32(5): 21-24.
- [3] Davis FD, Bagozzi RP, Warshaw PR. User acceptance of computer technology: A comparison of two theoretical models [J]. Management Science, 1989, 35(8): 982-1003.
- [4] Yu Longyun. Research on the profit model of Weibo paid Q&A in the era of cognitive surplus [D]. Wuhan: South-Central Minzu University, 2018.
- [5] Liu Zhouying, Zhao Yuxiang. Preliminary exploration of the operation model of paid knowledge Q&A communities based on voice interaction—Taking Fenda and Zhi Hu as examples [J]. Library and Information, 2017, 37(4): 38-45.
- [6] Wang Xiao. Research on optimization strategies for paid Q&A platform operation from the perspective of knowledge gap [D]. Nanchang: Jiangxi University of Finance and Economics, 2018.
- [7] Zhang Xuguang. Research on the communication mechanism of online paid Q&A platforms from the perspective of sharing economy [D]. Nanning: Guangxi University, 2017.
- [8] Zhao Yuxiang, Liu Zhouying, Song Shijie. Exploring factors influencing questioners' payment intention in new-generation knowledge Q&A platforms [J]. Data Analysis and Knowledge Discovery, 2018, 2(8): 16-30.
- [9] Li Wu, Ai Pengya, Xie Rong. Research on users' payment intention in online paid Q&A platforms from the perspective of perceived value [J]. Library and Information Knowledge, 2018(4): 6-16.
- [10] Li Wu, Xu Yaoxin, Cong Ting. The influence of users' perceived value on payment intention in online paid Q&A platforms—Analysis of moderating effects based on past behavior [J]. Press Circles, 2018, 31(10): 92-100.
- [11] Shan Miyuan, Long Teng, Zhang Renlong. Research on the influence mechanism of internet finance brand extension based on TAM [J]. Management Review, 2015, 27(8): 190-199.

- [12] Qin Peng, Yu Min, Yan Taowei. Evaluation research on tourism scenic spot brand extension—An empirical study based on consumer perspective [J]. *China Business and Market*, 2013, 22(23): 121-124.
- [13] Aguirre R A, Bóveda L A M, Montoya D Y. Exploring ethnic consumer response to crossover brand extensions [J]. *Journal of Business Research*, 2014, 67(4): 457-463.
- [14] Aaker DA, Keller KL. Consumer evaluations of brand extensions [J]. *Journal of Marketing*, 1990, 54(1): 27-41.
- [15] Broniarczyk S M, Alba J W. The importance of the brand in brand extension [J]. *Journal of Marketing Research*, 1994, 31(2): 214-228.
- [16] Cui Qi. Research on the influence of perceived fit on brand extension evaluation [D]. Xuzhou: China University of Mining and Technology, 2015.
- [17] Herr P M, Farquhar P H, Fazio R H. Impact of dominance and relatedness on brand extensions [J]. *Journal of Consumer Psychology*, 1996, 5(2): 135-159.
- [18] Loken B, John D R. Diluting brand beliefs: When do brand extensions have a negative impact? [J]. *Journal of Marketing*, 1993, 57(3): 71-84.
- [19] Smith D C, Park C W. The effects of brand extensions on market share and advertising efficiency [J]. *Journal of Marketing Research*, 1992, 29(3): 296-313.
- [20] Klink R R, Smith D C. Threats to the external validity of brand extension research [J]. *Journal of Marketing Research*, 2001, 38(3): 326-335.
- [21] Shen Y C, Bei L T, Chu C H. Consumer evaluations of brand extensions: The role of case-based reminding on brand-to-brand similarity [J]. *Psychology & Marketing*, 2011, 28(1): 91-113.
- [22] Ahluwalia R. How far can a brand stretch? Understanding the role of self-construal [J]. *Journal of Marketing Research*, 2008, 45(3): 337-350.
- [23] Chi Teng, Lin Zhengjie. Research on factors influencing consumers' purchase intention for extension agricultural products [J]. *Northern Economy and Trade*, 2015, 35(9): 54-57.
- [24] Yin Chengyue, Yu Hongyan. The interactive influence of price and extension similarity on consumer evaluation of brand extensions [J]. *Management Science*, 2006, 16(3): 43-50.
- [25] Wu Junyang, Zhong Jian'an. Internet brand extension: The mediating role of fit and connection [J]. *Chinese Journal of Ergonomics*, 2012, 18(2): 36-39.
- [26] Song P J, Zhang C, Xu Y J, et al. Brand extension of online technology products: Evidence from search engine to virtual communities and online news [J]. *Decision Support Systems*, 2010, 49(1): 91-99.
- [27] Wang Meixia. Community identity, brand extension evaluation and customer perception [J]. *Journal of Commercial Economics*, 2018, 37(16): 57-59.

- [28] Wu Junyang. Influencing factors of brand extension in internet environment [D]. Hangzhou: Zhejiang University, 2011.
- [29] Song Peijian. Research on the influence of internet product integration on usage transfer behavior [D]. Shanghai: Fudan University, 2009.
- [30] Hu Xiaoyun, Xie Bingxin. Japan Dentsu honeycomb model—An effective solution for brand construction and management [M]//Hu Xiaoyun. Quiet Thoughts: Selected Papers of Hu Xiaoyun. Hangzhou: Zhejiang University Press, 2013: 32-50.
- [31] Ping Xiaoming. Research on influencing factors of internet company brand extension user evaluation [D]. Beijing: Beijing University of Posts and Telecommunications, 2013.
- [32] Xiang Chen. Taobao's overnight success—Analysis of brand extension from B2B to C2C market [J]. Advertising Panorama (Integrated Edition), 2005, 11(4): 74-77.
- [33] Zhang Yuding. Several controversial issues regarding the validity of verbal report method [J]. Journal of Ningbo University (Educational Science Edition), 2007, 29(6): 25-28.
- [34] Jin Xuan. Correctly understanding and using verbal report method—Advantages and disadvantages of verbal report method and issues to note in its application [J]. Journal of Language, 2012(17): 148-150.
- [35] Ericsson K A, Simon H A. Verbal reports as data [J]. Psychological Review, 1980, 87(3): 215-251.
- [36] Zheng Wenjian, Liu Guoliang. Preliminary exploration of brand personality measurement methods [J]. Modern Business, 2011, 6(11): 114, 113.
- [37] Yang Chuanwei, Wang Mang. Application of psychological vocabulary method in brand personality research [J]. Advances in Psychological Science, 2009, 17(2): 460-466.
- [38] Zhu Zhiwen, Zhang Li. Theme and category similarity in brand extension: The moderating role of consumption context [J]. Science and Technology and Application, 2015, 3(2): 19-22.
- [39] Tauber E M. Brand leverage: Strategy for growth in a cost-control world [J]. Journal of Advertising Research, 1988, 28(4): 26-30.
- [40] Park C W, Milberg S, Lawson R. Evaluation of brand extensions: The role of product feature similarity and brand concept consistency [J]. Journal of Consumer Research, 1991, 18(2): 185-193.
- [41] Ding Jiayong. Brand extension psychological mechanism model and brand marketing strategy design [J]. Psychological Science, 2004, 27(3): 715-718.
- [42] Fiske S T, Pavelchak M A. Category-based versus piecemeal-based affective responses: Developments in schema-triggered affect [C]//Sorrentino R M, Hig-

gins E T. Handbook of motivation and cognition: Foundations of social behavior. New York: Guilford Press, 1986: 167-203.

[43] Granovetter M S. The strength of weak ties [J]. American Journal of Sociology, 1973, 78(6): 1360-1380.

[44] Wang Han, Wang Shuang, Zheng Chundong. Analysis of brand extension mechanism based on consumer cognitive asymmetry [J]. Journal of Central University of Finance & Economics, 2011, 31(5): 81-85.

[45] Shen Xiaoliang, Li Yangjun. Research on influencing factors of intermittent discontinuance behavior of smart health hardware users [J]. Management Science, 2017, 30(1): 31-42.

[46] Liao Z Q, Cheung M T. Internet-based e-shopping and consumer attitudes: An empirical study [J]. Information & Management, 2001, 38(5): 299-306.

[47] Ye Xiurong, Hu Pei. The moderating role of parent brand quality and consumer innovation on the relationship between extension fit and extension product brand trust [J]. Tianfu New Idea, 2009, 25(3): 76-78.

[48] Keller K L, Aaker D A. The effects of sequential introduction of brand extensions [J]. Journal of Marketing Research, 1992, 29(1): 35-50.

[49] Ma Jinjun, Diao Yanan, Shan Juan. The influence of internet brand perceived fit on extension evaluation—Based on the moderating role of parent brand functional image [J]. Enterprise Economy, 2015, 36(8): 85-90.

[50] Bhat S, Reddy S K. The impact of parent brand attribute associations and affect on brand extension evaluation [J]. Journal of Business Research, 2001, 53(3): 111-122.

[51] Kim C K, Lavack A M, Smith M. Consumer evaluation of vertical brand extensions and core brands [J]. Journal of Business Research, 2001, 52(3): 211-222.

[52] Yoo B, Donthu N. Developing a scale to measure the perceived quality of an internet shopping site [J]. Quarterly Journal of Electronic Commerce, 2001, 2(1): 31-47.

[53] Sunde L, Brodie R J. Consumer evaluations of brand extensions: Further empirical results [J]. International Journal of Research in Marketing, 1993, 10(1): 47-53.

[54] Fu Guoqun, Ding Jiali. Consumer evaluation of brand extensions: The ownership effect [J]. Chinese Journal of Management, 2008, 5(4): 528-536.

[55] Zhang K, Cheung M, Lee M. Online service switching behavior: The case of blog service providers [J]. Journal of Electronic Commerce Research, 2012, 13(3): 184-197.

[56] Hair J F, Ringle G M, Sarstedt M. PLS-SEM: Indeed a silver bullet [J]. Journal of Marketing Theory & Practice, 2011, 19(2): 139-152.

- [57] Chin W W, Marcoulides G. The partial least squares approach to structural equation modeling [J]. *Advances in Hospitality and Leisure*, 1998, 8(2): 295-358.
- [58] Cronbach L J. Coefficient alpha and the internal structure of tests [J]. *Psychometrika*, 1951, 16(3): 297-334.
- [59] Werts C E, Linn R L, Joreskog K G. Intraclass reliability estimates: Testing structural assumptions [J]. *Educational and Psychological Measurement*, 1974, 34(1): 25-33.
- [60] Fornell C, Larcker D F. Evaluating structural equation models with unobservable variables and measurement error [J]. *Journal of Marketing Research*, 1981, 18(1): 39-50.
- [61] Podsakoff P M, Mackenzie S B, Lee J Y, et al. Common method biases in behavioral research: A critical review of the literature and recommended remedies [J]. *Journal of Applied Psychology*, 2003, 88(5): 879-903.
- [62] Ren Weizheng, Zhao Bin, Liu Bailiang, et al. Research on internet product differentiation design based on user experience [J]. *Technology Wind*, 2018, 31(23): 1.

**Author Contributions:** Yi Ming: Proposed research ideas and paper outline, finalized paper; Shan Siyuan: Data collection and analysis, wrote initial draft; Deng Weihua: Data analysis optimization, paper revision.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv –Machine translation. Verify with original.*