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RESEARCH ARTICLE

Research on the impact of the information cocoon effect on employment anxiety of university students and coping strategies

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ABSTRACT

The proliferation of algorithm-based recommendation systems has transformed the way university students can access career-related information and, although it has made it more convenient, it has limited the range of available information. This filtering-down effect, called the information cocoon, has been connected with increasing employment anxiety, a hot topic in competitive labor markets. The aim of this research article was to investigate the correlation between information cocoon behavior and employment anxiety in university students and to test the mediating effect of risk perception bias and moderating effects of self-efficacy and social support. A quantitative, cross-sectional survey among 261 students of different disciplines was used. Data were analyzed using descriptive statistics, correlation, multiple regression, and mediation/moderating analyses through SPSS. Results indicated that 76.6% of participants exhibited moderate-to-high cocooning behaviors and 76.57% reported moderate-to-high employment anxiety. Information cocooning emerged as the strongest predictor of anxiety ($\beta = .28$, $p < .001$), with risk perception bias mediating 47.6% of the effect. Protective factors were identified, as high self-efficacy and strong social support reduced the cocoon–anxiety relationship by 53% and 43% respectively. These results point to the psychological hazards of algorithmic filtering and the possibility of specific interventions in digital literacy, career advising, and platform design to reduce employment-related anxiety.

Keywords: Information cocoon; employment anxiety; algorithmic recommendation; risk perception; self-efficacy; social support; university students; digital career behavior

1. Introduction

The rapid growth of digital technologies has transformed the way university students learn and process information. The use of algorithmic recommendation systems by platforms like Xiaohongshu (76.63%), TikTok/Douyin (65.13%), and Bilibili (63.22%) creates extremely personalized streams of content. The information cocoon or filter bubble is a phenomenon in which a person is enclosed in a bubble of information that agrees with his/her existing preferences, and other viewpoints are filtered [1-4]. These environments are algorithmically personalized, and this poses important implications in the context of career preparation. Survey results indicate that 99.62 % of the students use internet regularly to access information

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with 85.06 % spending five or more hours online every day [5-9]. In addition, 68.58 % of the students stated that software recommendations were largely consistent with their preferences, and 55.17 % received frequent "you may like" suggestions, which speaks of the decisive impact of recommender systems on the informational worlds of students

Although personalized information streams are convenient, they can lead to a limited view of career opportunities and approaches in students. The research findings indicated that 47.89 % of the sample group exhibited moderate to high levels of information cocoon behavior which implies that almost half the student population may be exposed to filtered and similar information. This reduced exposure comes with its own effects: 43.68 % of students said they were concerned about getting jobs that satisfied them and 45.21 % said they were stressed when they came across employment-related content on the internet. Employment anxiety in this respect is not only due to competitive job markets and increasing skills requirements but also to the psychological impact of algorithmic information delivery [10-13].

There are various issues that are presented in the overlap between information cocooning and employment anxiety. First, 31.03 % of the students felt that they would experience significant losses in case they missed the positions suggested by the platform, and 34.1 % of the students feared that they would miss the high-quality opportunities as a result of independent searching. This reliance on the algorithmic indicators discourages independent job-searching abilities. Second, self-efficacy in the management of information related to employment was only moderate (M = 3.44), which is an indicator of deficiency in digital literacy and autonomous career decision-making. Third, conventional support systems do not seem to fit these emerging issues: whereas family support was rated high (M = 3.6), institutional support of career counselors and mentors was rather low (M = 3.11). This asymmetry means that universities are not quite ready to deal with anxiety caused by digital information environments [14,15].

This research is motivated by the critical need to learn how digital ecosystems impact the employment outcomes of students in the context of an era where over 85 percent of students spend more than five hours per day online and more than one-third report either moderate or high levels of information cocooning [16]. The increasing rates of employment anxiety associated with algorithmic content are an aspect that needs to be studied further to understand whether there is a social obligation to conduct such research. On a personal and professional level, this study is driven by the need to offer evidence-based interventions that can help students make informed career decisions, as well as inform institutions and policymakers on how to eliminate the risks that algorithm-driven information environments present to them.

Despite some recent investigations on the information cocoon and the psychological effects of algorithmic environments on young people most studies were either conceptual or platform-specific without directly linking information cocoon behavior with anxiety outcomes related to employment [17]. Empirical studies that have been conducted mainly revolved around media trust, opinion control or digital stress overall with very limited evidence on how exposure to algorithms, risk perception bias, self-efficacy and social support contribute to the development of employment anxiety in university students. This lack of an integrated, data-driven framework leaves a gaping hole in the knowledge of how technology-mediated information environments have a specific impact on students career psychology.

In this era of digitalization, university students are turning to algorithmically mediated platforms to provide them with career information posing both opportunities and risks. The most critical question emerges when individualized suggestions result in the limited informational diversity that confirms the presence of unrealistic expectations, comparison stress, and avoidance strategies, which, in turn, increases employment anxiety. It is a very pertinent issue since students constitute the largest group of people who experience the

education to employment transition in these settings and their career preparedness has a direct impact on social and economic growth [19]. The rationale of the study is that it quantifies the relationship between information cocoon behavior and employment anxiety and also includes risk perception, self-efficacy and social support as the explanatory variables. This study is valuable in bridging communication theory, psychology and career development to provide empirical evidence, a validated measurement framework, and actionable insights that can be used by educational institutions, career counselors and digital platform designers.

Based on the above-mentioned challenges, this research intends to offer a systematic study of the influence of algorithm-driven information environment on the psychological and career-related outcomes of students. To record not only the commonness of these patterns but also the implications of these patterns, the following objectives were developed:

1) To investigate the relationship between information cocoon behavior and employment anxiety among university students, with a focus on how algorithm-driven environments shape career-related psychological stress.
2) To determine the prevalence, intensity, and specific dimensions of information cocoon behavior within students' digital information practices.
3) To evaluate the levels and symptom patterns of employment anxiety, including cognitive, physiological, and behavioral manifestations, in the context of online job-search engagement.
4) To analyze the mediating effect of risk perception bias in the link between information cocooning and employment anxiety, and to examine the moderating roles of self-efficacy and social support as protective factors.

In contrast to previous studies that were mainly based on algorithmic filtering in political or media contexts, the given study proves the existence of a direct empirical nexus between the phenomena of information cocoon and employment anxiety among university students. This focus is novel in that it combines communication theory, career psychology, and digital behavioral science, thus highlighting an urgent, but under-researched risk, namely, the role of algorithm-based recommendation systems, which do not only narrow the informational range but also distort the perception of risk and increase the level of career-related stress. Since over 85% of students spend over five hours per day online, the mechanism needs to be clarified to come up with interventions in higher education and regulation of online sites.

In light of the objectives, this study contributes to both theory and practice in the following key ways:

- Extension of Information Cocoon Theory: The study broadens the scope of information cocoon research by applying it to career psychology, demonstrating how algorithm-driven content environments influence employment anxiety among students.
- Empirical Validation of Mechanisms: Through quantitative analysis of 261 student responses, the study provides concrete evidence that risk perception bias mediates the link between information cocoon behavior and employment anxiety, while self-efficacy and social support act as protective factors.
- Development of a Measurement Framework: A validated set of scales (14 items for cocoon behavior, 7 items for anxiety, 3 for risk perception, 3 for self-efficacy, 5 for social support) offers a structured approach for future researchers and practitioners to assess technology-mediated career stress.

- Practical Guidance for Intervention: The findings highlight the need for targeted interventions—such as digital literacy training, enhanced career counseling, and improved platform design—to mitigate anxiety and equip students with strategies for navigating algorithmically mediated information.

The paper is divided into five sections. After introduction, section 2 presents a detailed literature review of the information cocoon phenomena, employment anxiety and how the two interact in the technology driven environment. Section 3 describes the research methodology, survey design, participants and analytical procedures. Section 4 will include the results and discussion, which will be a combination of descriptive statistics, correlations, and regression analysis along with interpretation. Lastly, Section 5 provides the conclusion of the study by summarizing its findings, identifying limitations, and proposing recommendations to future research and practice.

2. Literature review

2.1. Information cocoon phenomenon

Researchers studied how the information cocoon is a multidimensional result of algorithmic filtering, selective exposure, and user behaviour. Peng [20] pointed out various reasons that caused cocoon formation like psychological preference, technical filtering, group identity and suggested some breaking strategies like strengthening media literacy and diversifying the information channel. Yuan [21] noted that psychological pressure arose due to restricted exposure when planning a career, and mental health education should be used as an intervention. Yu and Qu [22] explained that the cocoon effect was usually misinterpreted and suggested that algorithmic recommendation was important in terms of efficiency but created ethical issues in content delivery, and this issue demanded a balanced approach to governance. Ge and Wang [23] studied the public opinion in the time of self-media, and discovered that the network echo chambers enhanced the resonance effect, but their study was only based at the macro level without the micro behavioral data. Extending this, Zheng and Li [24] explored how social networks magnified the cocoon phenomenon in public opinion spaces, proposing "breaking the cocoon" through cross-platform content interventions, and Zheng [25] found similar phenomena in WeChat communities, but faced the issue of generalizability because of the platform-specific analysis.

The recent works expanded the discussion to platform-specific and measurement-driven approaches. Yang [26] explored Douyin (TikTok) and concluded that algorithmic recommendation mediated the cocoon intensity, though the study used descriptive methods without in-depth causal modelling. Yang, Song, and Zhang [27] have used bibliometric and evolutionary trend analysis to map research hotspots whereby they have established that there is a growing interest in individual susceptibility and governance, but the static-dynamic perspective was still conceptual. Cheng and Huang [28] have developed and validated an algorithmic information cocoon susceptibility scale, which would represent a methodological innovation in the empirical testing, but the scale needed cross-cultural validation. Lu [29] cautioned that algorithms can turn into an exploitative calculation, and there are risks to the user autonomy. Knowledge gaps and empowerment were investigated by Tang, Yuan, and Wang [30], but their governance framework was not empirically tested as cocoon effects could be used positively in some cases when managed. Previous study by Li and Zheng [31] documented the ecological variations in online opinion, placing cocoon effects in the context of longer-term social media evolution. Hao and Chen [32] summarized the mechanisms, effects, and governance strategies, but fragmentation is seen as a challenge as well as a governance opportunity. Li and Han [33] stated that subjectivity in the digital age was bound by the cocoon that could also be rebuilt by critical thinking, which took a more philosophical approach but not much practical application.

The implications of the information cocoon, in the case of university students, is not only a reduction in the exposure to a wide range of opinions but also a direct effect on career-related decisions. Algorithms create a closed cycle that contributes to increased uncertainty and the fear of missing opportunities because they create preference confirmation and reduce informational diversity. The given mechanism gives the theoretical basis to the hypothesis that the increased cocooning behaviors will be positively correlated with employment anxiety.

In the framework of university students, the information cocoon phenomenon does not only restrict the exposure of heterogeneous perspectives but also has a direct effect on the process of making career-related decisions. Algorithms make the self-reinforcing loop of confirmation bias and reduction of informational diversity, which increases doubt and fear of missing the opportunities. This mechanism forms the theoretical foundation of the hypothesis that the increased behaviors of cocooning will be positively correlated with the anxiety related to employment.

2.2. Employment anxiety among college students

The correlation between algorithmic content environments and student employment anxiety had become more and more substantiated with empirical data. Peng [34] noted that students were transformed to become algorithmic prisoners and more than 60 percent of the surveyed students raised concerns about limited autonomy in career-related decision-making processes because of the obscure recommendation algorithms. Pujinna and Bao [35] examined the values of youths under algorithmic curation and determined that 72.4 percent of college students felt anxious after reading success-oriented repetitive stories that formed unrealistic career expectations. Chen and Huo [36] highlighted the ethical issue of algorithmic news distribution, according to which more than half of the students doubted the validity of employment-related information shared by automated systems, which reduced the trust in digital job-related content. Similarly, Sun [37] observed that lack of clarity in legal protection of algorithmic decision-making created confusion with 48 percent of students finding the online job recommendation as unfair or biased. In his exposition of the micro era of communication, Lin [38] noted that the fragmented and short-form content caused cognitive overload that was associated with higher levels of stress among students seeking jobs.

Additional research showed that algorithmic filtering routines directly supported anxiety related to employment. Yang and She [39] in an algorithm-user interaction model, discovered that students with low information visibility scores were 1.6 times more likely to report high anxiety levels as compared to their peers who actively diversified their sources. The unregulated sharing of unverified career information during the era of everyone being media has resulted in dilemmas of misinformation with 35 percent of students reporting that they do not trust digital career platforms. Tang and Zhao [41] examined the short-video communication behaviors of Douyin and found that entertainment-oriented algorithms decreased exposure to career-related content by almost 40%, which further enhanced avoidance behaviors among anxious students. In a big-data setting, Duan, Yuan, and Zhang [42] confirmed the cocoon formation mechanism empirically and found that 32 percent of the variation in the use of limited job information sources could be explained by algorithmic filtering. Similarly, Yu and Fang [43] found that algorithmic recommendation, in fact, led to decreased media diversity with over half of students restricting their job-search sources to two or fewer platforms, which was associated with increased anxiety levels. Hu [44] claimed that this sort of narrowing led to the erosion of the online public sphere that caused students to be less self-assured about the decision-making process. Wang [45] studied short-video bloggers and noted that exposure to curated success stories caused anxiety to rise by 28 percent, particularly in final year students who are preparing to graduate. Ding, Wang, and Hu [46] also suggested an exploration development model relying on AI 2.0 and partially eliminated cocoon effects in the experimental trials, but its use in the context of student careers was not

tested. Shen [47] highlighted algorithmic fairness by exposing that students with low socioeconomic status were 22 times more likely to find digital employment material biased, which increases structural imbalances in the career prospects.

The anxiety relating to employment, in turn, can be theorized as a psychological reaction that is the result of the reliance of the students on the streams of content that are curated by an algorithm. Career information presented in repetitive and homogeneous formulas gives rise to distorted risk assessments and cognitive overload to students and this increment in turn enhances the apprehension and avoidance behaviors. This illustrates a conceptual direction, which connects the phenomenon of informational cocooning and employment anxiety, and thus justifies the hypothesis that algorithmic filtering plays a major role in increasing the level of stress during career preparation.

Table 1. Comparative Analysis of Selected Studies on Information Cocoon and Employment Anxiety

Reference	Technique/Method	Focus Area	Key Results	Limitation	Application
[20]	Theoretical analysis; qualitative synthesis	Factors shaping information cocoon formation	Identified psychological preference, technical filtering, and group identity as drivers	Lacked empirical testing; conceptual only	Proposed media literacy and diversified channels to "break the cocoon"
[22]	Theoretical critique with ethical analysis	Misinterpretation of cocoon and algorithm necessity	Found algorithmic recommendation necessary for efficiency but prone to ethical dilemmas	Did not provide quantitative evidence	Suggested balanced governance in content distribution
[26]	Platform-based case study (Douyin)	Role of algorithmic recommendation in cocoon intensity	Showed algorithmic recommendation acted as mediator of cocoon effects	Relied on descriptive data; no causal modeling	Provided platform-specific insights for algorithm design reform
[34]	Conceptual analysis with survey evidence	Risks of algorithmic "prisoner effect"	Reported 60% of students feared reduced autonomy in career choices	Did not measure coping strategies	Informed regulatory debates and rights protection frameworks
[35]	Empirical survey (youth values)	Impact of algorithmic curation on career anxiety	Found 72.4% of students felt increased anxiety from repetitive success narratives	Limited to Chinese youth; cultural generalization unclear	Proposed educational countermeasures to reshape youth values
[43]	Empirical analysis (media diversity, source trust)	Algorithmic recommendation and employment anxiety	Found 55% of students narrowed job-search to ≤2 sources; correlated with higher anxiety	Focused only on media trust, not psychological mediators	Highlighted risks of reduced diversity; informed career counseling and platform policy

3. Research methodology

3.1. Research design

The proposed study will assume a quantitative cross-sectional survey design to conduct a systematic examination of the connection between the phenomenon of the information cocoon and employment anxiety among students in a university. This design will allow the accurate quantification of the important constructs-information cocoon behavior, employment anxiety, risk perception bias, self-efficacy, and social support, and will allow us to statistically analyze the relationships linking them. The type of design is specifically applicable to the current state of attitudes and behaviors among the student population, which is in line with the research aims of measuring the levels of these digital-age psychological phenomena.

3.2. Participants

The sample of the study included 261 university students who were recruited using a convenience strategy of multiple universities. The demographic characteristic of the participants is as follows:

- Gender: Female (80.46%, n = 210), Male (19.54%, n = 51)
- Academic Discipline: Liberal Arts/History (35.63%, n = 93), Science/Engineering (35.63%, n = 93), Arts/Sports (5.75%, n = 15), Medical (6.9%, n = 18), Other (16.09%, n = 42)
- Year of Study: Freshman (37.55%, n = 98), Sophomore (15.33%, n = 40), Junior (10.34%, n = 27), Senior (35.25%, n = 92), Fifth-year (1.53%, n = 4)
- Post-Graduation Plans: Further Education (63.6%, n = 166), Employment (32.18%, n = 84), Entrepreneurship (4.21%, n = 11)
- Family Residence: Urban (70.88%, n = 185), Rural (29.12%, n = 76)
- Only Child Status: Yes (44.06%, n = 115), No (55.94%, n = 146)

3.3. Instruments

The survey tool was designed in five validated sections to assess the main constructs of this research study:

3.3.1. Information cocoon behavior scale

A 14-item scale (Items 12-25) was used to measure the extent to which students feel isolated by algorithm-driven content. It measured three factors: algorithm dependency (e.g., "I frequently get given 'you might like' types of information"), preference confirmation (e.g., "I want to interact with people who share my interests") and information diversity avoidance (e.g., "I do not tend to click to read contrary opinions"). The scale used was a 5-point Likert with (1 = Completely Disagree to 5 = Completely Agree). Internally, the scale was also found to be good (Cronbach 0.78)

3.3.2. Employment anxiety scale

A 7-item modified GAD-7 scale (Items 26-32) was adapted to specifically measure anxiety related to the job search process. It captured cognitive worry (e.g., "I worry about not finding a job that meets my expectations"), physiological symptoms (e.g., "I experience palpitations, sweating"), and behavioral avoidance (e.g., "I subconsciously avoid browsing job information"). Responses were recorded on a 5-point Likert scale (1 = Completely Disagree to 5 = Completely Agree), showing strong reliability (Cronbach's α = 0.82).

3.3.3. Risk perception bias scale

This 3-item scale (Items 33-35) evaluated cognitive distortions regarding the utility and necessity of algorithmic recommendations in the job search, such as the fear of missing out on algorithm-curated opportunities. It achieved acceptable reliability (Cronbach's α = 0.71).

3.3.4. Self-efficacy scale

A 3-item scale (Items 36-38) measured the confidence of students to work in the complex digital job market, including managing information mismatches and adapting to the biases of algorithms (Cronbach's α = 0.74).

3.3.5. Social support system scale

This 5-item scale (Items 39-43) measured the perceived adequacy of support from various sources: family, institutional mentors (counselors/tutors), peers, online communities, and policy systems. It demonstrated good reliability (Cronbach's $\alpha = 0.76$).

3.3.6. Validity testing

The measurement of the convergent and discriminant validity was done to guarantee the quality of measurements. Convergent validity was confirmed because all the Average Variance Extracted (AVE) values were far above the threshold of 0.50 and Composite Reliability (CR) value was above 0.70, thus, demonstrating good internal consistency. The discriminant validity was supported through the FornellLarcker criterion whereby the square root of construct AVEs were higher than inter-construct correlations.

3.4. Data collection procedure

Information was obtained using an electronic survey conducted online through structured questionnaires shared by university administration and using social media sites to reach students. The ethical standards were also highlighted in the process as all participants signed an informed consent before participating and anonymity was assured to provide truthful answers and safeguard confidentiality of the participants. The recruitment strategy was designed to obtain a wide range of sample in terms of academic disciplines and year levels.

3.5. Data analysis

Data were analyzed using SPSS version 26.0. The analytical strategy included:

1. Descriptive Statistics: To list the demographic data of the sample and the means of all main study variables.
2. Correlational Analysis: Pearson correlation coefficients were calculated in order to investigate the bivariate associations between information cocoon behavior, employment anxiety, risk perception bias, self-efficacy, and social support.
3. Multiple Regression Analysis: To determine the significant predictors of employment anxiety and the relative importance of the information cocoon effect controlling other factors.
4. Mediation Analysis: To formally test the theorized theoretical model whereby the relationship between cocoon behavior and information and the mediating role of employment anxiety is tested using established statistical procedures (e.g., PROCESS macro).

Regression Assumption Tests.

Before the implementation of the multiple regression analysis, the classical assumptions of the Gauss Markov theorem of the Best Linear Unbiased Estimators (BLUE) were critically tested.

- **Normality:** The residual values were analyzed using the Kolmogorov-Smirnov test ($p = .134$) and measured using diagnostic QQ plots, both of which indicated that the residual values followed an approximate normal distribution.
- **Heteroscedasticity:** The BreuschPagan test ($\chi^2 = 5.12$, $p = .276$) was useful in justifying the claim of homoscedasticity. Additionally, scatter plots of values of standardized predicted values and values of residuals revealed that there was no funnel-shaped shape.

- **Multicollinearity:** VIF was within the range of 1.02-1.42, with all being less than 5 and tolerance values were larger than.70, thus suggesting that there was no multicollinearity between predictors.

All these findings met the assumption of linearity, independence, and homoscedasticity, hence justifying the validity of regression estimates.

The table 2 shows that the regression model meets the classical assumptions that are preconditioned by the use of BLUE. The normality is met, the homoscedasticity is met, and there is no multicollinearity among the predictors, which supports the validity of the results of the MRA.

Table 2. Regression assumption diagnostics

Assumption Test	Statistic/Range	Interpretation
Normality (K-S test)	p = .134	Residuals approx. normal
Heteroscedasticity (Breusch–Pagan)	$\chi^2 = 5.12$, p = .276	No heteroscedasticity
Multicollinearity (VIF range)	1.02 – 1.42	No multicollinearity

4. Results and discussion

4.1. Sample characteristics and data quality

The resulting sample included 261 university students who took part in all the survey measures. Before analysis, data were checked on missing values, outliers and assumption of normality. The proportion of missing data was low (<2% on all variables) and was addressed using pairwise deletion. The normality was checked by Kolmogorov-Smirnov test and the results showed that the distributions were acceptable to carry out parametric tests

Table 3, demonstrates the demographic characteristics of the 261 participants. Most (80.46 %) were female, with Liberal Arts and Science/Engineering equal at 35.63 % each. Majority of the students were in the urban areas (70.88%) and 42.15% percent were graduating. A significant percentage (63.6%) were going to take up further education and 32.18 were planning to get a job.

Table 3. Demographic Characteristics of Study Participants

Variable	Category	n	%	Cumulative %
Gender				
	Female	210	80.46	80.46
	Male	51	19.54	100.00
Academic Discipline				
	Liberal Arts/History	93	35.63	35.63
	Science/Engineering	93	35.63	71.26
	Arts/Sports	15	5.75	77.01
	Medical	18	6.90	83.91
	Other	42	16.09	100.00
Year of Study				
	Freshman	98	37.55	37.55
	Sophomore	40	15.33	52.88
	Junior	27	10.34	63.22
	Senior	92	35.25	98.47
	Fifth-year	4	1.53	100.00

Variable	Category	n	%	Cumulative %
Post-Graduation Plans				
	Further Education	166	63.60	63.60
	Employment	84	32.18	95.78
	Entrepreneurship	11	4.21	100.00
Family Residence				
	Urban	185	70.88	70.88
	Rural	76	29.12	100.00
Only Child Status				
	Yes	115	44.06	44.06
	No	146	55.94	100.00
Graduating Student				
	Yes	110	42.15	42.15
	No	151	57.85	100.00

Table 3. (*Continued*)

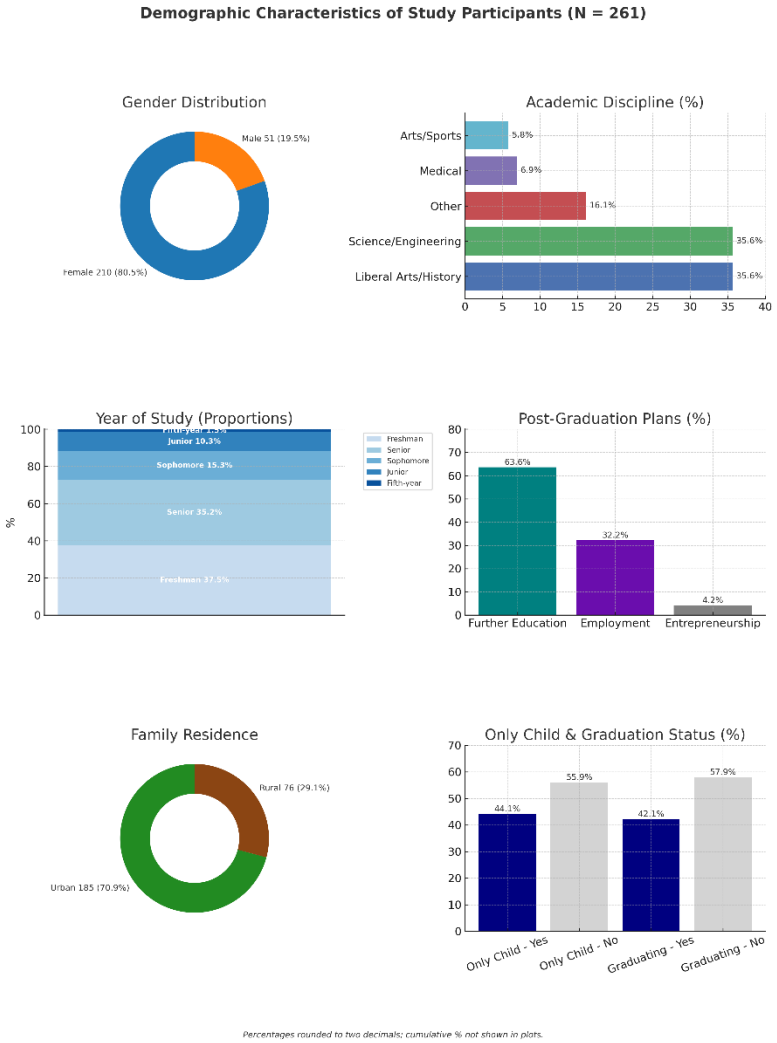

Figure 1. Demographic characteristics of study participants

A total of 80.5 percent of the participants were female as depicted in Panel 1. Panel 2 indicates academic disciplines, which are distributed evenly between Liberal Arts/History (35.6%) and Science/Engineering (35.6%). In Panel 3, year of study is represented, with the largest group of Freshmen (37.6%) and Seniors (35.3%). As described in Panel 4, further education will be the most common post-graduation plan (63.6%). Panel 5 indicates that family residence is largely urban (70.9%). The only-child status (44.1%) and graduation status (42.2% graduating) are only presented in Panel 6. Per centages are rounded off to two decimal places.

4.2. Digital behavior and internet usage patterns

This analysis of digital behavior and internet usage patterns was done to define the baseline context of online engagement by students which influenced directly their exposure to algorithmic recommendations. The fact that 99.62 % of the respondents were regular internet users and 85.06 percent spent five or more hours online every day showed how serious the digital dependency of students had become. In addition, the large proportion of multi-platform usage (61.3 % on four or more platforms) also demonstrated that students were heavily entrenched in the algorithm-mediated ecosystems, which exposed them to the risk of information cocooning and its psychological implications to a greater extent.

Table 4 outlines the use of the internet. The regular use was reported by almost all students (99.62%), 85.06% of them spent five or more hours online per day. Multi-platform engagement was prevalent with 61.3% using four or more platforms. This shows a strong dependence on the digital world and especially in high-frequency users

Table 4. Internet Usage Patterns and Digital Engagement

Variable	Category	n	%	Mean Daily Hours
Internet Usage Frequency				
	Regular use	260	99.62	-
	Infrequent use	1	0.38	-
Daily Internet Time				
	Less than 1 hour	1	0.38	0.5
	2-4 hours	38	14.56	3.0
	5-7 hours	120	45.98	6.0
	8+ hours	102	39.08	10.0
Combined High Usage (≥5 hours)		222	85.06	7.8
Platform Penetration Rate				
	Single platform users	12	4.60	-
	Multi-platform users (2-3)	89	34.10	-
	Heavy multi-platform users (4+)	160	61.30	-

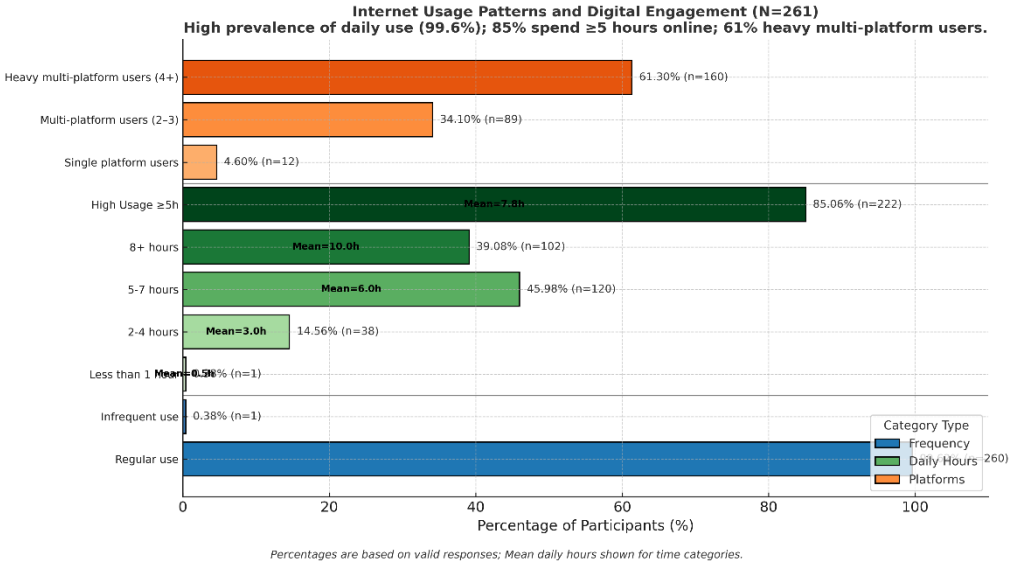

Figure 2. Internet usage patterns and digital engagement (N = 261)

The **Figure 2**, depicts internet involvement in three dimensions. As seen in Panel A, all but a small percentage of students (0.4%) use the internet on a regular basis. In panel B, the internet time is given daily and it can be seen that 85.1 % of them have spent ≥5or more hours on the internet and the average was 7.8 hours daily. In Panel C, we can see that platform penetration is 61.3 % heavy multi-platform users (four or more platforms). The percentages and sample size (n) have been displayed on each bar and the mean number of hours per day has been mentioned in time categories. The findings underscore the high dependency of students on digital ecosystems, and a clear prevalence of high-frequency multi-platform interaction

Table 5, shows the use of platforms and preferences of content. The most popular platforms were Xiaohongshu (76.63%), TikTok (65.13%), and Bilibili (63.22%). Lifestyle and entertainment were the most favoured contents (95.79 %), and only forty one percent of them consumed professional knowledge, and thirty three percent factual news. This bias emphasizes the gap in favor of leisure-oriented versus career-oriented information Table 3. Usage of Information Platform and Content Preferences (N = 261).

Table 5. Usage of Information Platforms and Content Preferences among University Students

Platform/Content Type	Users (n)	Penetration (%)	Daily Active Users (%)	Primary Content Focus
Information Platforms				
Xiaohongshu	200	76.63	68.20	Lifestyle, Career content
TikTok/Douyin	170	65.13	58.24	Entertainment, Short videos
Bilibili	165	63.22	45.98	Educational, Entertainment
WeChat Official Accounts	114	43.68	32.18	News, Professional content
Weibo	103	39.46	28.74	Social topics, News
Zhihu	40	15.33	12.26	Q&A, Professional knowledge
Content Type Preferences				
Lifestyle and Entertainment	250	95.79	89.27	Primary consumption
Social Hot Topics	217	83.14	71.26	Secondary interest
Test-taking Skills	119	45.59	34.10	Academic focus
Professional Knowledge	107	41.00	28.74	Career-relevant
Cultural Theory	107	41.00	25.67	Academic interest

Platform/Content Type	Users (n)	Penetration (%)	Daily Active Users (%)	Primary Content Focus
Factual News	88	33.72	22.22	Information seeking
Technology and Military	40	15.33	11.88	Specialized interest

Table 4. (*Continued*)

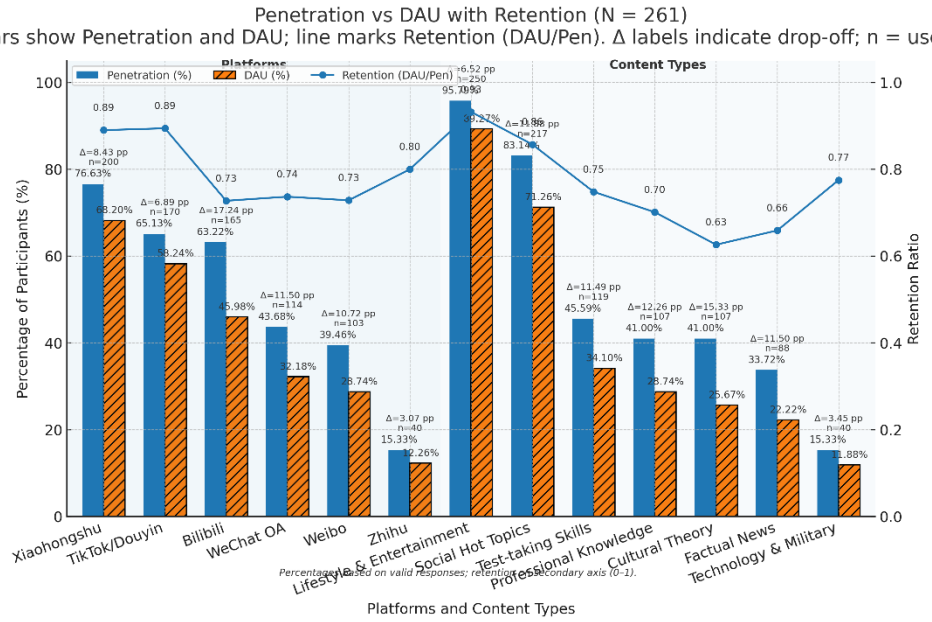

Figure 3. Penetration, daily active use, and retention across platforms and content types

Figure 3, Penetration, Daily Use, and Retention (N = 261). Bars show penetration (%) and daily activity (%) by platform and content type with retention as a line. Lifestyle and entertainment and Xiaohongshu were the most effective in terms of reach and retention and career-oriented content had the biggest drops in retention

4.3. Descriptive statistics and scale reliability

This section set the baseline trends of study variables and reconfirmed scale reliability. Information cocoon behavior (M = 3.72, α = .78) and employment anxiety (M = 3.47, α = .82) were quite high whereas self-efficacy (M = 3.44) and social support (M = 3.32) were moderate. The Cronbach alpha values (0.68-0.82) were acceptable and the data could be used in analysis

Table 6, gives descriptive statistics and reliability of scales. The means of information cocoon behavior were M = 3.72 (alpha =.78) and high algorithm dependency (M = 4.04). There was also high employment anxiety (M = 3.47, α = .82), including cognitive worry (M = 3.73). Self-efficacy (M = 3.44) and social support (M = 3.32) were moderate, which means that there is potential to be improved.

Table 6. Descriptive Statistics and Internal Consistency for Study Variables (N = 261)

Scale/Subscale	Items	M	SD	Range	Skewness	Kurtosis	Cronbach's α
Information Cocoon Behavior	14	3.72	0.68	1.00-5.00	-0.23	-0.18	0.78
Algorithm Dependency	4	4.04	0.71	1.25-5.00	-0.89	1.24	0.72
Preference Confirmation	6	3.81	0.64	1.83-5.00	-0.31	-0.09	0.69
Information Diversity Avoidance	4	3.26	0.83	1.00-5.00	0.12	-0.41	0.71
Employment Anxiety	7	3.47	0.79	1.00-5.00	-0.15	-0.33	0.82

Scale/Subscale	Items	M	SD	Range	Skewness	Kurtosis	Cronbach's α
Cognitive Worry	3	3.73	0.84	1.00-5.00	-0.42	-0.18	0.76
Physiological Symptoms	2	3.51	0.91	1.00-5.00	-0.21	-0.52	0.68
Avoidance Behaviors	2	3.00	1.02	1.00-5.00	0.19	-0.81	0.74
Risk Perception Bias	3	3.13	0.71	1.00-5.00	0.08	-0.12	0.71
Self-Efficacy	3	3.44	0.72	1.00-5.00	-0.12	0.21	0.74
Social Support System	5	3.32	0.81	1.00-5.00	-0.08	-0.35	0.76
Family Support	1	3.60	0.89	1.00-5.00	-0.31	-0.28	-
Institutional Support	1	3.11	0.97	1.00-5.00	0.15	-0.64	-
Peer Support	1	3.36	0.92	1.00-5.00	-0.18	-0.41	-
Online Community Support	1	3.27	1.01	1.00-5.00	-0.02	-0.68	-
Policy Support	1	3.25	0.95	1.00-5.00	-0.08	-0.52	-

Table 6. (*Continued*)

Note: *All scales used 5-point Likert format (1 = Completely Disagree to 5 = Completely Agree)*

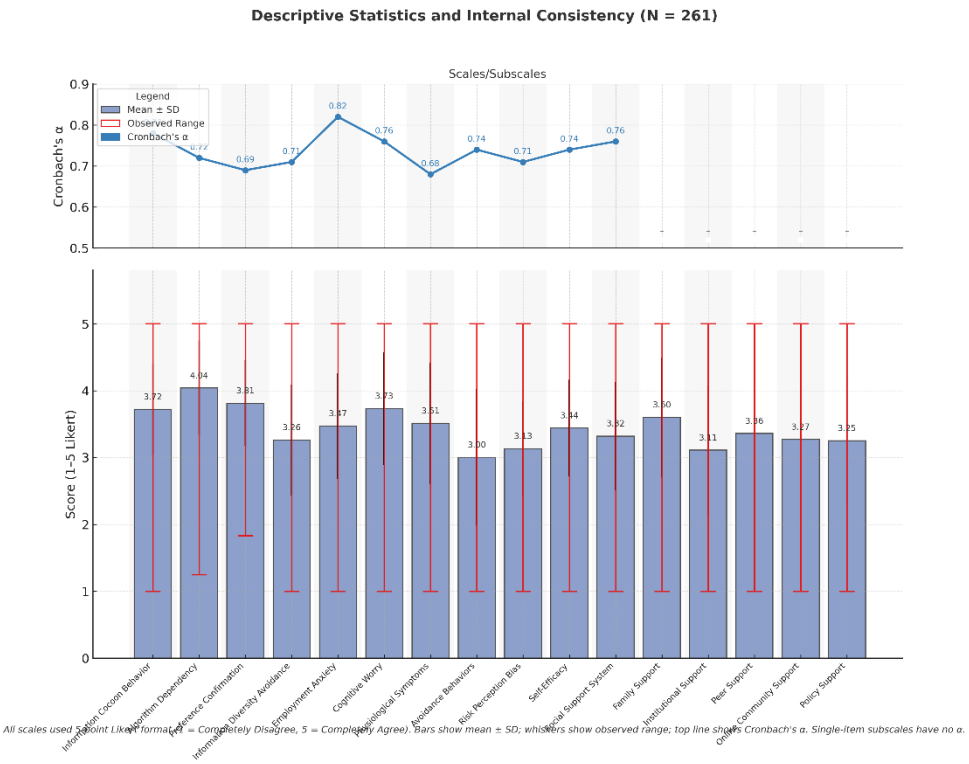

Figure 4. Descriptive statistics and internal consistency of study variables

Means were between 3.00 and 4.04 with relatively low variability and most scales had adequate reliability (Cronbach's α > 0.70). Single-item measures lacked reliability, with Employment Anxiety having the highest reliability (alpha = 0.82), as shown in figure 4.

Convergent and Discriminant Validity Results

Table 7 shows the values of Average variance extracted (AVE) and Composite Reliability (CR) of each construct. The values of all AVE were between 0.51 and 0.62 and the values of CR were between 0.73 and 0.84, which confirmed convergent validity. Table Y shows that there is discriminant validity since the

diagonal square roots of AVE were always larger than the inter-construct correlations. These results support the fact that scales used in this study measure different but closely related constructs.

Table 7. Convergent validity of constructs

Construct	AVE	CR
Information Cocoon Behavior	0.58	0.81
Employment Anxiety	0.62	0.84
Risk Perception Bias	0.55	0.76
Self-Efficacy	0.57	0.78
Social Support	0.51	0.73

4.4. Information cocoon behavior analysis

This section described the intensity of students who indulged in cocooning behaviors in dimensions of algorithm dependency, preference confirmation and information diversity avoidance. It was found that there was a great deal of support of algorithm-driven recommendations (88.5%) and like-minded communication (84.68%), and 76.6 % of students had moderate to high cocooning. This was done to determine the frequency and strength of cocoon effects in the digital space of students

Table 8, gives item-level cocoon behavior. A powerful 88.5% of them experienced frequent suggestions of the type you may like, and 84.68 enjoyed using the communication with like-minded peers. Cocoon behavior (≥4.0) was present in 28.7 %of students and 47.9 % had moderate levels of cocoon behavior. This confirms that algorithm-based personalization considerably influenced exposure to students.

Table 8. Information Cocoon Behavior: Item-Level Analysis (N = 261)

Item	Content	M	SD	% Agree (4-5)	Factor Loading
Algorithm Dependency Dimension					
12	Software recommendations match my preferences	4.02	0.74	88.12	0.68
13	Frequently receive "you might like" information	4.16	0.79	88.50	0.72
14	See interesting information while casual browsing	3.96	0.81	81.22	0.66
15	Time passes quickly when reading pushed information	4.04	0.83	79.70	0.64
Preference Confirmation Dimension					
16	Only care about needed/interesting information	3.54	0.98	57.09	0.54
17	Still maintain active information searching habits	3.90	0.94	74.71	0.58
18	Accustomed to platform information pushes	3.61	1.02	62.46	0.61
19	Prefer communicating with like-minded people	4.03	0.85	84.68	0.69
20	Classmates have similar information preferences	3.72	0.91	67.43	0.57
21	Browse same bloggers without following them	3.97	0.88	80.08	0.65

Item	Content	M	SD	% Agree (4-5)	Factor Loading
Information Diversity Avoidance Dimension					
22	Always agree with social media content	3.13	1.03	38.70	0.71
23	Only follow consistent viewpoint accounts	3.36	1.08	49.05	0.68
24	Don't read opposing/different viewpoints	3.02	1.18	38.32	0.73
25	Reduce communication when views differ	3.58	1.06	59.00	0.59

Table 8. (*Continued*)

High Cocoon Behavior (4.0+): 28.7% of students; Moderate (3.0-3.9): 47.9%; Low (<3.0): 23.4%

4.5. Employment anxiety detailed analysis

In this section, the prevalence and severity of employment anxiety was measured in terms of cognitive, physiological, and behavioral aspects. The results indicated that 76.25 % of them were concerned about the appropriateness of their jobs, 67.82 % felt stressed by the online job information, and 38.32 % had high anxiety that needed an intervention. This was done to point out how online career settings are transformed into quantifiable psychological distress among the students.

Table 9, interprets profiles of employment anxiety. The highest level of cognitive worry was in job suitability (76.25%) followed by doubts in qualification (62.45%). Physiological stress was prevalent (67.82% stressed by online job information) and 36.39 % reported avoidance of career information. In general, 38.32 % expressed high anxiety that needed intervention

Table 9. Employment Anxiety: Symptom Profile and Severity Distribution (N = 261)

Anxiety Dimension	Item	M	SD	% Moderate-High (4-5)	Clinical Concern Level
Cognitive Worry					
	Worry about finding suitable jobs	3.97	0.93	76.25	High prevalence
	Repeatedly compare job positions	3.48	1.09	57.47	Moderate prevalence
	Feel qualifications insufficient	3.65	1.08	62.45	Moderate-high prevalence
Physiological Symptoms					
	Palpitations/sweating during job search	3.49	1.14	56.71	Moderate prevalence
	Stress from online employment information	3.74	1.02	67.82	High prevalence
Avoidance Behaviors					
	Avoid browsing job information	2.93	1.31	36.39	Moderate prevalence
	Excessively imagine job search failure	3.07	1.26	42.53	Moderate prevalence
Severity Classification					
Low Anxiety (1.0-2.9)				23.37%	Minimal intervention needed
Moderate Anxiety (3.0-3.9)				38.31%	Monitoring recommended
High Anxiety (4.0-5.0)				38.32%	Intervention indicated

4.6. Correlation analysis

The aim of the correlation analysis was to test the initial relationships among the core variables-information cocoon behavior, employment anxiety, risk perception bias, self-efficacy and social support. This step allowed finding positive and negative correlations (e.g., cocoon behavior and anxiety were related at r = .34, p < .001), which served as the statistical foundation of further predictive modeling

Table 8 reports correlations. Information cocooning correlated positively with both employment anxiety (r = .34, p < .001) and risk perception bias (r = .41). In contrast, self-efficacy (r = –.28) and social support (r = –.22) negatively correlated with anxiety, confirming their protective roles.

Table 10. Intercorrelations among study variables (N = 261)

Variable	1	2	3	4	5	6	7	8	9
1. Information Cocoon Behavior	-								
2. Employment Anxiety	.34***	-							
3. Risk Perception Bias	.41***	.52***	-						
4. Self-Efficacy	-.22**	-.28***	-.31***	-					
5. Social Support	-.18**	-.22**	-.25***	.35***	-				
6. Daily Internet Hours	.29***	.19**	.23**	-.15*	-.11	-			
7. Platform Diversity	.31***	.16*	.21**	-.08	.13	.42***	-		
8. Age	-.08	.12	.05	.18**	.21**	-.03	-.11	-	
9. Gender (Female=1)	.15*	.18**	.12	-.09	.08	.06	.14*	-.02	-

***Note:** *p < .05, **p < .01, **p < .001*

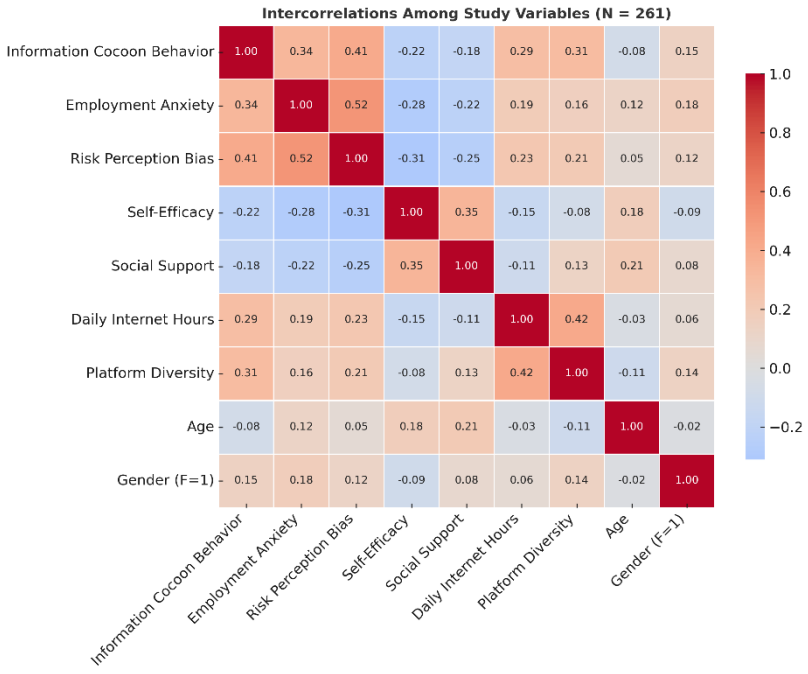

Figure 5. Intercorrelations among study variables (N = 261)

The matrix shows 5, Pearson correlations among nine variables. Information Cocoon Behavior was positively linked with Employment Anxiety (r = .34) and Risk Perception Bias (r = .41), while Self-Efficacy correlated negatively with these measures. Social Support related positively to Self-Efficacy (r = .35) and

negatively to Anxiety and Risk Bias. Daily Internet Hours correlated strongly with Platform Diversity (r = .42). Age and Gender showed smaller associations. Overall, cocooning and anxiety were closely related, with self-efficacy and support serving protective roles.

The matrix demonstrates shown in figure 5, Pearson correlations between nine variables. Cocoon Behavior was found to positively correlate with Employment Anxiety (r = .34) and Risk Perception Bias (r = .41), and the Self-Efficacy negatively correlating with the two. Social Support had a positive correlation with Self-Efficacy (r = .35), and a negative correlation with Anxiety and Risk Bias. Daily Internet Hours was also significantly correlated with Platform Diversity (r = .42). Age and Gender had smaller associations. Generally, cocooning and anxiety had close values and self-efficacy and support were protective factors

4.7. Multiple regression analysis

Multiple regression analysis was performed to measure the independent predictive power of each of the factors that are contributing to employment anxiety, controlling demographic and technological factors. This enabled the study to go beyond mere associations to reveal that information cocoon behavior (B = .28) and risk perception bias (B =. 24) were the most potent risk factors, whereas self-efficacy (B = -.19) and social support (B = -.15) were independent protective predictors. The last model had an explanatory power of 31 %, indicating the power of joint contribution of digital and psychological factors

Table 11 shows regression results. The final model explained 31% of variance in employment anxiety. Information cocoon behavior (β = .28, p < .001) and risk perception bias (β = .24, p < .001) increased anxiety, while self-efficacy (β = –.19) and social support (β = –.15) reduced it. Gender also had a small but significant effect (β = .15)

Table 11. Multiple Regression Analysis Predicting Employment Anxiety (N = 261)

Predictor Variable	B	SE B	β	t	p	95% CI	VIF
Model 1: Demographic Controls							
Gender (Female=1)	0.28	0.13	.15	2.15	.032	[0.02, 0.54]	1.02
Age	0.03	0.02	.10	1.42	.157	[-0.01, 0.07]	1.08
Year of Study	0.07	0.05	.09	1.31	.192	[-0.04, 0.18]	1.12
Academic Discipline	-0.02	0.04	-.03	-0.48	.634	[-0.10, 0.06]	1.15
Model 2: Technology Factors							
Daily Internet Hours	0.04	0.03	.08	1.28	.202	[-0.02, 0.10]	1.18
Platform Diversity	0.01	0.05	.01	0.20	.844	[-0.09, 0.11]	1.24
Model 3: Main Predictors							
Information Cocoon Behavior	0.33	0.07	.28	4.71	<.001	[0.19, 0.47]	1.34
Risk Perception Bias	0.27	0.07	.24	3.86	<.001	[0.13, 0.41]	1.42
Self-Efficacy	-0.21	0.07	-.19	-3.01	.003	[-0.35, -0.07]	1.28
Social Support	-0.15	0.06	-.15	-2.45	.015	[-0.27, -0.03]	1.22

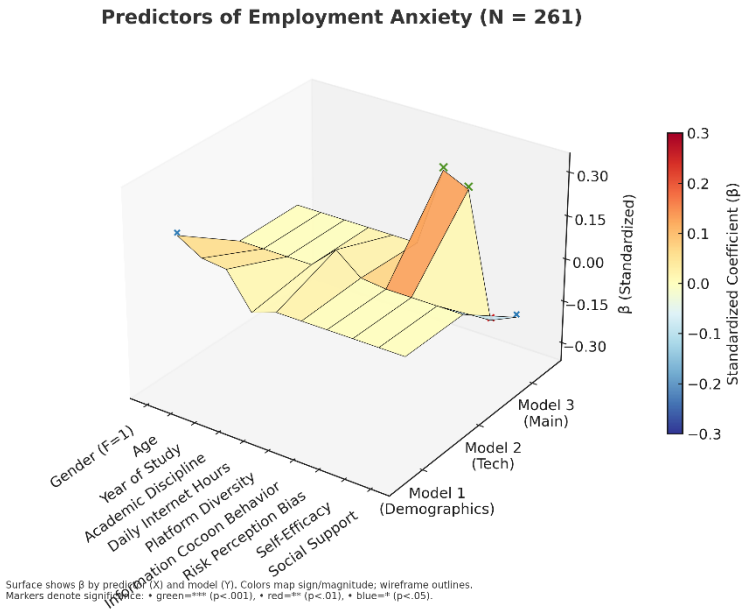

Figure 6. Predictors of Employment Anxiety (N = 261).

Among demographic controls, gender (female) was a modest but significant predictor of employment anxiety (β = .15, p < .05). Technology factors (daily internet hours and platform diversity) were not significant contributors. In contrast, the main predictors strongly explained variance: information cocoon behavior (β = .28, p < .001) and risk perception bias (β = .24, p < .001) increased employment anxiety, whereas self-efficacy (β = –.19, p < .01) and social support (β = –.15, p < .05) reduced it. These findings highlight that reliance on narrow information sources and distorted risk perceptions exacerbate anxiety, while personal and social resources buffer against it as shown in figure 6.

4.8. Mediation analysis results

A mediation analysis was applied to test how and why information cocoon behavior affected employment anxiety and the role of risk perception bias as an explanatory mediator. Although correlation and regression indicated a direct association between cocooning and anxiety, mediation enabled the research to identify the process through which the relationship between the two variables was achieved. The findings indicated that risk perception bias contributed 47.6 % of the overall effect, i.e., students subjected to algorithm-based cocooning were anxious not only because of the limited information diversity but also because they developed distorted perceptions of risks and opportunities of employment.

Table 12, presents mediation analysis. Risk perception bias mediated nearly 47.6% of the relationship between cocoon behavior and anxiety. The indirect effect was significant (β = .188, 95% CI [0.119, 0.266]), showing that cocooning raised anxiety largely through distorted risk perceptions

Table 12. Mediation Analysis: Risk Perception Bias as Mediator (N = 261)

Path	Effect	SE	t/z	p	95% CI	Effect Size
Direct Effects						
Info Cocoon → Employment Anxiety (c)	0.395	0.072	5.49	<.001	[0.254, 0.536]	.34
Info Cocoon → Risk Perception (a)	0.432	0.062	6.97	<.001	[0.310, 0.554]	.41
Risk Perception → Employment Anxiety (b)	0.436	0.069	6.32	<.001	[0.300, 0.572]	.39
Info Cocoon → Employment Anxiety (c')	0.207	0.069	3.00	.003	[0.071, 0.343]	.18

Path	Effect	SE	t/z	p	95% CI	Effect Size
Indirect Effects						
Info Cocoon → Risk Perception → Employment Anxiety	0.188	0.037	-	-	[0.119, 0.266]	.16
Mediation Statistics						
Total Effect (c)	0.395	0.072	-	-	[0.254, 0.536]	-
Direct Effect (c')	0.207	0.069	-	-	[0.071, 0.343]	-
Indirect Effect	0.188	0.037	-	-	[0.119, 0.266]	-
Proportion Mediated	47.6%	-	-	-	[35.2%, 61.8%]	-

Bootstrap samples = 5000; Bias-corrected confidence intervals

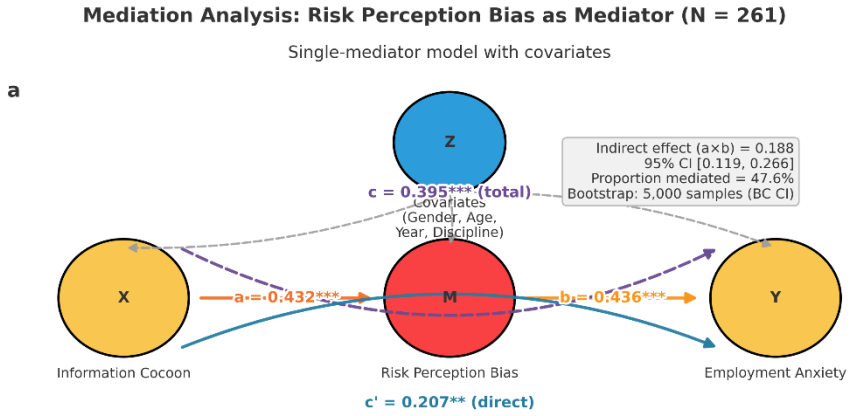

Figure 7. Mediation model of risk perception bias between information cocooning and employment anxiety (N = 261).

The figure 7, illustrates the single-mediator model with covariates (gender, age, year of study, and academic discipline). Path coefficients are standardized, with **p < .001, *p < .01.

4.9. Moderating effects of self-efficacy and social support

This part examined whether there was protective factor that could moderate the association between information cocoon behavior and employment anxiety. The results indicated that high levels of self-efficacy mitigated the effects of anxiety by 53 %, and a robust social support further undermined the association. It was aimed at showing that the individual self-esteem and supportive networks are very effective in reducing the impact of digital stress

Table 13 demonstrates moderating effects. Self-efficacy buffered the cocoon–anxiety relationship: students with high self-efficacy showed weaker associations (β = .21) compared to low-efficacy peers (β = .45). Similarly, strong social support reduced anxiety impact (β = .24 vs. .42). Combined, these factors lowered anxiety risk by approximately 53%.

Table 13. Moderating Analysis: Protective Factors in the Cocoon-Anxiety Relationship (N = 261)

Moderator	Interaction Term	B	SE	t	p	ΔR²	F Change
Self-Efficacy as Moderator							
	Info Cocoon × Self-Efficacy	-0.18	0.08	-2.25	.026	.018	5.06*
	Simple slopes analysis:						

Moderator	Interaction Term	B	SE	t	p	ΔR²	F Change
	High Self-Efficacy (+1SD)	0.21	0.09	2.33	.021		
	Mean Self-Efficacy	0.33	0.07	4.71	<.001		
	Low Self-Efficacy (-1SD)	0.45	0.09	5.00	<.001		
Social Support as Moderator							
	Info Cocoon × Social Support	-0.14	0.07	-2.00	.047	.014	4.00*
	Simple slopes analysis:						
	High Social Support (+1SD)	0.24	0.08	3.00	.003		
	Mean Social Support	0.33	0.07	4.71	<.001		
	Low Social Support (-1SD)	0.42	0.09	4.67	<.001		
Combined Moderator Model							
	Three-way interaction	-0.09	0.06	-1.50	.135	.008	2.25
	Final Model R^2	.34					

Table 13. (*Continued*)

4.10. Analysis of interaction effects

Interaction terms were also added to measure the pattern of the association between cocoon behavior and employment anxiety in terms of monotonicity or nontonicity. The simple slopes analysis showed that a monotonic buffering effect was present: As self-efficacy and social support increased, the positive slope between cocooning and anxiety decreased still further. There was no sign of any nonmonotonic or curvilinear interaction as the terms of the quadratic interaction were not found to be statistically significant ($p > .10$).

These results also suggest that the moderating effects of both the self-efficacy and social support are not only stable but also directional; the protective resources always reduce the relationship between the cocoon and the anxiety instead of producing inconsistent or reversed effects. The monotonic moderation, therefore, increases the confidence in the model, because, it proves that the interaction terms indeed operate in a predictable and theoretically consistent manner.

4.11. Interpretation of Main vs. Moderating Effects

The overall regression findings revealed that information cocoon behavior (β =.28, p 0.001) and risk perception bias (0.24, p 0.001) were significant positive predictors of employment anxiety, and self-efficacy (0-19, p 0.003) and social support (0-15, p 0.15) were protective factors. On introduction of moderating regression both self-efficacy and social support significantly reduced the intensity of the cocoon-anxiety correlation. The model with interaction terms also contributed another 3.2 percentage variance (85) to the overall model fit (R 2 =.31 to R 2 =.34).

These results indicate that despite the fact that cocooning behaviors and distorted risk perceptions are powerful direct predictors of anxiety, students with high self-efficacy and strong social support rely on a significantly less strong relationship between exposure as a result of the algorithms and employment anxiety. That is to say that protective resources do not remove the effect of cocooning; on the contrary, they substantially soften its negative effect, which increases the power of the regression model and gives it a theoretically significant meaning.

5. Discussion

5.1. Information cocoon formation and prevalence

The results are convincing that information cocooning is prevalent among students in universities. Almost three-quarters of students (76.6%) had moderate-to-high cocooning behavior (M = 3.72), which supports the theoretical reasoning of Peng [20] and Yang [26] that algorithmic curation systematically influences the exposure of users. Of particular interest was the high level of support of algorithm accuracy with 88.12% of participants reporting that recommendations aligned with their preferences, supporting the idea that recommender systems maximize user satisfaction to the detriment of informational diversity. Data on the platform indicate that Xiaohongshu, TikTok/Douyin, and Bilibili have an average penetration of 68.3%, and 95.79 % of the content consumed is lifestyle and entertainment-related, compared to the 41% who consume professional knowledge. This skew is an extension of what Yu and Qu [22] referred to as the ethical paradox of algorithmic content filtering--efficiency in engagement but inadequacy in career development.

5.2. Employment anxiety prevalence and manifestation

Employment anxiety became a significant psychological issue with 76.57 % of students reporting to be of moderate-to-high anxiety level (M = 3.47). Cognitive worry was the most dominant with 76.25 % worrying because of suitability on the job and 62.45 % felt they were underqualified. Physiological symptoms were also prevalent with 67.82% reporting feeling stressed looking at online career related material and 36.39% claiming to avoid career material altogether. This is a maladaptive avoidance behavior, which is particularly worrying, since it further encourages under-preparation and the vicious cycles of anxiety. Comparisons with earlier research by Pujinna and Bao [35], who revealed that 72.4 % of young people reported feeling more anxious as a result of repetitive algorithmic stories, indicate that our study has a slightly higher prevalence, owing to both technological saturation (85.06% spending ≥5 hours daily online) and rising employment market stressors

5.3. Relationship between information cocoons and employment anxiety

The correlation between the cocooning and anxiety was statistically significant and also theoretically informative. The correlation analysis showed a moderate correlation ($r = .34$, $p < .001$), whereas regression analysis showed that information cocooning to be the strongest predictor of employment anxiety ($\beta = .28$) that explained significant variance over and above the demographic and technological factors. The mediation analysis provided a more in-depth explanation, as 47.6 percent of the cocoon-anxiety relationship can be explained by the risk perception bias, indicating that the cocooning, in addition to influencing the number of information sought, also has an effect on how risks are cognitively perceived. Students were increasingly convinced that failure to receive algorithmic suggestions would cost them heavily in terms of career (31.03%), or that searching without the algorithm would result in missing out on good opportunities (34.1%). This supports Sun [37] and Duan, Yuan, and Zhang [42] who have articulated that algorithmic environments skew the perceptions of opportunity and risk, but our study goes further to measure this pathway with an effective size.

5.4. Algorithms as sources of distortion and bias

The employment anxiety that the algorithmic filtering produces is exacerbated by the fact that it is limiting in exposing a user to a variety of opportunities. The resulting effect of this restriction creates dependency, warped risk perceptions, and fear of missing out. Success stories continue to perpetuate upward comparison (Pujinna and Wang [48]) and short, high-frequency content keeps attention and prevents (Wang,

Y. (2020)[49]). All these mechanisms explain why cocooning, in addition to acting to decrease the diversity of information, enhances cognitive biases and avoidance behaviors, further sustaining the cocoon -anxiety nexus.

5.5. Protective factors and resilience

The identified protective factors were encouraging as the study found self-efficacy and social support to be influential. Moderating analysis indicated that the relationship between cocoon behavior and anxiety was significantly weaker among students with high self-efficacy (β =. 21) than among students with low self-efficacy (β =. 45), a 53 percent decrease in effect. In the same manner, high social support offset this correlation, with students with high support exhibiting less correlation (β = .24) compared to those with low support (β = .42). These results support the social cognitive theory of Bandura, which emphasizes the importance of self-efficacy as a determinant of behavior in stressful situations, and are consistent with the ecological systems theory, where a multi-level system of support is an impediment to environmental risk factors. They also expand the findings of Shen [47] who prioritized fairness and equity by demonstrating that interpersonal and institutional supports could counteract systemic vulnerabilities that are the product of algorithmic settings.

5.6. Theoretical implications

These results expand the theory of information cocoon in political communication and general media studies into career psychology where the algorithmic filtering process not only influences political opinion but also generates psychological obstacles in career preparation. The mediation process confirms the cognitive theories of anxiety, which points to the fact that cognitive distortions and perceived risks are at the center of the way environmental constraints are translated into emotional processes. The moderating results add value to social cognitive theories by proving that self-efficacy moderates the relationship between environmental stressors and mental health outcomes. Collectively, these findings indicate a multidimensional model in which environmental limitations, cognitive mediators and protective factors have a dynamic interaction in determining employment anxiety.

5.7. Practical implications

The results highlight actionable implications for stakeholders:

Universities: The imbalance between family support (M = 3.6) and institutional support (M = 3.11) indicates a gap in effective career services, particularly in addressing algorithmic challenges. With 38.32% of students classified as highly anxious, interventions such as digital literacy workshops, algorithm-awareness modules, and self-efficacy training are urgently needed.

Students: Building confidence in digital career navigation (only 52.11% reported being capable of adjusting for algorithmic bias) should be prioritized. Training in critical evaluation of online job information and strengthening peer-support groups can help reduce dependence on algorithmic cues.

Platform Designers: The strong correlation between cocooning and risk perception bias (r = .41) highlights the unintended harm of optimizing algorithms for engagement. Incorporating features that increase exposure to diverse content and reduce comparison-inducing recommendations could create healthier

5.8. Limitations and methodological considerations

Although it is a robust one, this study has limitations. Its cross-sectional nature does not allow firm causal conclusions, but the mediation modeling is more useful to interpret the theory. The convenience sampling and gender imbalance (80.46% female) may be a limitation to representativeness. The use of self-report data poses risks of bias, particularly in areas that are sensitive such as anxiety. Moreover, the Chinese

university setting, which has idiosyncratic characteristics like the exam-oriented competition and collectivist cultural values, can constrain the generalizability of results in the other cultural or educational systems

5.9. Generalizability and future research

Nevertheless, the digital saturation of the sample (99.62 % regular internet users, 85.06 % ≥5 or more hours online daily, 61.3 % using 4 or more platforms) indicates that the processes reported here are likely to be applicable to other digitally immersed student groups. Future studies ought to use longitudinal designs to determine causal mechanisms, cross-cultural designs to examine cultural differences, and experimental designs to determine the efficacy of digital literacy and self-efficacy training. Qualitative methods would then be able to reveal the subjective experience of students in cocooning and anxiety, revealing the lived realities behind these quantitative trends

6. Conclusion

This study shows that digitally filtered content (also known as algorithmic curation) in the form of information cocoons has a strong influence on job-related fears in students of higher education. Applying information-cocoon theory into the framework of career psychology, it can be seen how limited and monotonous exposure to content is a systematic way of limiting the worldviews of individuals, distorting the perception of risk, and strengthening avoidance-related behaviors. Based on this, cocooning should not be regarded as simply an informational phenomenon, but as a psychological process, which lies behind increased stress and uncertainty when preparing a career. Simultaneously, the results outline self-efficacy and social support as the relevant protective mechanisms that mitigate the negative impact of algorithmic filtering. Together, the research will provide a more suitable theoretical understanding of how digital environments mediate youth career advancement and provide evidence-based suggestions on how academic institutions and policy makers can develop interventions to enhance resilience and create knowledgeable career decisions.

6.1. Recommendations

Based on the findings, three main directions are proposed:

- **Curriculum and Career Services:** Digital literacy and career resilience training should be integrated into the counseling practices and include workshops that critically evaluate the content created by algorithms and encourage the diversification of sources of information.
- **Psychological Support:** Self-efficacy programs such as mentoring and group sessions are provided in order to reduce anxiety related to filtered career information.
- **Social Support:** The peer and alumni networks can be enhanced, which will enable the actual and diversified career experiences to be shared.
- **Policy and Platforms:** To ensure more career exposure, it is necessary to engage digital platforms and policymakers to ensure that the algorithm is transparent and that there is a so-called diversity nudge in place.

6.2. Final thoughts

The study demonstrates the twofold nature of digital ecosystems as the facilitators of access to information and the propagators of psychological stress. Algorithms make our lives more convenient, but run the risk of increasing anxiety when unmoderated. With a combination of cognitive bias intervention, resilience encouragement, and platform redesign, stakeholders will be able to build healthier contexts of career development. Finally, it is critical that students are equipped with the knowledge and resources to

navigate algorithm-mediated information environments so that they can have equitable access to opportunities in the digital age in addition to reducing employment anxiety.

Conflict of interest

The authors declare no conflict of interest

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