

Algorithmic Agency and the Transnational Self: How Returning Female Migrants Negotiate Digital Affordances in China

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ABSTRACT

Today, artificial intelligence deeply influences how return migrants adapt to their home countries. While the economic integration of highly educated Chinese returnees is well documented, their daily digital and gendered experiences remain largely underexplored. Upon returning, the independent transnational values these women cultivated abroad frequently clash with traditional local expectations. This qualitative study applies the Social Identity Model of Identity Change (SIMIC) to examine how highly educated Returning Chinese Female Migrants (RCFM) negotiate algorithmic pressures in contemporary China. Based on in-depth interviews and retrospective online observations of 20 participants, the findings reveal that returnees experience recommendation algorithms as highly active social agents. Participants perceive that these automated systems reduce their complex backgrounds to basic demographic categories—a process identified as algorithmic essentialism. Consequently, users feel the algorithms aggressively amplify traditional marriage timelines, aesthetic censorship, and workplace hostility, severely disrupting the women's social identity continuity. However, the data demonstrates that returning women do not passively accept this automated curation. They actively exercise advanced algorithmic literacy to train recommendation systems, resist gendered digital pressures, and construct empowering online networks. Ultimately, this study suggests that algorithmic agency is a vital psychological coping strategy for female migrants striving to preserve their authentic transnational identities during a complex cultural reintegration process.

Keywords: *Algorithmic agency, algorithmic essentialism, return migration, female migrants, artificial intelligence.*

INTRODUCTION

Modern migration is not just a physical journey. It also involves moving across different digital environments. In recent years, an increasing number of Chinese women have returned home after acquiring advanced degrees and global values overseas (Gu et al., 2025; Yang et al., 2025). This study conceptualizes this specific, highly educated demographic as Returning Chinese Female Migrants (RCFM). Now, they must adapt to a highly connected domestic environment. Past migrants mainly faced physical and economic barriers. Today, returnees experience the challenges of returning directly through their smartphone screens. Researchers have heavily studied the economic integration of these skilled workers. However, a notable gap remains in understanding how they perceive artificial intelligence affecting their cultural adaptation.

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Upon returning, these women often face a strong gendered culture shock (Yang et al., 2025). Their equal values from overseas clash with traditional patriarchal norms at home (Gu et al., 2025). Participants report that recommendation algorithms automatically amplify this cultural conflict. These automated systems are not neutral communication tools. Users perceive that recommendation algorithms often reduce the complex identities of returning women to basic details like age and gender. This process is known as algorithmic essentialism. As a result, returnees feel that artificial intelligence floods their screens with content about traditional timelines and intense workplace competition. This constant filtering turns the internet into a perceived automated surveillance system. It directly threatens their transnational identity.

However, users do not just passively accept algorithmic control. Recent studies show how individuals actively fight machine dominance to protect their mental health. This digital resistance requires algorithmic agency. Users must know how to manipulate content filters and train artificial intelligence. Returning women use smart digital tactics to regain control. They intentionally train algorithms to serve their psychological needs.

This study uses the Social Identity Model of Identity Change to explain this dynamic. This model relies on three main concepts to measure successful psychological adjustment. The first is identity continuity. This means a person keeps their connections with past social groups. The second is identity gain. This means a person actively builds new group memberships. The third is identity compatibility. This occurs when old and new identities can exist together peacefully. This article asks a central question. How do returning women perceive and manipulate algorithms to maintain their identities online? Ultimately, this research shows that algorithmic literacy is a crucial survival tool.

LITERATURE REVIEW

a. The Social Identity Model of Identity Change (SIMIC) in Migration

The Social Identity Model of Identity Change (SIMIC) is a major psychological theory. Foundational scholars originally developed this model to explain how multiple group memberships and identity compatibility protect mental health during severe life transitions (Iyer et al., 2009). It explains how people adjust their minds during big life transitions. Moving to a new country or returning home is a massive life transition. SIMIC is based on foundational social identity theory (Tajfel et al., 1979). It argues that the human groups we belong to shape our basic self-concept, especially when navigating distinct cultural and social environments (Smyth et al., 2025). Our group memberships also dictate our daily values and actions. These group identities give people essential psychological resources. They provide a deep sense of connection and personal control. People desperately need these resources to stay mentally healthy during difficult times.

SIMIC highlights two main paths for successful human adjustment. The first path is social identity continuity. This concept means a person keeps their connections with old groups. Keeping old connections provides emotional stability. The second path is social identity gain. This concept means a person actively joins new groups. Building new groups helps reduce the fear and stress of an unknown environment.

Recent global research widely uses SIMIC to study these major life changes. For example, Smyth et al. (2025) show that gaining a new identity requires active mental effort. People must work hard to balance conflicting values from different social groups. Furthermore, Griffin et al. (2025) studied the physical benefits of this transition process. They

found that gaining new identities helps people regulate their biological stress levels much better. Additionally, Panagiotopoulos et al. (2025) used this exact model to study displaced populations. They proved that building new group identities strongly increases psychological resilience. Researchers use SIMIC very effectively in these international studies.

However, researchers rarely apply SIMIC to highly educated Chinese returnees. Studies inside China mostly focus on rural workers moving to large cities. Return migration from a foreign country is a very different experience. It is rarely a smooth or easy homecoming. People often experience a severe problem called identity incompatibility. This problem happens when the cultural rules of a past group clash directly with the cultural rules of a new environment.

For RCFM, this identity clash is massive. These women spent years studying and working abroad. They built equal, independent, and highly professional identities. When they return to China, these modern identities conflict with traditional local realities. The returnees try hard to join local social and professional networks. However, these local networks often expect traditional gender roles. They also involve intense and exhausting workplace competition. As a result, returning women face huge cultural barriers. They struggle to keep their international identities alive. They also struggle to gain healthy new identities at home. Therefore, SIMIC provides a strong theoretical rationale for this study. It offers a structured mechanism to explain how these women process the loss of their overseas professional networks. It also provides a framework to measure how they survive the stress of adopting new social roles.

b. Algorithmic Essentialism and the Social Clock

In the modern world, this intense identity struggle happens directly on digital screens. Artificial intelligence controls modern digital platforms. Recommendation algorithms decide exactly what information users see every single day. Ahmmad et al. (2025) and Latif et al. (2024) argue that these algorithms create deep and dangerous echo chambers that strongly impact public opinion and mental health. These automated echo chambers strongly impact mental health and personal identity. The automated sorting process often creates a problem called algorithmic essentialism. This study adapts the concept of algorithmic essentialism from foundational critical data studies (Cheney-Lippold, 2011). In this paper, algorithmic essentialism is defined as the process where computer systems group human users into rigid, stereotyped categories. The algorithms base these groups on basic biological traits like age and gender. They completely ignore complex personal histories and individual achievements.

For highly educated returning women, this algorithmic essentialism is a major daily threat. Visual social media platforms flood female users with highly targeted content. Qiang (2025) proved that this targeted content significantly changes human gender consciousness. The recommendation systems often promote traditional patriarchal values. They constantly push content related to the social clock. The social clock is the expected cultural timeline for major life events. Yang et al. (2025) show that this clock forces Chinese women to prioritize marriage and childbirth before the age of thirty.

Many returning women miss this traditional timeline. Because they deviate from the normal schedule, local society often stigmatizes them. Furthermore, extended exposure to targeted social media expectations significantly alters psychological well-being, as platforms are frequently used as outlets for emotional validation but simultaneously trigger intense distress regarding peer conformity (Maliki et al., 2024). The digital algorithms amplify this

exact social pressure. Jing (2025) found that recommendation systems force young women to constantly compare themselves to these traditional timelines. The local marriage and job markets often penalize female academic excellence, and the digital ecosystem accelerates this tension. Recent studies on Xiaohongshu demonstrate that platforms simultaneously challenge and reinforce conventional beauty and gender standards, deeply entrenching women in a consumerist algorithmic culture (Gu et al., 2025). The artificial intelligence feeds this anxiety-inducing content directly back to the returning women.

c. Algorithmic Literacy and Digital Resistance

Despite these powerful algorithmic pressures, users are not completely helpless. People do not passively accept everything the artificial intelligence recommends. Recent academic studies highlight a new concept called algorithmic resistance. Bonini and Treré (2024) argue that users constantly fight against platform control in their daily lives. They actively resist the automated rules to protect their personal freedom and mental health. This resistance is a crucial part of modern digital survival.

To resist artificial intelligence control, users need a high level of algorithmic literacy. Oeldorf-Hirsch and Neubaum (2025) define algorithmic literacy as the ability to understand how computer systems filter and select content. Users must know that machines manipulate their daily feeds. They must also learn how to manipulate the computer system back. Returning Chinese female migrants actively use these specific technical skills. They use algorithmic literacy to protect their mental health from traditional gender pressures. Similarly, maintaining active control over social networking sites has been identified as a critical strategy for managing anxiety and psychological uncertainty during significant cultural and environmental transitions (Sahharon et al., 2024).

These women deliberately change their online interaction patterns to train the recommendation systems. They actively search for and interact with empowering content. They completely ignore or block anxiety-inducing content about marriage and age. Yue (2025) describes this specific behaviour as a digital craftsmanship spirit. Users employ informal and clever tactics to bypass strict algorithmic restrictions. They manually build new positive information environments for themselves.

By doing this, returning women exercise true algorithmic agency. They take control away from the digital platform. They force the artificial intelligence to serve their psychological needs for independence and support. This active manipulation is a modern and highly effective method of identity protection. It allows them to maintain their transnational values. It also helps them survive the difficult transition back into the domestic environment.

Furthermore, recent scholarship reveals that digital resistance on Chinese platforms often involves a dynamic process of continuous negotiation. Investigating Douyin users, Lin (2025) found that algorithmic awareness creates a paradox: while users are highly annoyed by algorithmic simplification and commercial exploitation, their resistance behaviors frequently oscillate based on specific sociocultural contexts and platform censorship. Returning Chinese female migrants rely heavily on these exact dynamic tactics; they use their algorithmic literacy not just for technical navigation, but as an essential, flexible tool for transnational identity negotiation.

d. Research Gap and Research Questions

Current academic literature successfully uses the SIMIC framework to understand student integration worldwide. Other studies also examine how people react to algorithms in general media studies. However, researchers have not successfully combined these two distinct fields. Past studies mostly focus on physical transitions or broad media consumption. The specific role of artificial intelligence in the identity transition of returning female migrants remains completely unstudied.

This study addresses this exact research gap. It combines the psychological transition model of SIMIC with the technological concept of algorithmic agency. It investigates how highly educated Chinese women perceive and experience pressures from artificial intelligence. It also explores how they fight back against recommendation systems to protect their modern identities. To guide this qualitative inquiry, this study asks three specific research questions:

RQ1: How do returnees perceive that artificial intelligence recommendation algorithms amplify traditional gender expectations and disrupt their social identity continuity?

RQ2: How do returning Chinese female migrants perceive the algorithmic essentialism and automated content curation on domestic digital platforms?

RQ3: What specific strategies of algorithmic literacy and digital resistance do these women use to regain algorithmic agency and reconstruct their independent identities?

METHODOLOGY

a. Research Design

This study uses a qualitative research design to investigate how returning Chinese female migrants rebuild their identities online. The research relies on two main theoretical frameworks. These are the Social Identity Model of Identity Change (SIMIC) and the concept of algorithmic agency. This study treats recommendation algorithms as active and powerful forces. These automated systems strongly influence the human identity transition process. A qualitative approach provides a deep and detailed description of real lived experiences. It captures exactly how these women actively perceive and fight against artificial intelligence. The study combines in-depth interviews with targeted online observations. This combination shows how these women actively train algorithms to gain new identities and protect old ones.

b. Sampling and Participants

The researchers recruited participants using a snowball sampling method. This referral method is highly effective for studying connected digital communities. The research team first identified group leaders in local returnee online communities. These leaders then suggested other potential participants from their private networks. This peer referral process built trust quickly. This trust allowed participants to speak honestly about their digital anxieties. Participants had to meet five specific rules. They had to be female. They needed Chinese nationality. They had to hold at least a Bachelor's or Master's degree obtained outside mainland China to meet the definition of highly educated. They must have lived outside mainland China for at least 12 months. This 12-month minimum matches standard migration theories for building a genuine transnational identity. They had to be back in mainland China for more than 12 months. This timeline ensures they had passed the initial honeymoon phase and experienced full reverse culture shock (Alkhalaf et al., 2024). Finally, they needed to use social media every single day. The sampling process recruited 20 informants. By the sixteenth

interview, no new themes about algorithmic experiences appeared. The final four interviews only confirmed existing patterns. This evidence proves the data reached thematic saturation. The participant demographic details are summarized in Table 1 below.

Table 1: Participant Demographics Profile

ID	Age	Education level	Occupation	Location	Months Away	Months Back	Destination City Tier	Marital Status	Main Platforms
R1	25	PhD Student	Student	UK / Malaysia	24	14	Tier-2	Single	WeChat, Douyin
R2	30	PhD	Teacher	Hong Kong / Malaysia	36	24	Tier-3	Married	Xiaohongshu, Douyin
R3	29	PhD	Researcher	Taiwan / Malaysia	48	18	Tier-2	Single	Xiaohongshu, WeChat
R4	30	PhD Student	Univ. Teacher	Malaysia	16	12	Tier-3	Married	Douyin, WeChat
R5	32	Master's	Academic Staff	USA	18	36	Tier-2	Single	WeChat, Bilibili
R6	28	Master's	Univ. Teacher	UK	12	24	Tier-2	Married	Douyin, TikTok
R7	32	Master's	Teacher	Hong Kong	12	48	Tier-2	Married	WeChat, Xiaohongshu
R8	32	PhD Student	Teacher	Malaysia	84	36	Tier-2	Married	Xiaohongshu, Instagram
R9	35	PhD Student	Univ. Teacher	UK	60	48	Tier-2	Married	Xiaohongshu, WeChat
R10	28	PhD	Teacher	Thailand	60	18	Tier-3	Single	Xiaohongshu, Instagram
R11	30	PhD Student	Researcher	HK / Nepal / Taiwan	24	12	Tier-1	Married	Xiaohongshu
R12	28	Master's	Univ. Teacher	Australia	18	36	Tier-3	Married	WeChat, Xiaohongshu
R13	35	PhD Student	Univ. Teacher	Malaysia	12	12	Tier-2	Married	WeChat, Taobao
R14	32	Master's	Media Professional	Hong Kong	12	48	Tier-1	Single	Xiaohongshu, WeChat
R15	32	PhD Student	Teacher	Hong Kong	12	24	Tier-2	Single	WeChat, Douyin
R16	29	Master's	Corporate Staff	Singapore	24	16	Tier-1	Single	Xiaohongshu, WeChat
R17	28	Master's	Marketing Manager	UK	24	24	Tier-1	Married	Xiaohongshu, WeChat
R18	25	Bachelor's	Internet Industry	Australia	42	14	Tier-2	Single	Xiaohongshu, Douyin
R19	33	PhD	Univ. Lecturer	Singapore	60	24	Tier-1	Married	Xiaohongshu, WeChat
R20	28	Master's	Freelance Artist	Germany	30	16	Tier-2	Single	Xiaohongshu, Instagram

c. Data Collection

This study used two different methods to collect data. The first method involved semi-structured in-depth interviews. The second method involved digital online observation. The researchers conducted the interviews face-to-face or through online video platforms like WeChat and QQ. Each interview lasted about 30 to 60 minutes. The semi-structured format guided the participants using a prepared protocol. The first author conducted all the interviews. She is a bilingual female researcher and a returning migrant herself. This shared background and positionality built strong trust with the participants. All interviews were conducted in Mandarin Chinese. The research team audio-recorded the sessions with explicit permission. The team then transcribed the audio verbatim into text. The first author translated the selected qualitative quotes into English. A second bilingual academic colleague checked the translations to ensure complete semantic and cultural accuracy. The interview questions strongly focused on social media use. The interviewers explored how informants

perceived targeted algorithmic content. They asked how participants changed their digital behaviours after returning to the domestic internet system. The conversations show how participants interacted with recommendation algorithms and curated their daily content.

The second data collection method was structured online observation. This step helped confirm the self-reported interview data. The researchers observed the specific social media platforms that participants used most often. The researchers conducted a retrospective observation. They reviewed the historical digital footprints and timeline posts of the users. They specifically analysed the exact three months right before the physical return date. They then compared this to the exact three months right after the physical return date. The researchers used a checklist to record specific behaviours related to algorithmic interactions. The observation focused on three main areas. It measured usage frequency by counting posts. It ranked usage levels to measure community connections. Researchers also documented the main themes of the posts. This step identified links between algorithmic curation and self-presentation strategies.

d. Ethics Approval Statement

The researchers followed all ethical standards set by the institutional research committee. They obtained informed consent from all 20 participants before starting. The researchers fully explained the exact limits of the online tracking. The research team applied strict rules to make the data anonymous. The final report uses an analytical storytelling approach to prevent any negative influence from sharing digital footprints.

e. Data Analysis

The researchers analysed the interview transcripts and observation notes using a thematic analysis approach. The study strictly applied the six-phase framework for reflexive thematic analysis (Braun & Clarke, 2024). The first phase involved reading the transcripts multiple times to understand the emotional tone. The second phase was generating initial codes for interesting algorithmic experiences. The third phase focused on grouping the initial codes into broader patterns. The fourth phase required checking if the themes accurately represented the entire dataset. The fifth phase involved defining and naming the themes to highlight algorithmic agency. The final phase was writing the report using vivid participant quotes to illustrate the findings.

RESULTS

The qualitative data collected from the participants reveals a very clear pattern. The digital sphere is not a passive background for return migration. Instead, participants experience social media platforms and their underlying recommendation systems as highly active environments. Returning Chinese female migrants must continuously negotiate their identities within these automated spaces. The digital experience fundamentally alters their psychological transition back to their home country.

The findings of this study are organized into three primary sections to directly answer the research questions in chronological sequence. We analyse these interactions deeply through the Social Identity Model of Identity Change. This psychological framework helps us understand exactly how users perceive algorithms helping or harming the identity transition process. The data shows that users feel algorithms actively govern how they see themselves and how society judges them.

a. Perceiving Algorithmic Essentialism and Automated Curation

Returning women experience a severe structural dislocation upon arriving in China. This dislocation is closely tied to the social clock—the culturally mandated timeline for marriage, reproduction, and professional progression. The empirical data indicates that participants perceive artificial intelligence systematically amplifies this daily anxiety. Returnees feel that recommendation systems accelerate this social pressure through a technological process they experience as algorithmic essentialism.

Highly educated returning women possess complex and multi-layered transnational identities. They have diverse professional skills and broad international experiences. However, users report that modern recommendation engines do not accommodate this beautiful complexity. Instead, they perceive that the artificial intelligence reduces them to basic demographic parameters. They feel the systems categorize them mostly by their biological sex and their biological age. The women believe the algorithm ignores their advanced degrees and overseas work experience.

By doing this, the platform appears to automate traditional patriarchal offline pressures, pushing intense cultural expectations directly onto their smartphone screens. The returning women open their daily applications expecting to see diverse global content. Instead, they find a highly restricted digital environment. They perceive that the artificial intelligence decides they only want to see specific gendered content. This creates a massive psychological shock. The women realize that the domestic digital world does not recognize their hard-earned international identities; the system only sees their gender and their age. This marks the beginning of their identity incompatibility. Their past social identity is immediately rejected by the new automated environment.

Respondent 3 studied in Taiwan and Malaysia. She noticed how the platform categorized her immediately. She felt the algorithm treated her simply as a target for male attention, completely ignoring her academic status:

When I post a single photo, I'm inundated with private messages from men...I realized the platform's recommendation logic pushes personal photos to male users...So I limit my photos and avoid personal details altogether (Respondent 3, R3).

This quote clearly demonstrates how users experience algorithmic essentialism. R3 perceives that the artificial intelligence sees a photo of a young woman and immediately distributes it to single men, assuming her primary purpose on the platform is dating. The system forces her to change her behaviour, making her limit her photos to protect herself from unwanted attention.

b. Amplifying Traditional Gender Expectations and Disrupting Identity

Building upon this demographic reduction, participants feel the algorithm actively disrupts their social identity continuity by enforcing strict gender norms. This automated disruption manifests across three distinct domains of their daily lives: fertility anxiety, professional hostility, and aesthetic censorship.

1) The Commercialization of Age and Fertility Anxiety

The structural friction of return migration is further intensified by local reproductive norms. Participants perceive that artificial intelligence systems heavily promote age-graded expectations. For unmarried returnees, automated digital feeds become a continuous inventory of peer conformity. Users feel the algorithms commercialize age and fertility milestones, presenting this specific content in a manner that induces profound relative deprivation.

Users suspect the algorithms detect when an unmarried woman is in her late twenties. The system then automatically selects content designed to capture her attention through fear or comparison, such as endless videos of weddings, baby showers, and the difficulties of older women in the marriage market. Respondent 18, who settled in a second-tier city, noted that her daily interaction with domestic platforms locked her into a highly gendered stream of targeted content:

I spend nearly 5 hours daily on Xiaohongshu and Douyin...I follow many accounts talking about leftover women, marriage pressure, gender salary gap...These videos make me feel my struggles are universal...But sometimes I see hateful comments mocking women who refuse blind dates, which makes me uncomfortable and afraid to post my own single life opinions publicly (Respondent 18, R18).

R18 perceives that the artificial intelligence identifies her age and gender, then serves her massive amounts of content about leftover women. Under the psychological framework, this perceived algorithmic action prevents healthy social identity gain. She feels the system floods her with negative reinforcement, actively blocking her psychological recovery. Respondent 4, a doctoral student, feels the algorithm uses highly emotional content to actively change her personal life plans:

Big data thinks you're at the age where you should have children...It also pushes topics like balancing a Ph.D. with childcare...It positively encourages you to want to have a child...I keep seeing how adorable and beautiful children are (Respondent 4, R4).

R4 believes the system uses data to guess her exact life stage, curating a positive image of motherhood. She experiences the artificial intelligence as a digital family planner, pushing her toward a specific identity gain.

2) Career Involution and Algorithmic Hostility

Returnees face hyper-competitive pressure from domestic workplace involution. When they attempt to assert their professional autonomy online, they feel the algorithm often works against them. Users perceive that the distribution logic favors high engagement, which frequently exposes their progressive posts to hostile traditionalist audiences. Respondent 17, a marketing professional, stated:

If I post my opinion about equal promotion chances for women, strangers will leave harsh comments saying I'm "too Westernized and not suitable for Chinese workplace"...That stops me from posting deep feminist thoughts (Respondent 17, R17).

R17 perceives the algorithm as an automated enforcer of traditional career norms. This algorithmic distribution creates a severe chilling effect. She cannot safely express the professional identity she built abroad, learning that performing her transnational identity brings immediate social punishment. Similarly, Respondent 4 faced professional anxiety regarding her academic background. She feels social media platforms amplify domestic hiring discrimination by pushing negative content directly to her feed:

Comments about certain regions Ph.D. programs being "watered-down" can make me feel unhappy...Also, I pay attention to how some regions might discriminate based on degrees when hiring...It does increase anxiety (Respondent 4, R4).

She feels the system directly attacks her academic identity, forcing her to confront societal bias every single day.

3) Aesthetic Censorship and Maternal Surveillance

For creative returnees, participants perceive the algorithm as an instrument of moral surveillance. They feel the artificial intelligence directly polices how they present their bodies and their art. Respondent 20, an independent contemporary artist, described the severe aesthetic censorship she believes is driven by the AI:

I received heavy ugly-shaming and slut-shaming on Xiaohongshu once I posted figure artworks...Many netizens comment that my works are "too bold and inappropriate for Chinese women"...Domestic social media's public comment zone creates digital misogyny and aesthetic violence, heavily constraining my authentic identity expression (Respondent 20, R20).

R20 believes the algorithm identified her art as engaging and distributed it to a conservative audience, triggering moral outrage. This forces her to censor her work and adopt a restricted local identity against her will. Respondent 6 faced similar policing over simple domestic tasks, noting she was attacked by male users who told her "If this were my wife, I'd divorce her for not being able to cut potatoes properly" after she shared a cooking video. Furthermore, returning academic mothers encounter highly moralistic curation. Respondent 19, a university lecturer, noted:

Many working mothers share their struggle of balancing research and childcare...But many netizens blame professional mothers for "neglecting children" if they focus on academic work...This digital misogyny makes me avoid posting my research progress (Respondent 19, R19).

She feels the algorithm invites users to judge her parenting skills instead of celebrating her academic publications. The system frames her transnational autonomy as a deviation, creating a constant identity incompatibility.

c. Algorithmic Literacy and Digital Resistance Strategies

Despite the hostile environment, the data shows that returnees are not completely helpless. The most advanced digital strategy involves active technological manipulation. Participants demonstrate high levels of algorithmic literacy. They believe they understand exactly how the artificial intelligence tracks their behaviour and deliberately train platform recommendation metrics to engineer customized information ecosystems. Respondent 3 noticed how the algorithm categorized her geographically. She tried to manipulate the system to change her audience:

When I was abroad, if I posted about life overseas, the algorithm pushed my content much more broadly...Back home, however, posts get targeted very precisely to my region...I'll adjust my captions or hashtags to avoid being pigeonholed as a purely 'local' user...I push back against what the algorithm "expects" me to post (Respondent 3, R3).

R3 feels the artificial intelligence tries to trap her in a local category. She actively changes her captions and carefully selects her hashtags specifically to trick the algorithm. She pushes back against the expectations of the machine. This shows high-level digital resistance; she forces the system to serve her own goals.

Respondent 14 also uses algorithmic literacy to protect herself. She knows that online discussions can easily trigger gender conflicts. She adjusts her writing style to avoid the outrage triggers of the algorithm:

Because the issue of gender opposition has become increasingly sharp in online discourse in recent years...So, I adjust my expressions...I don't make general attacks on an entire gender...Online discussions can easily trigger emotions, so I have to be very careful with my wording (Respondent 14, R14).

She believes that the artificial intelligence promotes controversial content. Therefore, she carefully controls her language to stay under the radar of the algorithm, using precise wording to protect her emotional safety. Finally, participants actively curate their feeds to find psychological relief. Respondent 10 explained how the system sometimes helps her understand her own feelings:

When you're anxious but don't know why, something you see online might make you realize what you're anxious about...It feels like finding an answer...It might not solve the problem, but it gives you that "aha" moment (Respondent 10, R10).

Users feel the artificial intelligence tracks user behavior very closely, believing it can sometimes push content that matches their hidden anxieties. This provides a sudden moment of clarity, connecting the user with the universal struggles of her generation. This shows the

complex duality of recommendation systems: they can cause deep anxiety, but users with high algorithmic literacy strategically use them to find surprising moments of comfort and validation.

DISCUSSION

This study investigated how highly educated returning Chinese female migrants negotiate their digital identities. We explicitly answered our three research questions. First, participants perceive that algorithms reduce them to basic demographic categories, a process we identify as algorithmic essentialism. Second, users feel these systems amplify traditional gender expectations and workplace hostility, actively disrupting their identity continuity. Finally, returning women utilize high levels of algorithmic literacy to manipulate recommendation systems and build protective digital networks. By addressing these questions, this study moves beyond simply restating findings. It critically positions the digital returnee experience within the existing body of research across four distinct areas.

a. Empirical Contributions

Traditional migration literature primarily evaluates physical and economic adaptation. Past studies focus on how migrants find jobs or physical housing upon return. Recent studies, such as Yang et al. (2025), established that Chinese women face severe offline pressures regarding reproductive timelines and workplace involution. Our empirical findings significantly expand this literature by proving these pressures are no longer just offline phenomena. The cultural shock of returning home is now a highly targeted digital experience. We provide empirical evidence that the smartphone interface automates and accelerates traditional patriarchal policing. This study updates the migration literature by proving that digital platforms actively shape the cultural reintegration of elite female migrants.

Furthermore, our empirical findings align with and expand upon very recent observations of digital resistance in China. While Lin (2025) identified that general Douyin users oscillate between resisting and accepting algorithmic curation due to digital resignation and censorship, our study proves that returning female migrants utilize algorithmic resistance specifically for gendered identity protection. Similarly, while Gu et al. (2025) highlight how Xiaohongshu users experience ambivalence toward platform-driven gender aesthetics, our participants actively manipulate these exact algorithmic constraints for psychological survival. By systematically comparing our qualitative data with these contemporary studies, we confirm that algorithmic resistance is not merely a generalized platform phenomenon, but a vital mechanism for transnational migrants navigating reverse culture shock.

b. Contributions to the Social Identity Model of Identity Change (SIMIC)

A major theoretical contribution of this study is updating the SIMIC framework for the algorithmic age. Foundational SIMIC scholarship (Iyer et al., 2009; Jetten et al., 2014) relies heavily on physical proximity. Traditional applications assume that people navigate identity transitions by finding new friends in a physical neighbourhood or workplace. However, our study demonstrates a new reality. Upon returning to China, women encounter a digital ecosystem that acts as a gatekeeper to social group memberships.

We introduce algorithmic essentialism to the SIMIC framework. The algorithm attempts to force the user into a rigid demographic category, blocking the “social identity continuity” pathway. The daily human-computer interaction becomes the new form of

identity negotiation. Therefore, we contribute to SIMIC by proving that digital recommendation systems must be treated as active social agents that can either facilitate or obstruct psychological adjustment during major life transitions.

c. Contributions to Algorithmic Literacy and Agency Research

Our findings also advance the growing field of algorithmic resistance. Bonini and Treré (2024) established that users fight against platform power in everyday life. Our research applies this concept directly to transnational migration. We demonstrate that returning women do not passively accept the restrictive digital environments curated for them.

We contribute to the literature by showing how exactly these women manipulate algorithmic systems to achieve psychological resilience. They exercise advanced algorithmic agency by intentionally tricking recommendation metrics and changing their online vocabularies. They successfully navigate the SIMIC “identity gain” pathway by forcing the machine to aggregate posts from independent women. By doing this, they transform the algorithm from an engine of anxiety into a tool for psychological validation. This proves that algorithmic literacy is a psychological coping mechanism for modern migrants.

d. Implications for Communication Scholarship and Practice

This study carries broad implications for communication scholarship. The battle for gendered identity and mental well-being has completely shifted to the interfaces of everyday devices. Communication scholars must stop treating social media as a neutral background for human interaction. Researchers must evaluate algorithms as active participants in cross-cultural communication and identity formation.

For practical application, platform designers and policymakers must recognize the psychological harm caused by algorithmic essentialism. Categorizing users purely by biological age and sex creates intense anxiety for transnational populations who deviate from local norms. Social media platforms should design more flexible recommendation systems that accommodate complex, multi-layered human identities rather than reducing users to rigid demographic profiles.

Limitations and Future Research This study provides deep insights into the digital lives of returning women, but it has specific limitations. The sample size successfully reached thematic saturation for our theoretical goals. Yet, this group only represents highly educated women living in major urban centers with modern tech cultures. Women returning to smaller rural areas might experience different digital pressures and possess different levels of algorithmic literacy. Future research should include a wider range of educational and geographic backgrounds.

Additionally, artificial intelligence evolves rapidly. The digital environment observed in this study will continue to change. Future studies must track how new automated systems affect migrant identity over longer periods through longitudinal research. Finally, researchers should compare the experiences of female migrants directly with male migrants to highlight the specific gendered impacts of algorithmic surveillance during the return process.

CONCLUSION

The return migration of highly skilled Chinese women represents a critical cultural and technological collision. Global education and modern individualism now collide directly with strict digital surveillance. As this qualitative inquiry reveals, the reintegration process for

RCFM is a highly contested, technology-driven struggle for personal agency. Returning home is no longer solely a physical or economic transition; it is a constant digital negotiation where algorithms play a dominant, active role in shaping cultural adjustment.

By integrating the Social Identity Model of Identity Change (SIMIC) with the concept of algorithmic agency, this study demonstrates how recommendation systems actively complicate the return process. These platforms automate and accelerate societal pressures through algorithmic essentialism. By reducing complex transnational identities to narrow demographic categories based strictly on age and sex, the artificial intelligence acts as a digital enforcer of traditional patriarchal rules. The system pushes intense workplace involution, strict aesthetic censorship, and traditional social clocks directly onto the screens of returnees, severely disrupting their social identity continuity and causing profound psychological friction.

Yet, the empirical evidence overwhelmingly highlights incredible human resilience in the face of this automated surveillance. Returning women are not passive subjects of algorithmic essentialism. Through the proactive training of recommendation metrics, the deliberate adjustment of digital interaction habits, and the careful curation of their online networks, these women actively reclaim their technological agency. They systematically construct highly protective digital spaces that validate their hybrid identities. These self-curated information ecologies provide the exact emotional support and identity gain necessary to survive a domestic environment that frequently pathologizes their hard-earned independence.

Ultimately, this research proves that the battle for gendered identity and psychological well-being has fundamentally shifted. It is increasingly fought not in physical communities, but directly on the interfaces of everyday devices. The smartphone has become the primary battleground for transnational identity negotiation. For the returning female migrant, mastering the artificial intelligence algorithm is no longer just a technical preference or a digital convenience. It is an essential, mandatory survival mechanism for preserving the authentic, independent self in the modern digital age.

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