An Empirical Study on User Information Trust Judgment in Online Knowledge Q&A Communities: Evidence from Eye-Tracking Experiments (Postprint)

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Abstract

[Purpose/Significance] Based on online knowledge Q&A community platforms, this study elucidates the relationship between user attention and user trust through eye-tracking experiments, which facilitates users' acquisition of high-quality information and sustains the credibility and sustainable operation of knowledge Q&A community platforms. [Method/Process] From the perspective of visual perception, eye-tracking technology is employed to quantify the information browsing behaviors of users in online knowledge Q&A communities, clarifying the characteristics of attention allocation across various information elements. Combined with self-report scales, it investigates whether user attention reflects their trust judgments toward information. Simultaneously, based on the ELM model, it explores the relationships between source personal achievements, information content, system cumulative cue values, and user trust judgments. [Results/Conclusion] For information with varying levels of involvement, users' attention to different information elements exhibits disparities, and the influence of each information element on user trust judgments differs. Path differences also exist in users' cognitive processing of information. The relationship between user attention indicators (fixation duration, fixation count) and trust judgments is minimal; fixation does not necessarily signify belief.

Full Text

Preamble

An Empirical Study on User Information Trust Judgment in Online Knowledge Q&A Communities–Evidence from Eye-Tracking Experiments

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Abstract: [Purpose/Significance] Based on online knowledge Q&A community platforms, this study elucidates the relationship between user attention and user trust through eye-tracking experiments, which can help users obtain high-quality information and maintain the credibility and sustainable operation of knowledge Q&A community platforms. [Method/Process] From the perspective of visual perception, eye-tracking technology was employed to quantify users' information browsing behaviors in online knowledge Q&A communities, clarify the characteristics of users' attention allocation to various information elements, and explore whether user attention reflects their trust judgment of information using self-report scales. Meanwhile, based on the ELM model, the relationships among source personal achievements, information content, system cumulative cue values, and user trust judgment were examined. [Result/Conclusion] For information with different involvement levels, users' attention to each information element varies, and each element exerts different influences on user trust judgment. Users' cognitive processing of information also follows different paths. There is little relationship between user attention indices (fixation duration, fixation frequency) and trust judgment; fixation does not necessarily represent belief.

Keywords: online knowledge Q&A communities; cognitive processing; trust judgment; eye-tracking experiments
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With the development of the internet into the Web 2.0 era that emphasizes user interaction, users have evolved from "web surfers" to "wave makers." Advances in information and communication technologies have spawned numerous online information platforms supported by web technologies. Compared with offline channels such as newspapers and books, these platforms offer massive information capacity unrestricted by time and space [1]. Against this backdrop, influential online knowledge Q&A platforms such as Wikipedia, Baidu Knows, and Zhihu have emerged successively, becoming important spaces for learners to acquire, create, disseminate, and share knowledge [2]. Simultaneously, platforms and creators are exploring deeper markets and more diversified usage scenarios, enabling knowledge acquisition to permeate all aspects of users' daily lives [3].

While online knowledge Q&A community platforms have addressed the public' s need for knowledge to some extent, they face numerous issues in content security management and functional operation rules—some platforms use "knowledge" as packaging to disseminate illegal and non-compliant information, causing adverse social impacts. As a typical experience-based service platform, users cannot evaluate information quality and value before using online knowledge Q&A communities, which directly affects user behavior [4]. Therefore, identifying and obtaining high-value information while avoiding misinformation has become an

urgent need for netizens. Moreover, low-quality information not only reduces users' trust in online knowledge Q&A community platforms but also directly affects effective platform traffic [5]. These emerging problems undermine platform credibility and disrupt sustainable development and healthy operational order. Based on this, from a user perspective, this study employs eye-tracking technology to authentically present users' browsing behaviors in online knowledge Q&A communities, identifies how different information elements capture user attention, and explores the relationship between attention and users' trust judgment of information, providing theoretical and practical insights for scholars at home and abroad to further investigate user behavior and information credibility in online knowledge Q&A communities.

2 Related Research

2.1 Transformation of Knowledge Acquisition Methods

Compared with traditional knowledge acquisition methods and channels, online knowledge Q&A community platforms exhibit three major transformations: (1) Uncertain information source identity. Unlike traditional channels such as newspapers and books that require corresponding qualifications to speak, information sources in online knowledge Q&A communities—i.e., answerers to questions—are not necessarily experts or authorities in a field. Anyone can provide knowledge output based on their own knowledge and experience to answer others' questions. (2) Complex and voluminous information content. The convenience of internet information dissemination has created an explosion of information, making it more difficult for users to make trust judgments when facing massive information and conflicting viewpoints. (3) Presentation of various "front-stage information." In online knowledge Q&A communities, while browsing Q&A content, users can also see the number of likes, comments, and other "front-stage information" that a particular Q&A has received. This information is automatically generated by the community' s backend system without requiring user publication, making it easy for users to learn about other users' attitudes toward the information. This is termed system cumulative cues. These three transformations become key elements for users to screen and judge information in the context of online knowledge Q&A communities. Consequently, the information effects these elements produce on users and the attention users pay to them become worthwhile research questions in Web 2.0-era information studies.

2.2 Information Credibility

Information credibility is one of the core research areas in communication and information management disciplines [6], referring to the degree to which an audience perceives information disseminators and content as trustworthy. Initially, researchers' exploration of the information credibility concept focused mainly on the information source element—C. Hovland defined information credibility as the degree of trust that information recipients place in information and its

source, particularly in knowledge information dissemination, where more credible individuals have stronger persuasive power [7]. M. West, when researching a widely applicable standard credibility measurement scale, noted that credibility is the degree of trustworthiness an individual perceives in an information source, a perception that changes with context and is independent of the information content itself [8]. However, with the changing times and internet development driving the emergence of various online media, people gradually began to pay attention to the impact of information media on information credibility. Research has found that although social media use has become widespread and a primary information source and channel for the public, trust in it is not high [9]; the same information may have different credibility across different social media platforms (communities, microblogs, short videos, etc.) [10], and the technical characteristics of online media profoundly affect audience evaluation of information credibility [11-12].

2.3 Cognitive Processing Process

In the era of widespread social media application, online user information behavior has become more social [13]. In social environments where people exchange information, the public' s evaluation of information credibility is no longer just an independent individual behavior or completely dependent on authoritative interpretation, but rather a community-based process relying on network tools [14]. Regarding individual information cognition and effect evaluation, early research such as agenda-setting studies and violence and media research [15] focused on how external stimulus variables affect individual behavior. However, individual cognition of information does not simply follow the S-R model; the subjective initiative of the human brain triggers internal cognitive processing processes that cannot be ignored [16]. As research has progressed, the S-I-R paradigm with individual processing as an intermediary process has become popular [17]. Numerous studies have confirmed that after reading information, people first form preliminary hypotheses about it, then accept or reject these hypotheses by selecting the minimal and most effective cues, and finally use existing knowledge and experience to cognitively process the read information [18]. R. Petty' s Elaboration Likelihood Model (ELM) posits that when information audiences have the ability or willingness to judge the persuasiveness of information through their own thinking, they tend to adopt central cues; when audiences lack the ability or willingness to process information, they tend to adopt peripheral cues. Central cues mainly refer to the ontological factors of information, such as information quality itself, while peripheral cues are factors other than information itself, such as information sources, audience emotions, communication channel characteristics, and others' evaluations. The difference between the two mainly stems from individuals' involvement with information, i.e., the degree to which individuals perceive information as relevant to themselves [19]. In online knowledge Q&A community scenarios, question answerers (sources) create information, users (individuals) browse and cognitively process it, and ultimately decide whether to believe it. This process is influenced by

the degree of involvement between the individual and the Q&A information. Based on the above, this study focuses on the online knowledge Q&A community context to explore how users attend to and cognitively process information elements such as sources and information itself with different involvement levels, and what trust judgments they will make.

2.4 Visual Perception Attention and Platform Information Acquisition

Vision is the primary way humans obtain external information [20], with 80%-90% of brain information coming from the visual system [21], and brain functions serving visual information processing exceeding 40% [22]. Visual perception—the bridge between vision (external information) and perception (internal sensation)—is an important concept in cognitive psychology, comprising two major processes: reception and cognition. After receiving visual stimuli such as object features and location information, the eye' s receiving organ transmits this information to the brain to complete reception and identification, enabling individuals to understand and interpret the world.

To clearly process specific objects in visual stimuli, individuals must first complete eye movements. As shown in Figure 1 [Figure 1: see original paper] and Figure 2 [Figure 2: see original paper], the most visually acute area in the human eye is the fovea in the retina; the closer to the fovea, the higher the visual acuity. To see objects clearly, eye movements must be made to image the object on the fovea [23]. Therefore, eye movement is considered an effective indicator for studying visual attention in information acquisition behaviors. However, the amount of information transmitted by visual nerves far exceeds the brain' s processing capacity, at which point attention plays a crucial role—human attention mechanisms that have evolved through continuous evolution do not "care for" all information but only select a small portion of relevant information for detailed processing. Thus, when attention selects a specific object or location, processing of that object is enhanced. Conversely, processing of objects or locations not selected is suppressed [24]. Typically, human attention is determined by brain selection preferences, and this brain activity is unconsciously reflected through the eyes. Humans allocate more attention to content that is interesting or unfamiliar, and very little attention to content that is uninteresting or familiar [25].

In online knowledge Q&A communities, page information first captures users' visual perception attention. Users acquire knowledge through eye movements, which then triggers brain processing through individual subjective initiative, ultimately internalizing information into personal cognition. Eye movement research methods have gone through multiple stages, including direct observation of eye movements, connecting eyes to recording devices, optical experiments, and electrical experiments [27]. Today, researchers primarily use high-precision equipment—eye trackers—to conduct eye movement experiments. Compared with previous research, eye trackers have the advantages of high accuracy, phys-

iological harmlessness to humans, and ease of use, and are mostly applied in laboratory environments. Among these, fixation duration and fixation frequency are the most important attention measurement indicators [28]. Based on this, this study uses eye trackers to track and capture eye movement behavior data of online knowledge Q&A community users to clarify users' attention allocation to various information elements, explore the relationship between users' visual perception attention and trust judgment of information, and thus provide new perspectives for research on individual information processing processes and information trust effects.

3 Research Design and Experiment Process

3.1 Hypothesis Development

Through analysis of past research, the questions that need to be clarified in this study are divided into three categories: First, an individual' s involvement level in a specific issue affects their cognitive process of information—when involvement is high, individuals pay more attention to the information itself, and when involvement is low, individuals pay more attention to the source [29]. So when users browse a Q&A message in an online Q&A community, what is the order and degree of attention to various information elements (source personal achievements, information content, system cumulative cues) presented on the interface? Second, research indicates that in social communication environments, audience participation and tendency positively affect their credibility evaluation [30]. So in online Q&A communities, do source personal achievements and system cumulative cues affect information credibility, and how? Third, due to people's instinctive belief in their senses, coupled with the influence of emotional expression and low-threshold communication mechanisms on social media, they often misjudge information credibility [31]. So in the context of online knowledge Q&A communities, what is the relationship between users' judgment of information credibility and their visual attention to information? The Elaboration Likelihood Model suggests that information involvement affects individuals' cognitive processing path selection. Therefore, this study' s exploration of the above questions will incorporate users' involvement with information. Based on the above analysis, this study proposes the following hypotheses:

H1a: When facing high-involvement topics, users first pay attention to Q&A information content, then to answerers' (source) personal achievements.
H1b: When facing low-involvement topics, users first pay attention to answerers' (source) personal achievements, then to Q&A information content.
H2: When facing high-involvement topics, users pay more attention to Q&A information content; when facing low-involvement topics, users pay more attention to answerers' (source) personal achievements.
H3: When facing high-involvement topics, answerers' (source) personal achievements positively affect users' perceived credibility of information.
H4: When facing low-involvement topics, system cumulative cue information (like and comment counts) positively affect users' perceived credibility of infor-

mation.
H5: The stronger users' attention to information, the higher the perceived credibility of information.

3.2 Experiment Design

This study' s experimental materials were sourced from the "Zhihu" online knowledge Q&A community platform, employing a 2×2×2 between-subjects experimental design. The dependent variables were users' attention to Q&A information in online knowledge Q&A communities (eye movement indices) and corresponding credibility perception levels. Campus and automotive topics from Zhihu' s hot list were used as high- and low-involvement Q&A topics for subject interviews. Based on interview results, campus and automotive topics were ultimately selected to correspond to high- and low-involvement Q&A topics. Four combination levels of Q&A information were designed: high source achievement/high cue value, high source achievement/low cue value, low source achievement/high cue value, and low source achievement/low cue value, totaling 8 stimulus materials (N = 40×8 = 320). To eliminate browsing order interference as much as possible, half of the subjects browsed campus Q&As first then automotive Q&As, while the other half browsed in the opposite order.

The experimental equipment used in this study was the X2-60 model eye tracker (sampling rate: 60Hz) manufactured by Tobii, used to collect subjects' eye movement behavior data. This eye tracker has a large viewing angle and allows significant head movement to ensure natural subject behavior. Tobii Studio software was used to complete experiment recording and data export. Before the formal experiment, subjects underwent eye calibration, then browsed stimulus materials and completed credibility perception feedback. Subjects were not allowed to communicate with each other during the experiment.

3.3 Experiment Subjects

Currently, eye-tracking experiment studies on new media in China mostly have 20-40 subjects, primarily university students [32]. To ensure scientific validity and applicability, this study recruited 42 subjects from a university in Chongqing, all in good health, without color blindness or weakness, aged 18-30. Descriptive statistics of subjects are shown in Table 1 .

3.4 Experiment Materials

To simulate the real scenario of users browsing Zhihu Q&A communities, this study used real Zhihu Q&A community pages as a basis and appropriately processed the information presentation interface. Based on preliminary interview content and accumulated materials, campus topics were used as high-involvement topics and automotive topics as low-involvement topics. Two Q&A messages were selected as stimulus materials: one about campus life ("Comparison of difficulty between postgraduate entrance exams and college entrance

exams") and one about automobiles ("Which of two automotive engine parameters, horsepower or torque, better reflects power performance").

Eight Zhihu real page images were used as stimulus materials in the formal experiment. To exclude other interfering factors, the experimental images were processed based on real pages. The final simulated materials are shown in Figure 3 [Figure 3: see original paper].

3.5 Variable Measurement

3.5.1 Involvement In communication research, involvement typically represents the degree to which individuals invest time, energy, etc., in information based on its importance [33], referring to the relevance between information and individual needs, interests, and concepts—i.e., "the relevance of things to the individual." The Elaboration Likelihood Model posits a clear relationship between involvement and information processing; individuals' involvement level with information affects their cognitive path selection—high-involvement audiences have a strong willingness to deeply understand information and tend to process it in depth, while low-involvement audiences are more dependent on peripheral information [34]. This study adapted three items from J. Zaichkowsky's experimental design to measure Q&A information involvement: (1) I think this Q&A information is relevant to my daily life; (2) I think this Q&A information is needed in my daily life; (3) I think this Q&A information is useful to me [35]. Subjects were invited to rate campus and automotive Q&A information using a 7-point Likert scale (= 0.709), with the mean value used as the involvement score for that Q&A information.

3.5.2 Eye Movement Indices In eye movement research, commonly used indices include fixation duration, fixation frequency, fixation sequence, saccade distance, regression count, pupil change, etc. [36]. This study used eye trackers to investigate online knowledge Q&A community users' attention allocation to source personal achievements, information content, and system cumulative cues. The eye movement indices used are shown in Table 3 .

3.5.3 Credibility This study defines credibility as users' trust level in a Q&A message, referencing M. Metzger' s research using seven items to measure involvement: I think this Q&A message is (1) fair and objective, (2) neutral, (3) complete, (4) trustworthy, (5) professional, (6) accurate, and (7) overall credible [37]. Subjects were invited to evaluate the credibility of the browsed Q&A information materials on a 5-point Likert scale (= 0.84), with the mean value used as the credibility score for that Q&A information.

3.5.4 Other Control Variables The control variables in this study mainly include: gender (female = 0, male = 1), age, internet age (total years from first internet use to present), and Zhihu usage duration (total years from first Zhihu community browsing to present).

4 Experiment Results and Data Analysis

4.1 Manipulation Check

First, 15 subjects were recruited for a pretest to verify whether significant involvement differences existed between the selected campus and automotive Q&A topics. Independent samples t-test results showed that campus Q&A information involvement scores were significantly higher than automotive Q&A information involvement scores (M_campus = 6.23, M_automotive = 2.23, t = 18.208, $p < .001$), proving that the experimental materials were effectively manipulated.

4.2 Results Analysis

Before formal data collection in the eye-tracking experiment, it was necessary to first divide Areas of Interest (AOI) in the experimental materials to facilitate heat map and trajectory map generation, thereby more intuitively reflecting users' attention distribution. Different AOIs in this study contained different information elements (source achievements, information content, etc.), as shown in Figure 4 [Figure 4: see original paper]. Three AOI groups were established based on research questions: (1) Source group: answerer nickname (source, AOI1, AOI2), answerer' s past answer count/post count/fan count (source personal achievements, AOI3); (2) Information group: answer content (information content, AOI4); (3) System cumulative cues group: like count/comment count (information' s system cumulative cues, AOI5, AOI6), comprising 6 AOI areas in total.

4.2.1 AOI Heat Map Analysis As a powerful visualization function of eye trackers, heat maps can overlay multiple subjects' eye movement records to generate cloud-like images, reflecting the concentration of subjects' fixation points within AOIs and the duration of fixations. Red represents the most concentrated fixation points with longer durations, while yellow and green represent fewer fixation points with shorter durations. Figures 5 [Figure 5: see original paper] to 8 [Figure 8: see original paper] present AOI heat distribution for campus (high involvement) and automotive (low involvement) Q&A information when source personal achievements are low (heat maps for high source personal achievements show similar results and are only analyzed in text due to space limitations).

The heat maps reveal that when browsing automotive topic Q&A information with low source personal achievements, regardless of like and comment counts, subjects paid more attention to the source and its personal achievements. When browsing campus topic Q&A information with low source personal achievements, regardless of like and comment counts, subjects focused more on the Q&A information content itself. This indicates that for low-involvement topic Q&A information, users are more concerned about the answerer' s personal achievements; for high-involvement topic Q&A information, users focus more on the content itself. The probable reason is that higher involvement means users

are closely connected to the topic, highly interested, or have certain knowledge foundations. In such cases, users are less concerned about whether the source is authoritative or highly accomplished, making the Q&A information content itself more attractive than the source. However, when users are uninterested in a topic or lack relevant domain knowledge, they pay more attention to whether the information source is authoritative, tending to make cognitive judgments about information quality through source characteristics.

Additionally, comparing heat maps shows that automotive (low involvement) Q&A heat maps have relatively scattered distribution on the information content area, not fully covering it, indicating user "skimming" behavior. Campus (high involvement) Q&A heat maps show more concentrated distribution on the information content area, reflecting stronger user attention to high-involvement Q&A information content. The comparison confirms that when involvement differs, users' attention allocation to knowledge Q&A information also differs, supporting hypothesis H2. Furthermore, heat maps show that when system cumulative cue values are larger (i.e., more likes and comments), users pay more attention to corresponding interest areas than when values are smaller.

4.2.2 Eye Movement Trajectory Analysis Eye movement trajectory maps are another powerful function of eye trackers, intuitively presenting the sequential order of fixation points in each interest area across subjects. Figures 9 [Figure 9: see original paper] and 10 [Figure 10: see original paper] show representative eye movement trajectory maps for campus and automotive topic Q&A information in this experiment.

Observing subjects' eye movement trajectory points reveals that within the interest area corresponding to information content, the density of browsing trajectory points for campus knowledge Q&A was significantly greater than for automotive knowledge Q&A. This again confirms significant differences in users' attention to high- and low-involvement knowledge Q&A information. However, whether for campus or automotive knowledge Q&A, subjects' browsing trajectories showed a pattern of first looking at the source, then the information. Thus, hypothesis H1b is supported while H1a is not. To further explore the reasons, subjects were invited for interviews after the experiment. Interview results revealed that subjects' browsing order was influenced by Q&A community page layout and color configuration—compared with black-and-white Q&A text, colorful answerer avatars could capture users' attention more immediately.

4.2.3 Source Achievements, System Cumulative Cues, and Credibility To verify hypotheses H3 and H4, this study conducted multiple linear regression analyses with credibility of high-involvement campus topic Q&A information and low-involvement automotive topic Q&A information as dependent variables, respectively. Independent variables included Zhihu Q&A community source personal achievement indicators—past answer count, post count, fan count—and Q&A information like count and comment count. Control variables included

subjects' gender, age, internet age, and Zhihu usage duration. Results are shown in Table 4 .

Table 4 shows that regarding source achievements, both past answer count and post count significantly positively affected Q&A information credibility for both campus and automotive Q&A information. However, answerer fan count only significantly positively affected Q&A information credibility for automotive Q&A information, with no significant effect for campus Q&A information. This indicates that source personal achievements do affect information credibility. However, in familiar, high-involvement topic domains, users do not blindly believe in sources with large fan counts or so-called authoritative answerers but make credibility judgments based on their own foundational knowledge. For Q&A information in unfamiliar, low-involvement topic domains, users tend to believe in authority, showing higher trust in more authoritative answerers with larger fan counts. This contradicts original hypothesis H3—i.e., source personal achievements positively affect users' perceived credibility not when information involvement is high, but rather when information involvement is low.

System cumulative cues show similar patterns—like and comment counts significantly positively affect users' credibility judgments for automotive knowledge Q&A information but have no significant effect on users' credibility for campus knowledge Q&A information, supporting hypothesis H4. This indicates that users are more likely to exhibit "herding" behavior in topic domains they are unfamiliar with and have low involvement in, following the classic ELM theory: for high-involvement topic domains where users are willing to think through information to make judgments, they adopt central cues for cognition; for low-involvement topic domains, users are more inclined to capture peripheral information to make corresponding judgments.

4.2.4 Eye Movement Indices and Trust Judgment To explore the relationship between attention and trust judgment in online knowledge Q&A communities and answer whether "seeing is believing," this study analyzed captured user eye movement indices and credibility feedback. First, descriptive statistics were conducted on fixation frequency and fixation duration (seconds) for the information content corresponding interest area (AOI4), with results shown in Table 5 .

Table 5 shows that subjects' fixation duration on campus (high involvement) Q&A information content was significantly longer than on automotive (low involvement) Q&A information content, consistent with heat map results and again verifying hypothesis H2.

To further explore the relationship between user fixation behavior and trust judgment, this study conducted correlation analysis on subjects' fixation duration, fixation frequency, and credibility perception levels. The correlation coefficient matrix is shown in Table 6 .

Table 6 shows that regarding attention to information content, fixation duration

and fixation frequency are significantly positively correlated, but neither fixation duration nor fixation frequency is significantly correlated with credibility. This indicates that users' fixation duration and frequency on Q&A information have little association with their credibility judgment of that information. More viewing does not equal more belief. Therefore, hypothesis H5 is not supported.

5 Research Conclusions and Limitations

Currently, with the vigorous development of digital technology, online knowledge Q&A communities, as a new knowledge-seeking channel, have made knowledge and information circulation more efficient on one hand, but on the other hand have made the public face trust challenges brought by information explosion [38]. In this context, it is necessary to investigate user information behavior and credibility judgment in online knowledge Q&A communities, clarify the underlying mechanisms, facilitate platform algorithm optimization to ensure users obtain high-quality information, maintain platform credibility and sustainable development, and achieve "information win-win" in the digital age.

Compared with existing research, this study expands in three aspects: (1) Previous research on online knowledge Q&A communities mostly focused on users' participation intentions, such as knowledge sharing willingness and payment willingness, rarely addressing information elements and content itself. This study scientifically categorizes different information elements and explores users' knowledge behavior and trust judgment relationships using real page presentations. (2) Compared with most internet information research using data mining and questionnaire methods, this study uses eye-tracking technology to visualize users' page browsing behaviors, forming reliable heat maps and trajectory maps that more intuitively reflect real attention distribution. (3) This study analyzes the relationship between users' attention to information elements and their trust judgment of information in online knowledge Q&A communities, dispelling the stereotype that "seeing is believing," and further enriching research in information effects and media credibility.

The new era shows that individuals have different cognitive processing paths for information from online knowledge Q&A communities, indicating that ELM remains applicable in new media contexts. Based on objective eye-tracking experiment data, this study reveals that when involvement differs, users' attention to knowledge Q&A information also differs, again verifying the classic ELM—when information involvement differs, individuals process information through different paths. Specifically, when facing high-involvement Q&A information, users have longer fixation duration and greater fixation point density on information content; when facing low-involvement Q&A information, users have shorter fixation duration and lower fixation point density on information content, sometimes "skimming," while fixation duration on source achievements is significantly longer. Notably, whether for high- or low-involvement knowledge Q&A information, users always first attend to the source, then the Q&A information itself. Additionally, system cumulative cue values typically receive the

least attention (compared with source and information), only capturing more user attention when values are large (many likes, many comments). This "front-stage information" significantly positively affects users' credibility evaluation of information. This indicates that in online knowledge Q&A communities, users' cognition of Q&A information is influenced by other users' attitudes and evaluations, but not purely "following the crowd" or "parroting others." Internet users tend to use cognitive heuristic cues from social media tools to evaluate online media credibility [39]; in online knowledge Q&A communities, "high likes" and "high comments" capture user attention, and such system cumulative cues, as a cognitive heuristic, affect users' attitude feedback and trust perception toward Q&A information.

The non-significant correlation between eye movement indices and credibility perception in the internet era of information explosion confirms that "seeing is not necessarily believing" and fixation does not equal belief. Individuals' cognitive processing initiative enables them to maintain independent thinking when "seeking knowledge" in online knowledge Q&A communities; browsing behavior cannot represent attitudes and positions toward information. Meanwhile, the effect of source personal achievements on information credibility is not entirely positive, which enlightens platform operators not to be "authority-only" and still needs to strictly control content review for so-called "Big V" certified users to ensure platform information quality. Platform algorithms should be optimized to push higher-quality information to users, maintaining platform credibility and a good information environment for sustainable development.

This study has certain limitations. First, the experimental materials only used the widely used "Zhihu" platform in China, giving the conclusions some national characteristics. Future research could extend to worldwide platforms using international knowledge Q&A platforms for experiments to enhance conclusion robustness. Second, this study used laboratory experiments to present stimulus materials, which still differs from real browsing scenarios to some extent. For example, users often have purposeful search behaviors when using online knowledge Q&A communities, which this study did not incorporate. Future research could enrich experimental scenarios to make conclusions closer to users' daily real behavior. Third, this study connected user attention to information trust judgment through eye-tracking data; future research could introduce EEG and other technical means to conduct more scientific and detailed examinations of users' cognitive processing processes and comprehensively explore the guiding role of information credibility on user behavior.

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