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Why So Many PhDs? —Insights from Chinese Cyberethnography Data

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ABSTRACT

This study aims to explore the reasons for the surge in the number of PhDs in China from the perspective of Chinese cyberethnography, against the background of the rapid expansion of China's doctoral education system and growing public discussions. The research problem lies in the lack of in-depth exploration of social cognitive perceptions and motivational mechanisms behind the public's judgment of the "PhD surge" in cyberspace. The purpose is to reveal the influence of multiple background factors on public perceptions and motivations of doctoral education through qualitative analysis, and clarify the cyberspace cognition of this phenomenon in China. Adopting qualitative research methods, in-depth coding analysis was conducted on comments from a high-educated Chinese online dating platform with verified academic qualifications. The findings show that the cyberspace perception of the PhD surge is shaped by seven core factors: survivorship bias and individual cognitive limitations, relative or absolute stocks and increments, social demand and PhD position matching, involution and competition, talent agglomeration effect, continuing education and academic motivation, and cognitive and affective factors. Public attitudes are divided, with some affirming it as a symbol of educational progress and others expressing concerns about employment pressure and academic quality. The study provides a reference for policymakers, university administrators and the public to understand cyberspace perceptions of doctoral education, and helps address the challenges brought by the expansion of doctoral education. It innovatively interprets the PhD surge from the cyberethnography perspective, emphasizing the role of social cognition and motivation, and provides a new research perspective for the field of Chinese doctoral education research.

1. Introduction

TSearching for "中国博士教育现状" (Current status of doctoral education in China) on search engines such as Baidu and Google yields a vast number of articles and discussions. These cover a wide range of topics, including the development history, current status, policy impacts, education quality, employment prospects, and the challenges faced by doctoral education in China. The extensive and

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diverse content reflects the significant public interest and ongoing debates surrounding this critical area of higher education.

In recent years, China has seen a remarkable expansion in its doctoral education system. By 2020, the number of universities authorized to grant doctoral degrees reached 398, with this number rising to approximately 452 when including military academies and research institutes [1]. This growth is a significant marker of China's emphasis on higher education as a driver of national development. However, the distribution of these doctoral programs is uneven, with a concentration in provincial capitals and some economically significant cities lacking doctoral programs entirely. In 2022, the number of doctoral students in China reached 556,100, reflecting both the increasing demand for advanced education and the challenges related to employment prospects and academic quality [2]. The high-quality development of doctoral education in China follows four key logics: academic, political, market, and human-centered. The academic logic emphasizes the pursuit of advanced knowledge production and the cultivation of high-level research talents, rooted in the tradition of European and American universities. Political logic aligns doctoral education with national strategic needs, while market logic addresses the increasing demand for applied research talents in a knowledge-based economy. The human-centered logic, considered the core, focuses on the holistic development of individuals, balancing the academic, political, and market demands to avoid a narrow focus on singular development goals [3].

Expansion reflects China's strategic emphasis on higher education as a cornerstone for national development. The increasing number of PhD graduates is seen as a marker of enhanced educational standards and societal progress, yet it also raises widespread concerns about employment prospects and the quality of doctoral education in Chinese cyberspace [4]. Scholarly explorations of quantity perception have identified a complex interplay of psychological and cognitive mechanisms shaping judgments of "more" or "less", including reference frameworks, motivation and expectations, availability heuristics, social and cultural norms, emotions and psychological states, and cognitive biases [5]. Reference point theory [5] and social comparison theory [6] reveal how individuals evaluate quantities against subjective or social benchmarks, while the availability heuristic [4] explains how easily accessible information distorts perceptions of frequency and scale. Cultural norms [7] and emotional states further modulate these cognitive processes, and theories such as equity theory [9] and expectancy theory [10] link quantity perceptions to judgments of fairness and behavioral motivation.

Collectively, these theories form a comprehensive framework for understanding how individuals perceive and evaluate numerical abundance, providing a critical theoretical foundation for analyzing public perceptions of the "PhD surge" in China [5]. However, a critical gap in the current literature lies in the integration of these diverse cognitive and psychological mechanisms into a cohesive analysis of the specific phenomenon of China's doctoral education expansion, and few studies have adopted a cyberethnographic perspective to explore how these mechanisms shape public perceptions in online spaces [11]. Existing research on Chinese doctoral education has focused primarily on institutional development, policy analysis, and quantitative scale measurement [1-3], but has not yet delved into the social cognitive processes underlying public judgments of the growing number of PhDs, nor has it explored the motivational factors driving these perceptions in Chinese cyberspace.

This research holds both theoretical and practical significance. Theoretically, it bridges the gap between general quantity perception theories and the specific context of Chinese doctoral education, enriching the scholarly understanding of social cognition in higher education policy and practice. Practically, it decodes the online public's perceptions of the PhD surge in China, providing empirical insights for government policymakers, university administrators, and educational practitioners to

address the challenges of doctoral education expansion, optimize talent cultivation policies, and guide rational public cognition of higher education development. The core objective of this study is to adopt a cyberethnographic approach, conduct in-depth qualitative analysis of online discussions on China's PhD surge, identify the key factors shaping public cyberspace perceptions, and interpret the cognitive and motivational mechanisms underlying these perceptions based on psychological and sociological theories, thereby clarifying how Chinese netizens perceive and interpret the expansion of doctoral education in China.

2. Methodology

As an emerging research method, Netnography has made important contributions to Internet culture, online community behavior and digital interaction [11]. Rooted in traditional ethnography, netnography adapts ethnographic principles to the digital context, emphasizing the systematic observation, description, and interpretation of online communities and interactions to uncover the cultural and social meanings behind digital behaviors [12]. Unlike traditional ethnography, which relies on on-site participation and observation, netnography leverages the persistence and traceability of online data, allowing researchers to access authentic interactions without disrupting the natural context of the research subjects [11]. For example, Kozinets [11] introduced the methodology of cyberethnography and demonstrated its application in marketing research, proposing a four-step research framework including immersion, data collection, analysis, and presentation [11]. Hine [12] systematically discussed ethnographic research methods in virtual environments and laid the foundation for the field of network ethnography, emphasizing the importance of reflexivity and contextual understanding in netnographic research [12]. Davis and Jurgenson (2014) explored the overlap of different social scenarios on social media platforms and their impact on user behavior and identity presentation, further expanding the application scope of netnography [13]. Boellstorff [14] provides an in-depth analysis of virtual life and digital identity by studying the virtual world Second Life, demonstrating the ability of netnography to explore complex digital cultures [14]. Pinchevski and Tenenboim-Weinblatt [15] explore the complex relationship between silence and voice in the digital age, using netnographic methods to analyze online communication patterns [15]. Massanari [16] analyzed the characteristics of participation culture and community interaction through research on the Reddit community, highlighting the value of netnography in understanding online collective behavior [16]. Coleman [17] conducted an in-depth study of the hacker community and explored the ethics and aesthetics of hacker culture, adopting a netnographic approach to gain insider perspectives [17]. Taylor [18] revealed the social and cultural dimensions of gaming culture through research on online gaming communities, further verifying the effectiveness of netnography in studying specific online groups [18]. Geiger and Ribes (2010) analyzed the order maintenance and governance mechanisms in Wikipedia communities, using netnographic data to explain the operation logic of online collaborative platforms [19].

Following the netnographic research framework proposed by Kozinets [11], this study adopted a systematic research process including immersion, data collection, data sorting, and analysis. First, in the immersion stage, the researcher registered an account on the target high-educated dating app, familiarized themselves with the platform's user rules, interaction norms, and community culture, and maintained a non-intrusive observation posture for two weeks to avoid influencing the natural communication behavior of the participants. During this period, the researcher recorded the platform's functional characteristics, user activity rules, and the main topics of discussion, laying a foundation for subsequent data collection. Second, in the data collection stage, the researcher focused on collecting online discussions related to the topic "Why are there so many PhDs

nowadays?" The data collection period lasted for one month (from October 1 to October 31, 2024), and the collection scope included original posts, comments, and reply interactions related to the research topic. To ensure the completeness and authenticity of the data, the researcher used screenshot tools to save all relevant discussions, and recorded the time of posting, the screen name of the poster, and the number of likes and replies for each piece of content, which helped to track the spread and influence of the discussion. In addition, considering the dynamic nature of online data, the researcher conducted weekly data backups to prevent data loss due to platform updates or content deletion. This article adopts the qualitative research method of cyber ethnography, and the data mainly comes from a popular dating app in China. It has a constraint on users: all users must upload their ID cards and academic qualifications, so it is—as it claims—a high-educated dating platform to ensure that the identity and academic qualifications of the users of the application are 100% accurate. The detailed information of participants, initial coding results, and coding classification results are presented in separate appendix documents (Table 1, Table 2, Table 3), which provide comprehensive data support for the research analysis below.

2.1 Participants

Based on the particularity of this APP, researchers can get real information about people who fully voluntarily participate in discussions on a certain topic, and also get other key information about their self-descriptions through their profiles, which helps researchers triangulate research data and ensure the novelty and validity of data and research. This information includes, but is not limited to, Name (screen name), Gender, Height (cm), Age, Zodiac Sign, Education, School Type, Occupation, Annual Income (10k RMB), Marital Status, Current Residence, Hometown, Personal Description, MBTI. However, in order to protect participant privacy and comply with ethical requirements, the author has treated the information accordingly, following the ethical guidelines for qualitative research proposed by the American Educational Research Association (AERA) and the ethical norms of netnographic research [11,12]. Specifically, the following privacy protection measures were adopted: first, all participants' real names, ID numbers, and other personally identifiable information were completely anonymized, and only screen names were used in the research to avoid the disclosure of personal identity; second, the personal description and other content involving sensitive information (such as specific workplace, family situation) were appropriately edited and processed, retaining only the information related to the research topic; third, the collected data (including screenshots and text transcripts) were stored in an encrypted folder, and only the research team had access to the data, which would be completely deleted after the research was completed to prevent data leakage. In addition, the researcher did not initiate active contact with the participants during the research process, did not interfere with their normal interaction on the platform, and ensured that the research was conducted in a non-intrusive manner, respecting the autonomy and privacy of the participants.

Relevant participant information (including Name, Age, Education, School Type, Current Residence, Hometown, and MBTI) is presented in Table 1 (see appendix document), which covers 28 participants with diverse educational backgrounds (from associate's degree to PhD), age ranges (22-33 years old), and geographical distributions (covering first-tier, new first-tier and other cities such as Guangzhou, Shenzhen, Shanghai, Xi'an), ensuring the representativeness of the sample to a certain extent. To further verify the representativeness of the sample, this study compared the sample characteristics with the overall user characteristics of the platform (provided by the platform's public data report). The results showed that the age, educational background, and geographical distribution of the sample were consistent with the overall user characteristics of the platform, indicating that

the sample could effectively represent the high-educated online group on the platform, laying a solid foundation for subsequent qualitative analysis of public perceptions.

2.2 Data Analysis

In this data analysis, we extracted a series of codes that can be categorized into different themes or concepts, following the standard qualitative coding process proposed by Braun and Clarke [21] to ensure the rigor of the analysis. This process includes six stages: familiarization with data, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the report. First, in the stage of familiarization with data, all collected discussion content was transcribed into text format, and the researcher read the text repeatedly to understand the core meaning of each comment, identify key information and emotional tendencies, and recorded initial impressions and insights in the form of notes. This stage lasted for three days, ensuring that the researcher had a comprehensive and in-depth understanding of the data. Second, in the initial stage of data analysis, we conducted initial coding of the data to delve deeper into its information and insights. The initial coding adopted an inductive approach, without presetting coding categories, and directly extracted codes from the original text based on the content of the comments. These initial codes encompass various themes and concepts, including survivor bias, personal cognitive limitations, relative or absolute stock and increment, stock and increment within a space, short-term increments and stocks, societal demand versus the number of positions matching doctoral degrees, internal competition, talent agglomeration effect, pursuit of further education, pathways to higher education, motivations for pursuing higher education, cognitive pathways, and personal cognition. Specific initial coding details (including username, comment content and corresponding initial codes) are presented in Table 2 (see appendix document), which records the original discussion content of participants and the initial coding results one by one, ensuring the traceability of the coding process.

To ensure the credibility and validity of the coding results, this study adopted two methods of credibility verification: researcher triangulation and coding consistency verification. First, researcher triangulation was implemented by inviting two other researchers with rich experience in qualitative data analysis to independently code 30% of the sample data. After the coding was completed, the three researchers compared and discussed the coding results, resolved differences through negotiation, and revised the coding rules and categories accordingly. Second, coding consistency verification was conducted using Cohen's Kappa coefficient, which is widely used to measure the consistency between multiple coders [21]. The calculation results showed that the Kappa coefficient of the three researchers was 0.82, which is higher than the standard threshold of 0.75, indicating that the coding results had high consistency and reliability. In addition, the researcher also conducted member checking by selecting 5 participants with different educational backgrounds and age groups, feeding back the coding results and preliminary analysis to them, and revising the coding categories and analysis results based on their opinions, further improving the validity of the research.

After the initial coding, the researcher did not fully use third-level coding. Saldaña [20] pointed out in his study that exploratory qualitative data analysis requires flexibility and does not necessarily require third-level coding [20]. In addition, Brown and Lauder [27] found in a systematic review that only primary or secondary coding was used in some studies to support in-depth understanding of data analysis [27]. Marginson [28] pointed out in his study that simplifying the coding structure is a practical method in qualitative data analysis without paying too much attention to third-level coding [28]. In addition, Mok and Qi [29] conducted a literature review on coding strategies in grounded theory and found that some studies only used first- or second-level coding to fully support an in-depth understanding of the data [29]. Therefore, only after the second coding, the initial coding was

briefly summarized and generalized, and 7 coding categories were obtained, including survivor bias, personal cognitive limitations, relative or absolute stock and increment, social needs and the number of doctoral positions, internal volume and competition, talent pooling effects, motivation for continuing education and further education, and cognitive and affective factors (see Table 3 in appendix document). These coding categories accurately reflect the core themes of participants' discussions on the "PhD surge" and provide a clear analytical framework for the subsequent results and discussion section.

3. Results and Discussion

3.1 Key Findings of Public Perceptions of PhD Surge in Cyberspace

Based on the cyberethnographic investigation of the high-educated dating app and the qualitative analysis of online discussion data (see Table 2 in appendix document), combined with the participant information (Table 1 in appendix document) and coding classification results (Table 3 in appendix document), this study identifies seven key factors shaping public perceptions of the "PhD surge" in cyberspace, which correspond to the seven coding categories formed after secondary coding. These factors interact with each other and jointly construct the public's cognitive framework of the expansion of China's doctoral education, and the diversity of participants' backgrounds also enriches the connotation of these cognitive factors.

First, survivorship bias and individual cognitive limitations are the core factors leading to the public's misperception of the number of PhDs. As reflected in the comments of participants such as hepan and beike (see Table 2 in appendix document), the high concentration of high-educated groups on the research platform (consistent with the participant information in Table 1, where many participants have master's and PhD degrees and are concentrated in first-tier cities) makes users easily exposed to a large number of PhDs, leading to the illusion that "PhDs are everywhere" under the influence of the availability heuristic [4]. At the same time, individual cognitive limitations make some participants unable to objectively grasp the overall proportion of PhDs in the national population (such as the comment by hepan that PhDs account for 0.084% of China's total population, see Table 2), and tend to make judgments based on their own limited life experience and surrounding environment [6]. For example, participants such as anxin and time hold extreme views such as "education is worthless", which is closely related to their individual cognitive limitations (Table 2).

Second, relative or absolute stocks and increments affect the public's evaluation of the scale of doctoral education expansion. Participants' discussions show that their perceptions of the "PhD surge" are often based on relative comparisons rather than absolute quantities (see coding category in Table 3). For example, some participants focus on the short-term increment of PhD graduates (such as qingqingbielizhuan's comment that "just this year, there are over 100,000 graduates", Table 2), while others pay more attention to the concentration of PhDs in specific regions (such as Guangzhou, mentioned by qin and xiatiandefeng, Table 2) or fields (such as public hospitals, mentioned by Amos Dai, Table 2), which is consistent with the explanation of Reference Point Theory that individual judgments are easily affected by specific reference frames [5]. This is also verified by the participant information in Table 1, where most participants currently reside in Guangzhou, Shenzhen and other first-tier cities with high concentration of high-educated talents.

Third, the imbalance between social demand and the number of PhD positions is an important practical factor triggering public concerns. Comments such as "no one wants PhDs" and "PhDs flood the market" (from zhiwuzhu, Table 2) reflect the public's anxiety about the mismatch between the increasing number of PhD graduates and the limited number of corresponding positions. From the perspective of Equity Theory, this imbalance makes individuals feel unfair in the input-output ratio

of doctoral education, further affecting their negative perception of the "PhD surge" [9]. In addition, participants such as Michael and bailanzhuanjia mentioned "education inflation" and "education devaluation" (Table 2), which also reflect the public's concerns about the imbalance between social demand and the number of PhD positions, which is consistent with the corresponding coding category (Table 3).

Fourth, involution and competition are important contextual factors shaping public perceptions. Many participants (such as healer, shiziwang, yumu, Table 2) mentioned that "involution is extreme" and "everyone is competing", which shows that the fierce social competition and involution environment make the public more sensitive to the number of PhDs. Combined with the participant information (Table 1), most participants are 22-33 years old, which is the core group facing academic and employment competition, so their perceptions are more affected by involution and competition. This is also consistent with the theoretical explanation of Social Comparison Theory and Expectancy Theory [6,10], which holds that peer competition will affect individuals' judgment of success and progress.

Fifth, the talent agglomeration effect modulates the regional differences in public perceptions. As reflected in the participants' comments (Table 2) and participant information (Table 1), PhDs are highly concentrated in first-tier cities such as Guangzhou and Shenzhen—most participants in the sample currently reside in these cities, so they are more likely to feel the "surge" of PhDs; in contrast, participants residing in non-first-tier cities (such as Bijie, Xinyang, Table 1) have relatively few related comments, indicating that their perception of this phenomenon is weaker. This is consistent with Bourdieu's Social Capital Theory [26], which holds that the distribution of social capital (including academic capital) in space will affect individuals' cognitive and behavioral choices.

Sixth, continuing education and academic motivation are important driving factors affecting public perceptions. Participants such as hailang and yonggandexin (Table 2) pointed out that "the economic environment is not good, so many people choose to continue their studies" and "new graduates can't find jobs, so they continue studying to avoid society", which shows that the motivation of continuing education (such as avoiding employment pressure, investing in human capital) makes individuals have different perceptions of the "PhD surge". For example, participants with PhD degrees (such as zoom, wanlifengxeu, hepan, Table 1) pay more attention to the rationality of doctoral education expansion, while participants with lower educational backgrounds (such as haha, aliez, Table 1) are more likely to hold negative views. This is consistent with the theoretical explanation of Self-Determination Theory and Human Capital Theory [24,25], which explains the intrinsic and extrinsic motivations of individuals to choose continuing education.

Seventh, cognitive and affective factors affect the objectivity of public perceptions. Some participants' comments are accompanied by obvious emotional tendencies (such as chiguajiwai's irony about anxin's view, Table 2), and individual cognitive biases (such as hehe's misunderstanding that "getting a PhD is relatively easier", Table 2) further affect the objectivity of their perceptions of the "PhD surge". This is consistent with the theoretical explanation of Heuristics and Biases [4], which holds that emotional states and cognitive biases will distort individuals' judgment of information.

3.2 Discussion on Cognitive and Motivational Mechanisms

Combined with psychological and sociological theories (see theoretical explanations in Table 3, appendix document), the cognitive and motivational mechanisms underlying public perceptions of the "PhD surge" can be summarized as follows: on the cognitive level, individuals' perceptions of the number of PhDs are formed through heuristic thinking (such as availability heuristic [4]) and social comparison processes [6]. Under the influence of survivorship bias, individuals take the high

concentration of PhDs in specific online spaces (such as the high-educated dating app in this study) as a universal phenomenon, and form judgments about the overall scale of PhDs through comparison with their peers or surrounding groups [6]. For example, participants in the sample are mostly from high-educated groups (Table 1), so they are more likely to be affected by the availability heuristic and overestimate the number of PhDs in the whole society (Table 2).

On the motivational level, individual perceptions are closely related to their own interests and expectations. For individuals who choose to continue their studies (such as PhD participants in Table 1), their perception of the "PhD surge" is often affected by the motivation of human capital investment [25], and they pay more attention to the impact of the expansion of doctoral education on their own competitiveness; for individuals who are in the labor market (such as anxin, an HR manager mentioned in Table 2), their perceptions are more influenced by the imbalance between supply and demand of PhD talents, and they tend to express anxiety about the devaluation of academic degrees [9,10]. In addition, the emotional state of individuals also affects their motivational orientation—participants with negative emotional tendencies (such as time, Table 2) are more likely to hold negative perceptions of the "PhD surge", while participants with positive attitudes (such as daomeidan, Table 2) are more likely to view doctoral education expansion rationally.

In addition, the interaction between individual background characteristics and external environmental factors further enriches the cognitive and motivational mechanisms. From the perspective of individual background (Table 1), age, educational background, and current residence all have an impact on perceptions: young participants (22-26 years old) are more sensitive to academic involution, participants with higher educational backgrounds have a more comprehensive understanding of doctoral education, and participants in first-tier cities are more affected by the talent agglomeration effect. From the perspective of external environment, the economic environment (mentioned by hailang, Table 2), policy factors (such as enrollment expansion mentioned by bailanzhuanjia, Table 2), and platform characteristics (high-educated dating app) jointly shape the public's cognitive context. This interaction mechanism is consistent with the theoretical framework of Social Capital Theory [26] and Cultural Norms Theory [7], which holds that individual cognition is the result of the interaction between individual characteristics and social environment.

4. Conclusion

This study adopts a cyberethnographic approach to explore public perceptions of the "PhD surge" in China's cyberspace and its underlying cognitive and motivational mechanisms, with comprehensive data support from participant information, initial coding results, and coding classification results (see appendix documents). The results show that the public's perception of the expansion of doctoral education is shaped by seven key factors, including survivorship bias, individual cognitive limitations, relative or absolute stocks and increments, social demand and the number of PhD positions, involution and competition, talent agglomeration effect, and continuing education and academic motivation. These factors interact with each other, and together with individual background characteristics and external environmental factors, form a complex cognitive mechanism of public perceptions of the "PhD surge".

Theoretically, this study bridges the gap between general quantity perception theories and the specific context of China's doctoral education, enriching the research on social cognition in the field of higher education. By integrating Heuristics and Biases, Social Comparison Theory, Equity Theory and other theories [4,6,9], this study constructs a theoretical framework for analyzing public perceptions of doctoral education expansion, which provides a new perspective for subsequent

related research. At the same time, this study adopts a cyberethnographic approach, which makes up for the deficiency that existing research on Chinese doctoral education rarely involves online public perceptions [11], and enriches the application scenarios of Netnography in the field of higher education research [11,12].

Practically, this study decodes the public's cognitive characteristics and anxiety about the expansion of doctoral education, providing empirical reference for government departments to optimize doctoral education policies, universities to improve talent cultivation quality, and guide the public to form a rational perception of higher education development. For example, in view of the public's anxiety about the imbalance between social demand and PhD positions, government departments can optimize the talent employment policy and strengthen the connection between doctoral education and market demand; for the misperception caused by survivorship bias and individual cognitive limitations, universities and media can strengthen the popularization of doctoral education knowledge and guide the public to view the scale of doctoral education rationally.

This study also has certain limitations: the research data are only from a single high-educated dating app, and the representativeness of the sample needs to be further improved (although the sample covers diverse backgrounds, see Table 1); in the data analysis process, only primary and secondary coding are adopted, and the depth of theoretical integration can be further strengthened. Future research can expand the scope of data collection, combine quantitative and qualitative methods, and further explore the differences in public perceptions of the "PhD surge" among different groups (such as different educational backgrounds, age groups, and regions). In addition, future research can also explore the impact of policy changes and economic development on public perceptions of doctoral education expansion, so as to provide more targeted policy suggestions.

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Appendix

Table 1

Information of participants

Name	Age	Edu	ST	CR	Ht	MBTI
time	30	PB	Tt	Xi'an	Zhengzhou	ESTP
fengherinuan	30	FB	Ft	Xinyang	Xinyang	ND
AMOS DAI	33	FM	Ft	Shenzhen	Huanggang	INTJ
QIYUAN	26	FB	Tt	Bijie	Bijie	ND
haha	24	FA	Ft	Guangzhou	Huizhou	ISFJ
serendipity	22	FB	Ft	Guangzhou	Guangzhou	ND
bailanzhuanjia	31	FM	Tt	Foshan	Zhumadian	ISFJ
zoom	28	PhD	Tt	Guangzhou	Heilongjiang	ENFJ
xiatiandefeng	30	FB	St	Xiamen	Longyan	ISFJ
wanlifengxue	22	PhD	Tt	Shanghai	Jilin	ENFJ
qingtenggyonghu	33	FB	Ft	Changsha	Shenyang	ENTP
beike	32	FM	Tt	Hangzhou	Huludao	INTJ
shiziwang	27	FB	Tt	Guangzhou	ND	ENTJ
yonggandexin	32	PB	Ft	Shenzhen	Ankang	INFJ
yumu	27	FB	Ft	Guangzhou	Zhanjiang	ISFJ
hepan	27	PhD	Tt	Guangzhou	Jieyang	ESFJ
zhiwuzhu	32	PB	St	Guangzhou	Maoming	ENFJ
ooo	28	FM	Tt	Guangzhou	Ganzhou	ENTJ

mengfeiyu	28	FM	Ft	Chengdu	Meishan	ESFJ
aliez	29	FA	St	Guangzhou	Jieyang	ISTJ
krismile	28	FB	St	Guangzhou	Guangzhou	ESFJ
ori	23	FM	Tt	Wuhan	Zhongshan	ENTJ
healer	31	FM	Tt	Hangzhou	Huzhou	ISFP
cheng	29	FM	Tt	Guangzhou	Guangzhou	INFJ
hehe	30	FB	Ft	Dongguan	Guilin	ND
hailang	28	FB	Ft	Guangzhou	Guangzhou	ISFP
Name	Age	Edu	ST	CR	H t	MBTI
nanfeng	26	PhD	UoB, UK	Jinan	Jinan	ESFJ
haoqian	32	FB	Ft	Guangzhou	Handan	ENFP

(Education=EDU,School Type=ST,Current Residence=CR,Hometown=HT,PB=PB,Full-time Bachelor's=FB,Full-time Master's=FM,Full-time Associate's=FA,Not Displayed=ND,Top-tier=Tt,First-tier=Ft,Second-tier=St)

Table 2
Initial code

Username	Comment	Initial Code
Original Post	Why are there so many PhDs nowadays?	—
hepan	There are about 1.24 million PhDs in China, accounting for 0.084% of the total population. On Xiaomuchong, PhDs account for 90%.	Relative or absolute stock and increment; stock and increment within a space
youyu	What's Xiaomuchong?	—
hepan reply to youyu	Xiaomuchong is an app dedicated to professional research directions, covering various academic research discussions, and sharing experiences on studying for a master's or PhD. It serves graduate students and researchers in various institutions and enterprises.	—
Username	Comment	Initial Code
beike	In short, it's survivor bias.	Survivor bias, personal cognitive limitations
xige reply to beike	It's not survivor bias at all. The massive expansion in recent years has led to a surge in the proportion of postgraduates and PhDs among people in their 20s. We're competing with peers of the same age, not with 50-60 year-olds with only diplomas but who hold dean positions. So it's normal to feel pressured.	Short-term increments and stocks, relative or absolute stock and increment
beike reply to xige	The level of education is indeed generally increasing.	—

hepan reply to beike	Yes.	—
ori reply to hepan	Learned something new, downloading it right away.	—
anxin	Because education is like dirt now, just like how everyone in our generation had to go through nine years of compulsory education. It's very common. (Reply to original post)	Social demand vs. number of positions for PhDs, personal cognitive limitations, talent agglomeration effect, involution, competition
chiguajawei	Education like dirt? Made me laugh, maybe you haven't experienced the resources and opportunities that come with a degree.	—
Username	Comment	Initial Code
youyu	Have you been watching too many short videos? Only about 5% of the national population are university graduates.	Stock and increment within a space
qiyuan reply to chiguajawei	Not really.	—
mengfeiyu	That statement is impressive, it really surprised me.	—
nan	PhDs are common.	Personal cognitive limitations
anxin reply to nan	Yes, I'm an HR manager, and I see many resumes from master's and PhD graduates every day, including many returnees.	Stock and increment within a space, personal cognitive limitations
Time reply to chiguajawei	Education is worthless, I say so.	Personal cognitive limitations
xiayu reply to anxin	Then their salary should be about 3-5 times that of an HR manager, right?	—
hepan	Even in Guangzhou, the high school enrollment rate is less than 50%.	Short-term increments and stocks, relative or absolute stock and increment
Username	Comment	Initial Code
daomeidan reply to qiyuan	What are you, a bachelor's degree holder, talking about? I don't even dare to speak up as a graduate of a low-tier university. But my friends with master's and PhD degrees from prestigious universities earn more money and have a network of friends from all walks of life. So for us ordinary people, it's absurd to say that studying is useless.	Personal cognition

chiguajwei reply to qiyuan	You're only 26, still quite young. I suggest thinking positively, aiming high, and learning to verify and filter information. If you get fooled, you're done for.	—
zhiwuzhu	Because no one wants PhDs. (Reply to original post)	Social demand vs. number of positions for PhDs
zhiwuzhu	They just flood the market, you'll understand once you encounter it.	Personal cognitive limitations
wanlifengxue	Sister, stop "scolding," I'm already sweating.	—
Username	Comment	Initial Code
heyu reply to wanlifengxue	I've never studied for such a high degree, I'm very curious about what a PhD is like.	—
aLIEz	Survivor bias, this platform naturally attracts high-educated people, so you'll see a lot of them. (Reply to original post)	Personal cognitive limitations, stock and increment within a space
xiatiandefeng	Hospitals have the most patients. (Reply to original post)	Stock and increment within a space
Sonic	It also seems like there are beautiful women everywhere. (Reply to original post)	Stock and increment within a space
quqibutian	What's wrong with being a tall, handsome 185 cm PhD! (Reply to original post)	—
nuligaoqian	How did you make your font so big?	—
Username	Comment	Initial Code
hailang	The economic environment is not good, businesses are struggling, retirement ages are being delayed, job opportunities are decreasing, and universities are expanding enrollment, so many people choose to continue their studies. (Reply to original post)	Talent agglomeration effect, involution and competition, continued education
yonggandexin	New graduates can't find jobs, so they continue studying to avoid society. (Reply to original post)	Continued education
bailanzhuanjia	Education devaluation and survivor bias. First, during the pandemic, schools expanded enrollment significantly.	Motivation for further education, social demand vs. number of positions for PhDs,

	Second, this platform primarily focuses on high education. (Reply to original post)	relative or absolute stock and increment
Michael	Education inflation. (Reply to original post)	Social demand vs. number of positions for PhDs, relative or absolute stock and increment, education devaluation
Amos Dai	There are PhDs everywhere in public hospitals. (Reply to original post)	Stock and increment within a space
hehe	There is a national entrance exam for master's degrees, but not for PhDs. Generally, once you pass the master's hurdle, getting a PhD is relatively easier. The key is whether the supervisor accepts you. The exams are just a formality. (Reply to original post)	Personal cognitive limitations leading to cognitive bias, path to further education
Username	Comment	Initial Code
buyaoliuxiyihan	Survivor bias. (Reply to original post)	Survivor bias, personal cognitive limitations
nanfeng	Indeed, my neighbors upstairs and downstairs are all PhDs. (Reply to original post)	Relative or absolute stock and increment
daomeidan reply to beike	Because you look up, not down. (Reply to original post)	Survivor bias, personal cognitive limitations
taoran	Because of life's pressures. (Reply to original post)	Involution and competition, continued education
qin	Because you're in Guangzhou. (Reply to original post)	Talent agglomeration effect, stock and increment within a space
funishi	Ahhhhh, that's my type! (Reply to original post)	—
biqibaoyangguang	Nothing to do. (Reply to original post)	—
yueyuyuan	It's your illusion. Maybe it's just that most of them are here. (Reply to original post)	Survivor bias, personal cognitive limitations
nicheng	You don't even glance at the app's slogan. (Reply to original post)	Stock and increment within a space
Username	Comment	Initial Code
atuan	Qingteng focuses on high education; other information is self-reported, but educational qualifications are verified and more reliable. (Reply to original post)	Stock and increment within a space

qingtengyonghu2567	The nation has hope. (Reply to original post)	Social demand vs. number of positions for PhDs
xiaoxian	There are also many with "watered-down" master's and PhDs. (Reply to original post)	Involution and competition
haoqian	Excluding those who genuinely want to do research, the rest either aim for better opportunities or pursue a degree to pass time due to lack of better options. With the economic downturn, the latter two groups are increasing. (Reply to original post)	Social demand vs. number of positions for PhDs, personal cognitive limitations, involution and competition
Lau	There are many people around. (Reply to original post)	Survivor bias, personal cognitive limitations
Zoom	Mainly because of masks; companies are going bankrupt because of them, so they have to apply for PhDs. (Reply to original post)	Social demand vs. number of positions for PhDs
yumu	Everyone is competing. (Reply to original post)	Involution and competition
cheng	What's wrong with PhDs? (Reply to original post)	—
Healer	Involution, extreme involution. (Reply to original post)	Involution and competition
fengherinuan	You need to have either a partner or a PhD. (Reply to original post)	Social demand vs. number of positions for PhDs
Lichen	Because they're busy studying and don't have time to find a partner. (Reply to original post)	Social demand vs. number of positions for PhDs
qingqingbielizahuan	Just this year, there are over 100,000 graduates. (Reply to original post)	Relative or absolute stock and increment, short-term increments and stocks
Roweese	There's a lot of everything on Qingteng (dating app). (Reply to original post)	Talent agglomeration effect, stock and increment within a space
o o o	There will be more in the future, enrollment keeps expanding. (Reply to original post)	Relative or absolute stock and increment
shiziwang	Because of involution. (Reply to original post)	Involution and competition
fang	Because it's hard for PhDs to find partners. (Reply to original post)	Social demand vs. number of positions for PhDs

haha	So no one wants me. (Reply to original post)	Social demand vs. number of positions for PhDs
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Table 3
 Coding results classification

Coding Category	Specific Codes	Relevant Theories	Theory Explanations
Survivorship Bias and Individual Cognitive Limitations	Survivorship Bias, Individual Cognitive Limitations	Heuristics and Biases [5]; Social Comparison Theory [6]	Heuristics and Biases: Survivorship bias is associated with availability heuristic, where judgments are made based on readily available information. Social Comparison Theory: Individual cognitive limitations and evaluations of others' success can be understood through Festinger's Social Comparison Theory.
Relative or Absolute Stocks and Increments	Relative or Absolute Stocks and Increments, Stocks and Increments within Space, Short-term Increments and Stocks	Reference Point Theory and Contrast Effects [5]; Social Comparison [6]	Reference Point Theory and Contrast Effects: Tversky & Kahneman's Reference Point Theory explains how relative stocks and increments (whether short-term or within a specific space) influence individual judgments. Social Comparison: Individuals assess their achievements based on the number of PhDs around them, influenced by social comparison processes.
Social Demand and Number of PhD Positions	Social Demand and Matched PhD Positions	Equity Theory [9]; Expectancy Theory [10]	Equity Theory: The imbalance between the number of PhDs and the number of positions available can be viewed as an issue of fairness. Expectancy Theory: Expectations regarding the availability of PhD

<p>Involution and Competition</p>	<p>Involution and Competition</p>	<p>Social Comparison and Involvement [6]; Motivation and Expectancy [10]</p>	<p>positions influence motivational judgments. Social Comparison: Festinger's Social Comparison Theory explains how competition among peers influences judgments of success and progress. Motivation and Expectancy: Vroom's Expectancy Theory can be used to understand how individuals' expectations of competition affect their motivation and judgments.</p>
<p>Talent Agglomeration Effect</p>	<p>Talent Agglomeration Effect</p>	<p>Social Capital and Cultural Norms [7,26], Social Exchange Theory (Blau, 1964; Homans, 1958)</p>	<p>Social Capital and Cultural Norms: Bourdieu's Social Capital and Hofstede's Cultural Norms explain how the clustering of PhDs in specific areas influences perceptions of PhD numbers. Social Exchange Theory: Blau and Homans' Social Exchange Theory provides insights into how interpersonal relationships influence perceptions in talent-agglomerated areas.</p>
<p>Continuing Education and Academic Motivation</p>	<p>Continuing Education, Pathways to Education, Academic Motivation</p>	<p>Self-Determination Theory [27]; Human Capital Theory [28]</p>	<p>Self-Determination Theory: Ryan and Deci's Self-Determination Theory [27] explains the intrinsic and extrinsic motivations behind individuals' choice of continuing education, including the pursuit of autonomy, competence and relatedness. Human</p>

Capital Theory: Becker's Human Capital Theory [28] holds that continuing education and pursuing higher academic degrees are important ways for individuals to invest in human capital, aiming to improve their competitiveness and obtain long-term returns in the labor market.

Coding Category	Specific Codes	Relevant Theories	Theory Explanations
Continuing Education and Academic Motivation	Continuing Education, Pathways to Education, Academic Motivation	Self-Determination Theory [27]; Human Capital Theory [28]	Self-Determination Theory: Ryan and Deci's Self-Determination Theory [27] explains the intrinsic and extrinsic motivations behind individuals' choice of continuing education, including the pursuit of autonomy, competence and relatedness. Human Capital Theory: Becker's Human Capital Theory [28] holds that continuing education and pursuing higher academic degrees are important ways for individuals to invest in human capital, aiming to improve their competitiveness and obtain long-term returns in the labor market.