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Ageism and age anxiety experienced by Chinese doctoral students in enacting a "successful" career script in academia

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Abstract
This paper employs the notion of a "career script" as a conceptual basis to examine how age-based academic career norms are internalized, strategized, and reproduced among PhD students aspiring to become academics. It draws on interviews with 70 PhD students at leading universities in mainland China, Hong Kong, and Macau that were organized and explored using narrative inquiry. The findings suggest that the tournament-like, age-based career scripts are primarily shaped by institutional policies on recruitment and funding applications and reinforced through social interactions. Doctoral students internalize the established criteria for success defined by the career scripts and stigmatize those who lag behind in the attainment of institutionally predetermined milestones, thus discouraging any attempt to rescript career norms. While enacting successful career scripts, students experience age and temporal anxiety at a fairly young age, exacerbating ageism in the academic labor market.

Keywords Career script · Age · Ageism · Temporal anxiety · Academic career · Academic labor market

Introduction

To preserve expertise and experience, avoid talent loss, and maintain a stable teaching staff, universities in many countries are allowed to extend older academics' tenure beyond the age of retirement (Dorfman, 2002; George & Maguire, 2021). Such policies enable older academics to continue their scholarly careers on stable employment contracts while still being eligible to receive pensions and working in a profession that is fulfilling to them (older academics are generally more satisfied with their job than their younger peers; Shin & Jung, 2014). Empirical evidence has shown that they remain prolific in their contributions, refuting concerns that older academics' research productivity (Savage & Olejniczak, 2021; Stroebe, 2010) and teaching performance (Stonebraker & Stone, 2015) are poorer than those of younger academics. This justifies their employment in terms of economic

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efficiency. However, such policies have triggered intergenerational tensions between senior and junior academics and may affect the equilibrium of the academic labor force (George & Maguire, 2023).

Retaining academics for extended tenures may constrain the ability of universities to hire new academics, particularly if the numbers of students enrolling are declining or expected to decline (Pavlov & Katsamakas, 2020). This puts pressure on those beginning their academic career, who face increased competition due to a growing number of fresh PhD graduates and decreasing vacancies for stable academic jobs (Champlin & Knoedler, 2017). This may be particularly concerning for older PhD graduates applying for entry-level academic positions because they may be marginalized due to their age. It is not uncommon to encounter reports of PhD graduates with impressive research profiles finding it difficult to secure offers in academia arguably because they are too old (Fant, 2012; McKee, 2014). Stereotypes about older people—such as generalizations that they are conservative, have difficulty learning new skills, and lack innovation and creativity—typically underlie age discrimination in academic hiring (Abrams et al., 2016). Moreover, under neoliberal influences, the academic labor market for PhD graduates has become rife with performance pressures (Teelken, 2012), and the explicit and implicit biases of university recruitment committees toward specific traits can determine selection (Van den Brink et al., 2010). These biases reduce the likelihood for older PhD students and graduates to be selected for academic positions and are thus a manifestation of ageism.[1]

Prior research has largely focused on the ageism experienced by older academics, revealing that they often experience micro-aggressions, typically reported as mild (George & Maguire, 2023; Savage & Olejniczak, 2021; Stonebraker & Stone, 2015). Less attention has been given to ageism in the entry-level job market, where older applicants experience more severe forms of ageism (e.g., Fant, 2012; McKee, 2014). In particular, little is known about the age-related anxieties experienced by aspiring academics (i.e., doctoral students) and their responses to ageism. The lack of knowledge in this regard hinders the development of evidence-based strategies for a more age-friendly higher education sector. To address this research gap, this study investigated two crucial questions: (1) How do aspiring academics perceive age and time pressures in the academic labor market? (2) What strategies do they employ to cope with the age-related challenges?

Our study focused on the Chinese higher education system. Unlike in some countries in which age is only an implicit factor in the recruitment of academics (Musselin, 2004), Chinese universities have explicit upper age thresholds for the recruitment of academics and research grant applications (Zhang et al., 2022). This is common knowledge for Chinese PhD students (Li & Horta, 2023). These two conditions (i.e., age thresholds for the recruitment of academics and research grant applications) make the Chinese higher education system an ideal context to explore how PhD students perceive the influence of age on recruitment in academia and how this knowledge shapes their strategies to prepare for their academic careers. By focusing on PhD students, this study provides insights into the mechanisms of the formation and reproduction of ageism in early scholarly careers, adding to previous research that predominantly examines ageism among senior academics (George & Maguire, 2023; Savage & Olejniczak, 2021; Stonebraker & Stone, 2015).

[1] From a sociocultural perspective (e.g., Nelson, 2005), ageism is related to key events that have either reduced older adults' dominant advantages in traditional societies (e.g., the spread of education) or turned them into a social burden (e.g., increased costs of and taxes on medical care). From an ego-protective, individual perspective, ageism is caused by interpersonal and sociocultural factors (North & Fiske, 2012).

Conceptual framework

This study was guided by a conceptual framework that combines the concepts of the career script (Barley, 1986), human agency (Archer, 2000), and life-course perspective (Levinson, 1986). Career scripts are central to the framework, whereas the latter two concepts are used to explain the mechanisms that sustain and deconstruct career scripts. Career scripts refer to "collective interpretive schemes that encode sequences of actions within a career. They represent steps of commonly successful careers in a certain institutional setting" (Laudel et al., 2019, p. 955). Career scripts play a crucial role in explaining career decisions, acting as a mediator between institutions and individual actions (Barley, 1986). They transcend the formal rules that govern behavior and individuals' interests, goals, and plans for a career. Career scripts provide a framework for individuals to follow when making decisions regarding their career paths while taking into account external factors such as informal rules within the community related to a particular profession (Laudel et al., 2019). Studies have revealed certain elements integral to modern academic career scripts such as mobilities (Sautier, 2021) and types of contracts (Robson, 2023). Laudel et al. (2019) asserted that junior academics enact scripts in making career decisions and tend to proactively use scripts to meet institutional expectations.

Archer (2000) stated that individuals accept and reproduce practices adopted by their colleagues and seniors in their careers and thereby reinforce normative career scripts that ensure that the institution progresses in the established and expected direction. The author highlighted that individuals' interaction with their society's structural and cultural makeup further develops social norms. This leads to two possible outcomes—morphostasis (reproduction and stability) and morphogenesis (change and transformation). Archer (2000) also posited two types of human agency, *primary agency* and *corporate agency*, referring respectively to the agency to sustain and the agency to transform the normative order. She claimed that social and sociocultural interactions determine not only the morphostasis and morphogenesis of social norms but also those of the agency (i.e., primary or corporate) that individuals develop, a phenomenon that is called *double morphogenesis*. In other words, through social interactions, individuals may reproduce career scripts or rescript career norms agentively.

Career scripts cannot be separated from life scripts, and thus in the present study, the notion of career scripts was analytically integrated into a life-course theoretical perspective. Life scripts refer to the unconscious beliefs and expectations that individuals develop based on their early social interactions and experiences (Bluck & Habermas, 2000). These scripts often include societal norms and cultural values that people internalize, which in turn guide their decision-making processes. Although each profession has its own career scripts that might conflict with individuals' life scripts in some respects, life scripts and career scripts are interconnected because individuals' early experiences and beliefs about themselves and the world greatly influence their career choices and aspirations (e.g., Hatiboğlu & Habermas, 2016). Life-course theory highlights the impact of temporal and contextual dimensions on individuals' decision-making. It further suggests that individuals undertake different life tasks (e.g., embarking on a career and starting a family) at different stages of their life based on a life script (Levinson, 1986). As Elder et al. contended, "age places [individuals] in a particular stage of life and also indicates the timing of lives and documents whether an event or transition occurs relatively early or late" (2003, p. 15).

A conceptual link between career scripts and life scripts can be observed in the phenomenon of age anxiety. Age anxiety is a form of temporal anxiety because it is a fear

or concern related to the passage of time and how it affects an individual's life (Flaherty, 2013). As in other forms of temporal anxiety, age anxiety derives from concerns about running out of time and not being able to achieve specific goals (both in career and life) that lead to a sense of urgency and anxiety (Elder et al., 2003). Despite the scarcity of research on age anxiety focusing on doctoral students (e.g., Hopwood & Paulson, 2012), there are many studies that examine temporal anxiety in general in academic work (e.g., Bosanquet et al., 2020; Li & Shen, 2022; Ylijoki & Mäntylä, 2003), and these provide a conceptual grounding for our study.

Literature review: age and temporal anxieties of doctoral students

PhD graduates (sometimes in postdoctoral positions) and junior academics experience significant time pressures due to institutional career frameworks, which determine factors such as recruitment and tenure requirements, that guide their priorities and function as career scripts (Bosanquet et al., 2020; Ylijoki & Mäntylä, 2003). Time pressures are primarily caused by *scheduled time* (i.e., time schedules imposed and controlled externally) and *contract time* (i.e., time until contract expiration), which are staples of the modern academic profession and conflict with one's *personal time* and *timeless time* (i.e., the time willingly devoted to one's research; Ylijoki & Mäntylä, 2003). The high demand for scheduled time and contract time particularly diminishes personal time, including the time apportioned by women academics for childbirth and childcare (Li & Shen, 2022). This demand has been found to affect those entering the academic profession more strongly and thus presents a contrast with mid- and late-career academics' career scripts that are less tightly coupled with the institution's career framework (Whitchurch et al., 2021). The literature has suggested that for academics, career scripts are often at odds with life scripts.

PhD students arguably face similar time pressures (e.g., Lin, 2022). Most studies have considered scheduled time to be determined by the duration of the program and scholarship (Bosanquet et al., 2020) and the consequences of overstaying them to be the primary source of time pressure during doctoral studies (Schmidt & Hansson, 2018). The consequences of a delay in completing a doctorate are significant both financially and socially. Such a delay is often perceived as a sign of low academic competency and poor self-management skills by employers and peers (Caparrós-Ruiz, 2019). Moreover, the longer PhD students take to complete their degree, the older they become. One of the few studies investigating age anxiety among doctoral students conducted by Hopwood and Paulson (2012) indicated that there are three dimensions to the pivotal effects of age on the doctoral journey: felt-ness of age in the individual (e.g., inability to do physically demanding fieldwork), visibility to others (e.g., people often associate age with seniority and power), and age-based expectations (e.g., financial security). Therefore, the ideal scenario for a PhD student is to conclude their doctoral studies in as short a time and when they are as young as possible. This idealization is supported by research findings, current policies, and institutional incentives (Skopek et al., 2022; Spronken-Smith et al., 2018).

Studies have further suggested that many older students pursuing a doctorate are committed to complementing their experience of working in the industry with research to advance their careers outside the university (Robertson, 2017). In contrast, most younger PhD students aim to start an academic career. For younger PhD students, fulfilling key perceived requirements for academic recruitment, such as publishing in top journals, is paramount and an essential part of an all-or-nothing game (Horta & Li, 2023). PhD students are

also likely to be aware that universities privilege younger PhD graduates (preferably with good research profiles) during recruitment, not only because they are perceived to be more creative, dynamic, and ambitious but also because they are typically more compliant and exploitable and thus follow institutionally shaped career scripts (e.g., Brechelmacher et al., 2015).

Context: age in the Chinese academic labor market

Age discrimination is pervasive in mainland China's labor market (Gao & Yang, 2022). Most employers list age requirements in their job advertisements (e.g., Fang, 2021; Zhou, 2007). Both public and private employers usually set the upper age limit for most non-managerial positions to 35 years, making it difficult for middle-aged and older people to find employment (Zhou, 2007). Fang (2021) attributed the prevalence of age discrimination to three interrelated factors: the dominance of employers due to an oversupply in the workforce, the preference for younger workers due to the labor-intensive nature of industries, and the lack of legal clauses against age discrimination.

Age discrimination is also evident in the academic labor market. Nearly all universities set age thresholds for academic recruitment, generally requiring candidates to be no more than 35 years old for lectureships and assistant professorships and 45 years old for associate professorships[2] (Li & Horta, 2023). In addition, there are upper-age limits in resource allocation in academia, such as in the allocation of research grants and the conferring of prestigious talent titles[3] (Zhang et al., 2022). Among the three major research grants administered by the National Natural Science Foundation of China, the Young Scientist Fund (YSF, 青年科学基金), considered to be the first major career goal for postdocs and junior academics and used as a key criterion for tenure in many universities, restricts applicants to those under 35 for men and 40 for women. Among the other two programs that confer awardees with prestigious talent titles, applicants to the National Science Fund for Distinguished Young Scholars (DYSF, 杰出青年科学基金) cannot be over 45 years old, whereas the Excellent Young Scientists Fund (EYSF, 优秀青年科学基金) requires male applicants to be under 38 years old and female applicants to be under 40 years old (Zhang et al., 2022). These prestigious titles and the funding they entail, as well as the tenure-track system that has been gradually incorporated into leading universities since the 2010s, have exerted considerable work pressure on junior academics, making their career trajectories more homogeneous (Laudel et al., 2019; Sautier, 2021).

Methodology

This qualitative study adopted a narrative inquiry approach. This approach is both an instrument and object of research because it enables the exploration and reconstruction of participants' narratives of their life stories through their reflexive accounts (Clandinin & Connelly, 2004). It facilitates the understanding of PhD students' reasoning regarding

[2] Some universities offer associate professorships directly to outstanding recent PhD graduates (Li & Horta, 2023).

[3] Recipients of some national research grants are awarded prestigious talent titles, which bring them internationally competitive salaries and substantial research support.

Table 1 Sample characteristics ($N=70$)

Variables	Details
Gender	47 male (M), 23 female (F)
Discipline	11 in hard-pure, 26 in hard-applied, 12 in soft-pure, 21 in soft-applied
Region of PhD	28 in mainland China (MC), 21 in Hong Kong (HK), 21 in Macau (MO)
Year of study	10 in Year 1, 20 in Year 2, 17 in Year 3, 13 in Year 4, 10 in Years 5–6
Age at program entry	43 under 25, 22 between 26 and 30, 2 between 31 and 35, 3 above 35

the dynamics and links between career and life scripts (Wells, 2011). The participants were from 10 leading universities in mainland China ($n = 8$), Hong Kong ($n = 1$), and Macau ($n = 1$). As leading universities in mainland China favor PhD applications from recent undergraduates and current master's students with high academic performance (Jung et al., 2023), older students with full-time work experience are underrepresented in mainland PhD programs. In contrast, universities in Hong Kong and Macau have more diverse PhD cohorts, with many older students from the mainland, as their admissions mechanisms are more age-friendly and the value of their degrees is widely recognized. The inclusion of Hong Kong and Macau as research sites enabled us to approach a larger number of older participants, thereby further enhancing the transferability of the study. Despite the differences in curriculum, most of the students in the Hong Kong and Macau PhD programs came from mainland China and placed the mainland academic market on their horizon for their job search. Therefore, the sampling ensured a good level of homogeneity because the samples drawn from the universities were all from the same underlying population: mainland PhD students aspiring to become academics.

Ethical approval was obtained from the University of Hong Kong before data collection. The data were collected through individual semi-structured interviews with PhD students considering finding employment at mainland universities. Due to the COVID-19 pandemic and the geographical distances involved, the interviews were conducted online between December 2020 and October 2021 and lasted 1 hour on average. The PhD students who indicated no career path preference or a preference for careers outside academia were excluded from the analysis presented in this paper (but were interviewed nonetheless because this research is part of a larger research project).

Although the participants accepted to be interviewed and knew the purpose from the invitation e-mail, they were informed again of the purpose and procedures of the interviews before the interviews started. The interviews centered on the participants' motivation for pursuing a PhD, doctoral experiences, planned career trajectories after graduation, and perceived strengths and weaknesses in the academic job market. Before the interview was initiated, we requested each participant to fill in a biographical questionnaire to facilitate the generation of demographic-specific questions and to have a stronger informational basis on which to further understand their narratives. Oral consent to being interviewed was obtained from all of the participants, who also consented to their interviews being audio recorded for research analysis and to the research findings being disseminated.

We contacted the participants via e-mail through referrals from their doctoral supervisors. In total, 70 students participated, and their profiles are shown in Table 1. The table reveals a good distribution of students by gender, discipline, region, year of study in their PhD, and most importantly, their age at entry in the PhD program.

A thematic narrative analysis was conducted, first within each case (i.e., participant) and then across cases (Riessman, 2008). Within each case, the data were first coded separately using both inductive and deductive approaches. Through constant comparison, the inductive codes derived directly from the narrative were then combined with the deductive codes suggested by the conceptual framework. Furthermore, a preliminary pattern of relationships between the themes was identified within each case. In the across-case analysis, we implemented an iterative process of synthesizing the themes and patterns identified, which helped to draw findings from the data.

Findings

Three interrelated themes emerged from the analysis of student narratives, namely a tournament-like career script dictated by institutions, (re)scripting career norms, and morphostasis.

Tournament-like career script dictated by institutions

Almost all of the participants identified and described a tournament-like normative career script that defined a list of pivotal events with deadlines related to the individual's age (and thus life script). The career script reminded the doctoral students that anything important to their career had a deadline, and that those related to age were particularly critical. Missing these deadlines was reasoned as meaning failure. One participant described this as follows:

> Many people would love to "lie flat" (躺平) but know they can't do it until they're 45, so they have to toil away (卷). You must achieve something before 45; otherwise, you'll have to keep toiling away after that because there are two pivotal age limits in China, 35 and 45: 35 for EYSF and 45 for DYSF. If you achieve nothing before 45, you can expect nothing from your research career. Therefore, [at 45] you can either rest assured knowing that it won't cause any damage [to your career] to "lie flat" or be compelled to toil more intensely. (HK19; M; Y4; Mechanical Engineering; under 25[4])

This participant's comment showed that, in his view, obtaining a prestigious talent title (and funding) represented the script for a successful career. For this and other participants, an academic career without a title was dismal and akin to mediocrity, and such a career would involve a highly ineffective input–output ratio, implying that it would entail a tremendous investment of time and effort for little reward in terms of both financial return and career development. These comments suggest that attaining a prestigious talent title is an essential step in the career script of PhD students (particularly in the hard disciplines) aspiring to academic careers at leading universities. Like in a tournament embedded in a competitive ethos, if those aspiring to a successful academic career do not earn these titles early enough, it is difficult for them to succeed however hard they work later in their career. This reasoning highlights that the tenets of the Matthew effect in science are commonly

[4] Ages in parentheses, hereinafter, refer to ages at program entry.

accepted as central to academic career success,[5] and that to have any bearing on one's academic career, the virtuous cycle of the Matthew effect must start early in the career and at a young age, as the following quote reiterates. Thus, the tournament-like career path directly results in this age-based career script.

> There is a consensus among us that if you don't become a big name by age 35, you won't be able to make any waves after that. (HK16; F; Y5; Physics; below 25)

Universities in China have made access to YSF a criterion for obtaining tenure and have thus effectively set the same age threshold for academic recruitment. Consequently, the ability to obtain a YSF before the age of 35 has become an artificially instituted requirement that determines career survival at leading universities. The participants suggested that PhD students are aware that universities and funding agencies reinforce this age-based career script via their PhD students (and perhaps also via their PhD graduates and junior academics). They do this by impelling PhD students to attain credentials perceived to be stepping stones on the pathway to a successful academic career.

The narratives of some of the participants suggested that career scripts are more discriminatory to older PhD students in non-academic sectors than in academia, making the academic career route preferable. The perceived exclusion of older PhD students in non-academic sectors has two rationales: first, non-academic occupations are generally more labor-intensive and older doctoral students may not be able to cope with physically demanding tasks that are assumed to be more frequent in non-academic jobs. In this regard a participant stated.

> I'm not suited for work in a company. I'm already 29 ... A company offers you high wages to compensate for your strenuous work. It requires you to be able to work overtime and be physically fit; in other words, the younger you are, the better. Thirty-year-olds can't compete with twenty-three- or twenty-four-year-olds who don't mind working until midnight and can recover the next day. I can't. I feel out of shape. (MC22; M; Y3; Economics; 26–30)

Second, some of the participants confessed that employers in non-academic sectors are often concerned that older employees are difficult to lead because their age may diminish the authority of their supervisors. This was generally not perceived to be as much of an issue in the academic sector. One older PhD student commented.

> There are definitely some disadvantages to being older, which is my case. However, I think it's better [to work in academia in Hong Kong] than to get a job in the industry. In the industry, I wouldn't be hired as a senior and would instead start as a junior. Who wants to hire an old junior? They would find you difficult to discipline! (HK17; M; Y3; Politics; 31–35)

Overall, there is a systematic exclusion of employees who deviate from the established age norms in all sectors in China (Fang, 2021; Zhou, 2007). This exclusion creates a sense of frustration in older students, who feel capable but face obstacles in pursuing a desired career because of a biological trait, which to them is irrational and discriminatory:

[5] The Matthew effect describes a trend in which people who start with an advantage accrue more advantages over time, whereas those who start with a disadvantage grow more disadvantaged (Merton, 1968).

> I aimed to shift my career from industry to academia when I chose to do a PhD because I like exploring. I knew it wouldn't be easy and that I'd need to be very productive. Yet I thought it was okay because, after all, I still had a chance if I could make full use of my PhD. But I recently discovered that almost all universities have a fairly low age (upper) limit for entry-level positions. Usually, it's 35 years, and the lowest I've seen is 32. This baffles me, and it's basically a death sentence for me as I'm now well over that age. It's ridiculous. I thought, "Can't someone over 35 do valuable research? Don't they deserve to be university academics? This is blatant age discrimination!" (MO09; M; Y3; Material Sciences; above 35)

(Re)scripting career norms

The second theme that surfaced in the narratives was how the participants interpreted and responded to the tournament-style career script. Most conformed to this script (as reflected in the quote below) and only a minority adopted a morphogenesis stance.

> I'll be 28 by the time I graduate, and age is a big consideration. Unless my output during my postdoc is extraordinary, pursuing a postdoc will become a liability to my academic career because it would consume another 2 or 3 years. Thirty-five is the upper limit for us to apply for a YSF. We must get ashore before 35, or we can't apply anymore. So, it's better to be employed earlier. Academia is akin to "one radish, one hole" (一个萝卜一个坑, which means that all positions are filled and no position is vacant if nobody resigns or retires), so it's good to occupy your hole earlier. Once I secure the hole, I can still go abroad to pursue a postdoc or visiting scholarship, get married, and so on. (MO08; M; Y2; Material Sciences; under 25)

By comparing the search for an academic job to "occupying the hole," this participant evidenced the anxious "race against time" mentality and job search strategy expressed by most of the participants. PhD students are involved in two races: the race to meet the entry requirements in the domestic academic labor market (the entry requirements are growing due to increased competition; Horta & Li, 2023) and the race against time because their age is approaching the thresholds for grant applications and academic recruitment. Age was also frequently associated with a lack of endurance, and most of the participants suggested that age would adversely affect their stamina and ability to work for long hours; however, none of them associated age with its benefits such as experience or maturity, which can enhance effectiveness and productivity:

> I must get everything done before the age of 35. This is just the minimum requirement. If you want to achieve more, you must also work hard afterward. But you have to surrender to age. I can feel it. I could stay up all day when I was 20, but now it would kill me—it takes me a long time to recover. (MO21; F; Y4; Physics; 26–30)

Most of the participants used the dominant career script as a yardstick to gauge their chances in the academic labor market with age as a key consideration. The age anxiety created by the need to meet the dominant career script as early as possible led to the career script taking precedence over their life script, the fulfillment of which was postponed and dependent on the success of the career script. This is reflected in the quote below (and also in the quote by Participant MO08 mentioned previously).

> I'm slightly more anxious than those younger than me but not as uneasy as those older than me. But even if you are not quite anxious, you'll be almost 30 by the time you graduate. At that time, you will have to think about not only a job but also where to settle down and whether you can start a family and buy a flat there. Yeah, so many things. (MC23; M; Y4; Economics; 26–30)

The prioritization of the career script over the life script is particularly problematic for female PhD students. From the interviews, it became evident that female students face a more difficult choice between career and family than men. Many of the female participants expressed the wish to have a child but chose to delay pregnancy for fear that family responsibilities might ruin their careers, as articulated by MO03. This dilemma for female PhD students is likely to persist through the initial and mid stages of their academic career (Horta & Tang, 2023; Li & Shen, 2022).

> I should have had children during my master's degree, then (s)he [the child] would be in primary school, which would have been much better than it would be now. But now I'm nearing 30, and I think it's time to consider a baby. I'm not in that much of a hurry, but I personally like kids very much. (MO03; F; Y4; Sociology; 26–30)

Not all participants accepted this tournament-style career script. Three participants, all of them over 35 years of age and thus over the recruitment age threshold, criticized this "blatant age discrimination" and planned to circumvent this career script by seeking employment at a foreign university, even though they knew that this option was extremely difficult. Other older PhD students, like MO15 quoted below, intended to rescript the career norms when they were younger. However, as they grew older, they felt "ashamed" of their underwhelming achievements among their peers because they did not follow the dominant career script. These PhD students changed their attitude and are now committed to aligning their career trajectories with the dominant career script to achieve what they once disdained as externally defined "success" in their careers.

> I don't feel comfortable with the idea of a [standardized trajectory to an academic] career. To plan long-term for 10 years down the road and the like? Okay, I'm going to do that and maintain that plan, but I feel that you don't grow as a person. It's like your goal is still the same as it was 10 years ago. But now that I'm getting a bit older, I do feel the pressure. I feel a little ashamed, to be honest ... I feel like you are 35, you're middle-aged, and you're probably going to do a postdoc. That's not good. (MO15; M; Y2; Philosophy; 31–35)

Morphostasis

The morphostasis (reproduction and stability) of the tournament-like career script is well sustained by the normative life-stage model and the social stigmatization of older students, which largely inhibits the development of morphogenesis (change and transformation) in the academic career system, as illustrated in the following two quotes.

> When I quit my job to pursue a PhD, my parents were a bit confused and disappointed because I changed from being a salaried person to being a poor student. Initially, they just let me be. However, after learning about the possibility of delayed graduation in the third year of my PhD, they challenged my decision to pursue a PhD. They were worried about my future because I was already in my thirties, didn't

have a stable job, and wasn't married. We quarreled badly. (MC03; M; Y3; Philosophy; 26–30)
Q: Have you ever thought about doing a postdoc abroad?
A: I don't want to, primarily because of my age ... I'm the oldest child. My parents are aging and live a hard life. I've been in school for over 20 years without contributing to my family, so I wish to graduate earlier. (MC13; M; Y4; Material; below 25)

The narratives by MC03 and MC13 showed that the participants felt the time pressure exerted by the rigid normative life-stage model advanced by older generations in Chinese society in their interactions with parents, peers, and friends (i.e., there is a normatively appropriate age range to start a career, get married, and have children; Gaetano, 2014). This life-stage model conveys a view of age that is aligned with that of the career script in academia. This alignment of the life-stage model with the career script led the participants to internalize and enact the career script in a manner that sustains the normative order, thus evidencing primary agency. As the quote by Participant MO15 exemplifies, many of those who initially rebelled against the dominant career framework succumbed to societal pressure and changed their adoption of corporate agency (transforming the normative order) to that of primary agency (sustaining the normative order), ultimately contributing to preserving the morphostasis of the career script in the academic career system.

The following two quotes provide further insight into how social interaction and the collective pressure to adopt the dominant view on the appropriate age to engage in a specific activity or role contribute to this morphostasis:

Now I really mind that my peers ask me why I'd like to do a PhD because I've been asked so many times. I realized only later that they probably saw me as an anomaly, especially when they didn't know me. So, they wondered why someone almost 10 years older than them was doing a PhD and speculated about whether I hadn't worked hard enough as a student before, whether I hadn't achieved anything at work, or [other such matters about my past]. (HK17; M; Y3; Politics; 31–35)
If I were in human resources, I would definitely think that [those obtaining a PhD at] 26 years of age are smart and know at a young age to get things done and graduate early. For example, I saw a recent news article about a 26-year-old who had already become a PhD supervisor at University X. Everyone looked up to him. However, if there was a report on a 45-year-old PhD supervisor at the same university, we would just ignore it and take it to be unremarkable. If you graduate just on time or later, people are likely to view your decision to do a PhD as a failure. (MC27; M; Y2; Mechanical Engineering; below 25)

These quotes suggest that people in the social circle of PhD students—irrespective of whether they are aware of the challenges of doctoral studies—label those failing to fulfill the career script as failures. This stigma is transmitted through social interactions, prompting students that are "lagging behind" to reflect on and doubt their chosen career path. All of the participants from one mainland university used the term "big PhD [students]" (大博士) to informally refer to regular-track PhD students, distinguishing them from those in the fast track who are younger and have become the majority in the hard-discipline PhD programs of leading universities in China (Jung et al., 2023). The widespread use of such terms implies that even regular-track doctoral students who pursue a PhD immediately after receiving a master's degree are considered by some to be slightly old for PhD programs, suggesting that those that have years of work experience prior to entering doctoral studies are more harshly judged.

Together, the life and career scripts lead young, inexperienced doctoral students to subscribe to and reproduce the tournament-style career script, ultimately leading to morphostasis. Similar to Participant MC27, most of the participants felt that delaying graduation would be interpreted as a sign of incompetence, prompting them to work harder and aim for early graduation to avoid the stigma associated with delayed graduation.

Discussion and conclusion

This study investigated the mechanisms by which ageism occurs and is reproduced in academia, a theme understudied in the literature, based on the identification and interpretation of age-related constraints and stigmas in academia by PhD students aspiring to become academics and their planned career actions. Our findings suggest that age-based career scripts impact the thinking and planning of these PhD students before they enter an academic career, thus contributing to and reinforcing ageism in the academic workplace. These career scripts act as mediators through which institutions convey ideas about career paths that are collectively perceived and legitimized as being appropriate and successful to aspiring academics, prompting them to align their planned career trajectories with these legitimized career paths. These career scripts hardly vary across the discipline spectrum. Through social and sociocultural interactions with peers and others, PhD students internalize the established criteria for career success and stigmatize those who deviate from the trajectory and lag behind the thresholds predetermined by the dominant normative career scripts. In such a social climate, the fear of being labelled "losers" causes PhD students who attempt to rescript career norms to ultimately conform to and reproduce the dominant career script.

Our study found the PhD students' reasoning about age discrimination in recruitment to be in line with that in the literature (Nelson, 2005; North & Fiske, 2012), particularly concerning two issues. The first is their reasoning regarding the effect of age-related decline in physical ability on productivity (Hopwood & Paulson, 2012), which does not consider the benefits that maturity and experience bring to task efficiency and productivity. The second is the PhD students' apprehension that those in higher positions (e.g., higher-ranking academics) may perceive a threat to their status-based power from older employees (Roscigno et al., 2007) because age is critical in Confucian culture to the establishment of hierarchy (older people should be in higher positions to establish a professional and societal hierarchy, and any other modality of age and position creates unease and possible conflict; Rainey, 2010), although most of the PhD students considered this to be less of a concern in academic settings. These factors, combined with age-based recruitment policies, make the post-PhD career prospects of mature students, both within and outside academia, less promising and more challenging. Further research is needed to understand how mature PhD students mobilize their agency in the face of challenging structural factors to draw further insight into these issues and inform policies for the creation of a more age-friendly society.

The notion of career scripts adds a critical layer of perspective for understanding the time pressures that doctoral students and early-career academics experience. Whereas previous studies have mostly attributed their stress to *scheduled time* (e.g., the duration of doctoral scholarship and tenure; Ylijoki & Mäntylä, 2003), our findings emphasize that career scripts, and life scripts more broadly, cause them to experience significant time pressures and age anxiety. PhD students with academic aspirations tend to

believe that if they fail to attain certain career milestones before a predetermined age, they will be stigmatized and ultimately denied access to the academic profession. The use of age as a policy tool for recruitment and resource allocation, as is prevalent in Chinese academia, reinforces the already rigid life-stage model in society (Jankowiak & Moore, 2017). Entry and progress in academic careers for PhD students have become akin to a racing tournament in which being young, prolific in research productivity, and efficient are respected. Consequently, PhD students must race to attain the milestones of the "successful" career script to achieve externally defined career success and avoid stigmatization.

The dominant career scripts not only constrain other career trajectories that are dissonant with them but also cause PhD students to postpone the fulfillment of, or even completely dismiss, life scripts that are not aligned with them. Additionally, our findings show that ageism in the dominant career scripts is gendered and affects female PhD students the most, echoing the findings of prior studies on female academics and their challenges in the academic workplace in China (e.g., Horta & Tang, 2023; Li & Shen, 2022). This suggests that gender inequalities in Chinese academia are already present by the stage of doctoral studies. For female PhD students in their thirties, the age thresholds for academic recruitment often impel them to delay childbirth, even though some universities may extend these thresholds by 3 years for mothers and expecting mothers. Widespread ageism in entry-level recruitment criteria may affect female PhD students' willingness to bear children, thereby adversely affecting the nation's natality rates. Policymakers in China must therefore weigh the pros and cons of using age as a criterion for career entry and progression across industries, including academia, as the country is witnessing negative population growth (Wang, 2023).

The alignment between PhD students' career plans and the dominant career scripts highlights the internalization of the career scripts. Although this alignment may increase the number of academics who are prolific in their research productivity in the future, it comes at the cost of increased anxiety, sacrificed personal time, and exacerbated pragmatism in academic work (Bosanquet et al., 2020; Ylijoki & Mäntylä, 2003). Our findings suggest that PhD students, like academics (Teelken, 2012), tend to respond to the neoliberal pressures imposed on them with pragmatism and superficial obedience. Many PhD students internalize the institutionally set deadline for obtaining tenure or a talent title as a watershed in their academic career, a point in time when they can escape the competitive career script that is rife with struggle. The setting of such goalposts by aspiring academics is a sign of policies and rules aiming for immediate, short-term results while dismissive of perverse consequences for both individuals and universities. It is therefore worth considering alternative policies and rules that allow future academics to contribute to academia in a more paced, autonomous, and sustainable manner.

The dominance of age-based career scripts eliminates alternative career trajectories that might contribute to academic development, as those following these trajectories would be relegated or even disqualified from joining the academic workforce. For example, as non-academic experiences and achievements are constantly devalued, PhD students see these as worthless and stumbling blocks to keep pace with "successful" career scripts, minimizing their interaction with non-academic stakeholders (Horta & Li, 2023). In the long term, the lack of diversity and non-academic experience in the academic workforce may substantially limit the ability of academics to contribute to society and to the innovation system. Another perturbing revelation from our study is that Chinese PhD students develop age anxiety and nervousness at a fairly young age (rather than at an older age as previously suggested; Hopwood & Paulson, 2012), foretelling an

ever-accelerating pace of academic culture that may reinforce the undesirable effects of the "publish or perish" dynamics in Chinese higher education (Shen et al., 2021).

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Declarations

Conflict of interest The authors declare no competing interests.

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