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Original Paper

Research on the Information Literacy Needs of Chinese Economics and Management College Students under the Background of New Business

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Abstract

Under the context of deep integration of the digital economy and "New Business" construction, the cultivation model of economics and management talents in Chinese universities faces an urgent requirement for digital transformation. This study takes economics and management college students in Chinese universities as the research object to measure their current needs across four dimensions: information consciousness, information knowledge, information competence, and information ethics. A structural equation model (SEM) was constructed, and empirical analysis and model modification were executed using Amos 22.0. The empirical results demonstrate that: information consciousness needs have a significant positive impact on information knowledge needs; information knowledge needs positively promote information competence needs; and information competence needs positively promote information ethics needs. However, information consciousness needs exhibit a significant direct negative impact on information ethics needs, revealing that in the explosive digital environment, shallow information awareness may temporarily dilute ethics, which must instead be progressively cultivated through knowledge and competence. Based on these findings, targeted cultivation pathways are proposed at both the individual and institutional collaborative levels to provide scientific references for cultivating high-quality compound business talents.

Keywords

new business, economics and management college students, information literacy needs, structural equation model (sem)

1. Introduction

In the era of "New Business" characterized by the deep integration of next-generation information technologies such as big data, artificial intelligence, and cloud computing with modern business activities, economics and management education in China is undergoing a profound structural transformation (Ying, 2021). Under this paradigm, higher education institutions are urged to emphasize cross-disciplinary integration, technological empowerment, and practical innovation. This shift demands that economics and management college students possess not only solid business foundations but also excellent information literacy to navigate the highly complex digital commercial landscape (Ye, 2020).

Information literacy represents a core competency for modern business professionals in the digital age, establishing itself as an essential prerequisite for career longevity and organizational development (Zhang, 2001). However, contemporary higher education talent cultivation still exhibits critical shortcomings, including outdated educational curricula, weak students' awareness of independent innovation, and overly homogeneous information skill applications (Ling, 2025; Hou, 2025; Bo, 2026). Accurately assessing and understanding the specific information literacy needs of economics and management college students, alongside clarifying the internal structural associations and evolutionary mechanisms of these needs, constitutes a core academic and practical issue in driving the digital transition of business education.

To address this gap, this study targets economics and management college students across Chinese universities to execute an empirical analysis. Utilizing structural equation modeling (SEM), we construct an interactive path model of information literacy needs. The study aims to uncover the internal operational mechanisms of students' multidimensional needs, thereby offering a rigorous theoretical framework and practical reference for reshaping educational management policies and student cultivation curricula.

2. Literature Review and Research Hypotheses

2.1 Connotation of Information Literacy and Its Needs

The concept of "Information Literacy" was first introduced by Paul Zurkowski in 1974, initially defined as the ability to utilize information resources and technical tools to resolve practical problems (Zhang, 2001). As the digital economy emerged, the boundaries of information literacy transcended simple literature searching and database queries. It has evolved into a multidimensional framework integrating lifelong learning, critical thinking, problem-solving, and socio-ethical responsibilities (Zhong, 2013). Grounded in this conceptual evolution, this study defines "information literacy needs" as the subjective aspirations and objective demands of business students to acquire, synthesize, analyze, evaluate, and legally apply information within the digital and New Business environments (Chen, 2002).

2.2 Research Hypotheses and Conceptual Model

Regarding the structural components of information literacy, academic research consensus generally delineates four essential elements: information consciousness, information knowledge, information competence, and information ethics (Chen, 2018). These elements function as a highly integrated organic system. Information consciousness acts as the perceptual precursor; information knowledge and information competence represent the foundational and executive cores; and information ethics serves as the crucial normative constraint to ensure that information activities remain secure, healthy, and legal. Based on the logical conduits and interactions among these dimensions, this study puts forward the following hypotheses:

• **Hypothesis H1:** College students' information consciousness needs have a significant positive impact on information knowledge needs.

• **Hypothesis H2:** College students' information knowledge needs have a significant positive impact on information competence needs.

• **Hypothesis H3:** College students' information competence needs have a significant positive impact on information ethics needs.

• **Hypothesis H4:** College students' information consciousness needs have a significant positive impact on information ethics needs.

Based on these four theoretical hypotheses, the initial conceptual relationship model of the multidimensional needs of information literacy is constructed as Figure 1. It assumes that information consciousness triggers a cascade effect that flows sequentially through knowledge, competence, and ultimately establishes ethics, while also directly contributing to information ethics.

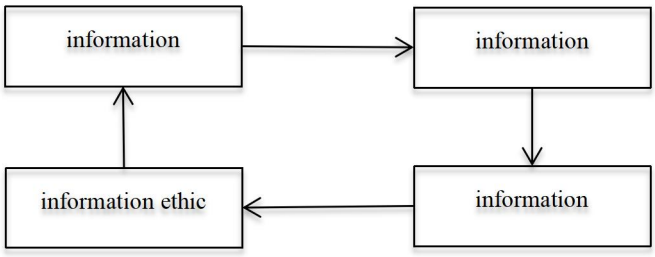


Figure 1. Initial Conceptual Relationship Model

3. Research Design and Reliability & Validity Analysis

3.1 Variable Measurement and Sample Characteristics

The measurement scale utilized in this research was adapted from the verified instrument of Chen (2018) with targeted localizations (Chen, 2018). The finalized scale contains 18 items across four dimensions: Information Consciousness Needs (4 items), Information Knowledge Needs (4 items), Information Competence Needs (6 items), and Information Ethics Needs (4 items). All items were measured using a 5-point Likert scale (ranging from 1 = "very unnecessary" to 5 = "very necessary").

We collected primary questionnaire data through online platforms from economics and management college students in Chinese universities, retrieving 232 completely valid responses. In the final sample, 183 respondents were female (78.88%) and 49 were male (21.12%). The grade distribution spanned Freshman (28.45%), Sophomore (13.36%), Junior (17.67%), Senior (37.50%), and Postgraduate and above (3.02%). Significantly, 91.38% of the respondents reported owning a personal laptop/computer, indicating a high-level information hardware base, which aligns with their intensive academic requirements for digital tools. The sample details are presented in Table 1.

Table 1. Sample Descriptive Statistical Analysis

Variable	Category	Count (N)	Percentage (%)
Gender	Male	49	21.12%
	Female	183	78.88%
Grade	Freshman	66	28.45%
	Sophomore	31	13.36%
	Junior	41	17.67%
	Senior	87	37.50%
	Postgraduate and above	7	3.02%
PC Ownership	Yes	212	91.38%
	No	20	8.62%

To ensure structural clarity for the subsequent empirical path estimation, Table 2 outlines the specific measurement dimensions, item codes, and target operational definitions compiled from our localized instrument.

Table 2. Measurement Scales and Evaluation Dimensions of Information Literacy Needs

Dimension	Code	Measurement Item Description	Target Operational Construct
Information Consciousness	T11	I hope to possess strong sensitivity toward new information.	Information Sensitivity
	T12	I hope to actively search for information when a specific need arises.	Information Seeking Consciousness
	T13	I hope to contemplate deeply when reading internet news or reports.	Information Observational Ability
	T14	I hope to understand the academic definition of “information literacy”.	Understanding of Information Nature
Information	T21	I hope to understand the basic operations of	Fundamental Theoretical

Knowledge		computer networks.	Knowledge
	T22	I hope to comprehend business information written in English.	Foreign Language Information Knowledge
	T23	I hope to master standard functions of Microsoft office software.	Information Technology Operations
	T24	I hope to understand specialized information related to my major.	Major-Specific Information
	T31	I hope to quickly extract main points from messy information.	Information Retrieval and Selection
	T32	I hope to efficiently synthesize and summarize obtained information.	Information Synthesizing and Condensing
	T33	I hope to solve daily study/work problems via advanced search engines.	Information Tools Application
Information Competence	T34	I hope to locate targeted resources accurately using logical keywords.	Information Utilization Capability
	T35	I hope to evaluate search cost (time, money) versus actual utility.	Information Cost-Benefit Analysis
	T36	I hope to evaluate the reliability and quality of various internet sources.	Information Distinguishing and Judgment
	T41	I hope to cite references accurately and reject copy-pasting/plagiarism.	Intellectual Property Respect
	T42	I hope to report unlawful or malicious websites to departments voluntarily.	Ethical Rights and Social Obligations
Information Ethics	T43	I hope to completely refrain from making personal attacks or abuse online.	Personal Cyber-Ethics Conduct
	T44	I hope to strictly maintain professional formats and polite language in emails.	Respectful Digital Communication

3.2 Reliability and Validity Test

We performed statistical verification using SPSS 25.0 to evaluate the internal reliability and constructive validity of the collected dataset. Internal reliability was estimated via Cronbach's Alpha coefficients, both for individual constructs and the integrated measurement scale. Table 3 presents these reliability coefficients.

Table 3. Reliability Test Results of Latent Variables and the Overall Scale

Latent Variable / Measurement Construct	Number of Items	Cronbach's Alpha
Overall Scale Needs	18	0.976
Information Consciousness Needs	4	0.918
Information Knowledge Needs	4	0.936
Information Competence Needs	6	0.971
Information Ethics Needs	4	0.921

As displayed in Table 3, the overall instrument yields a Cronbach's Alpha coefficient of 0.976, while all individual dimensions exceed the critical threshold of 0.90 (ranging from 0.918 to 0.971). These findings prove that the localized instrument possesses exceptional internal consistency, ensuring highly stable and reliable construct measurements.

To test construct validity, Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were calculated. The KMO index serves to evaluate sample adequacy for factor extraction, while Bartlett's test checks whether variables are mutually independent. These output parameters are reported in Table 4.

Table 4. Validity Test Results of KMO and Bartlett's Test of Sphericity

KMO Measure	Bartlett's Test Approx. Chi-Square	Degrees of Freedom (df)	Significance (p)
0.964	5081.421	153	0.000

The diagnostic metrics in Table 4 reveal a highly satisfactory KMO value of 0.964, significantly higher than the standard threshold of 0.80. Concurrently, Bartlett's test of sphericity outputs a massive Chi-Square of 5081.421, achieving statistical significance at the $p < 0.001$ level. These indicators collectively demonstrate that the measurement variables are strongly correlated and suitable for confirmatory factor analysis (CFA) and structural path estimation.

4. Empirical Analysis and Discussion

4.1 Status of Needs and Gender/grade Difference Analysis

An primary descriptive assessment of the four latent constructs was conducted on a five-point Likert baseline to establish students' prioritization regarding their informational needs. Table 5 displays the aggregated frequencies and mean matrix scores.

Table 5. Mean Scores of Information Literacy Needs

Dimension / Construct	Very Unnecessary	Somewhat Unnecessary	General Need	Somewhat Need	Very Need	Mean Score

Information Consciousness	27	33	170	356	342	4.03
Information Knowledge	26	35	133	323	411	4.14
Information Competence	40	33	185	471	663	4.21
Information Ethics	34	25	133	325	411	4.14

As reported in Table 5, the mean matrix scores across all four dimensions exceed the high value of 4.0, representing an intense demand for information literacy among modern Chinese economics and management students. Specifically, Information Competence Needs obtain the highest mean score of 4.21, reflecting a strong orientation toward practical and executive tools (e.g., search engine keyword logic, advanced databases, and statistical programs). Both Information Knowledge and Information Ethics Needs achieve an identical mean score of 4.14, showing that students recognize the dual importance of academic database frameworks and cyber ethics. Information Consciousness Needs, although retaining a solid score of 4.03, are rated lowest. This indicates that while students highly crave functional skills, they are slightly less proactive in cultivating their conceptual understanding and deep perceptual sensitivity.

Furthermore, we performed independent-samples t-tests to investigate whether demographic variables (gender and grade) exert significant influences on students' information needs. Grade difference analysis (segmenting Freshman-Junior as lower grades, and Senior-Postgraduate as higher grades) yields no statistically significant differences across any dimension ($p > 0.05$), indicating that information literacy needs remain high and consistent throughout students' academic lifespan. In contrast, gender difference analysis uncovers distinct variance in ethics, as shown in Table 6.

Table 6. Difference Test Results of Gender on Information Literacy Needs

Construct / Dimension	**Male (N = 49) (Mean ± SD)**	**Female (N = 183) (Mean ± SD)**	**t-value**	**Significance (p)**
Information Consciousness	3.903 ± 1.097	4.060 ± 0.802	-0.938	$p > 0.05$
Information Knowledge	3.975 ± 1.143	4.184 ± 0.824	-1.205	$p > 0.05$
Information Competence	3.966 ± 1.126	4.275 ± 0.816	-1.799	$p > 0.05$
Information Ethics	3.837 ± 1.123	4.216 ± 0.813	-2.212	$p < 0.05$*

The independent t-test results in Table 6 reveal that male and female students exhibit similar levels of demand concerning information consciousness, knowledge, and competence. However, in the dimension of Information Ethics Needs, female students record a mean score of 4.216 ± 0.813, which is significantly higher than male students' mean of 3.837 ± 1.123 ($t = -2.212$, $p < 0.05$). This statistical difference implies that female business students show a significantly higher sensitivity and demand for ethical standards—including intellectual property regulations, citation ethics, online communication rules, and social responsibilities—than their male counterparts.

4.2 Structural Equation Model Testing and Modification

To test our theoretical hypotheses and examine the structural transmission routes among consciousness, knowledge, competence, and ethics, we ran path estimation using Amos 22.0 (Chen, 2006). The goodness of fit was verified via standard fit indices, including CMIN/DF, RMSEA, GFI, AGFI, PGFI, PNFI, NFI, and CFI. The initial path estimation generated poor fit values, indicating a clear need for structural optimization. Guided by the Modification Indices (MI), error terms with high residual covariances were sequentially freed. The fitting indices before and after the structural modification are compared in Table 7.

Table 7. Comparison of Fitting Indices before and after SEM Modification

Model Stage	CMIN/DF	RMSEA	GFI	AGFI	PGFI	PNFI	NFI	CFI
Ideal Standard	1.0 - 3.0	< 0.08	> 0.90	> 0.90	> 0.50	> 0.50	> 0.90	> 0.90
Initial Model	4.252	0.119	0.806	0.755	0.637	0.786	0.890	0.914
Modified Model	1.457	0.044	0.942	0.910	0.610	0.727	0.973	0.991

As outlined in Table 7, the initial model fit indices fell short of acceptable academic benchmarks (specifically, CMIN/DF exceeded 3.0, RMSEA was above 0.08, and GFI, AGFI, and NFI were below 0.90). Following structural modifications based on MI, the final model delivered excellent fit statistics: CMIN/DF dropped to 1.457 (within the ideal range of 1.0-3.0), RMSEA decreased to 0.044 (safely below 0.08), and GFI (0.942), AGFI (0.910), NFI (0.973), and CFI (0.991) all comfortably surpassed the 0.90 target. These indicators confirm that the modified model perfectly fits the collected empirical data, ensuring highly robust hypothesis testing.

4.3 Hypothesis Testing Results and Path Discussion

Following structural model fitting, path coefficients were estimated. The final SEM path results are detailed below, providing a rigorous explanation of the interaction routes among business students' informational needs:

(1) The path "Information Consciousness Needs -> Information Knowledge Needs" is strongly supported (Beta = 0.78, $p < 0.001$), validating Hypothesis H1. This shows that a strong personal

motivation and active curiosity to capture digital information directly triggers and shapes students' demands for systematic knowledge frameworks, including computer network operations and specialized databases.

(2) The path "Information Knowledge Needs -> Information Competence Needs" is strongly supported (Beta = 0.85, $p < 0.001$), validating Hypothesis H2. This confirms the fundamental cognitive rule that a solid knowledge base serves as the direct precursor for the development of practical execution skills, including info-retrieval, indexing, tool usage, and cost-benefit analysis.

(3) The path "Information Competence Needs -> Information Ethics Needs" is strongly supported (Beta = 0.91, $p < 0.001$), validating Hypothesis H3. As business students develop capabilities in navigating search tools and analyzing data, their demand for legal, compliant, and civilized digital interactions naturally increases, leading to a surge in ethical needs (such as citation norms, academic integrity, and polite online communication).

(4) The path "Information Consciousness Needs -> Information Ethics Needs" is rejected due to a highly significant negative coefficient (Beta = -0.42, $p < 0.001$), contrary to Hypothesis H4. This counterintuitive finding reveals a key behavioral mechanism among Chinese economics and management students: when faced with explosive digital information, students at the initial stage of intense seeking focus heavily on search efficiency and speed (instrumental rationality). This focus leads to temporary ethical neglect or "cognitive overload". Moral norms, as soft and reflective constraints, are rarely activated directly by shallow awareness. Instead, they must be developed progressively through the mediating chain of "consciousness -> knowledge -> competence -> ethics" (where the indirect mediating chain is positive and highly significant). This evolution path proves that cultivating business students' digital ethics is a step-by-step process.

Additionally, factor loading estimates indicate that T24 (Major-Specific Information, loading = 0.84), T32 (Information Summarizing, loading = 0.89), T33 (Information Tools Application, loading = 0.91), T34 (Information Utilization, loading = 0.88), and T44 (Respectful digital communication, loading = 0.86) exhibit high factor loadings. These items represent the primary priorities and practical concerns of modern business students, providing core focus areas for designing targeted educational curricula.

5. Suggestions for Improving Information Literacy of Chinese Economics and Management Students

5.1 Individual-level Self-cultivation

5.1.1 Establish and Foster Active Information Consciousness

New Business is essentially an educational revolution rooted in digital and information-oriented thinking. Economics and management college students must establish active information sensitivity to drive their personal growth. When analyzing business cases or engaging in academic tasks, students should actively identify their information gaps, proactively explore digital databases, and learn to identify high-value commercial intelligence. Fostering a continuous curiosity for industry databases

and market dynamics is essential for adapting to the rapid shift toward data-driven learning in modern business disciplines.

5.1.2 Continuously Broaden Information Knowledge

Under the digital commercial paradigm, students must build a comprehensive, cross-disciplinary knowledge network. Business students should expand beyond traditional financial and management theories to master emerging digital concepts, including internet network structures, search logic, database operations, and data management frameworks. Developing comfort with modern computing and software applications (such as advanced Excel functions, SPSS, or Python data libraries) is critical for transforming into the compound application-oriented talents highly sought after by the digital economy.

5.1.3 Improve Information Summarizing and Distinguishing Abilities

To manage the severe information explosion in digital environments, students must develop strong critical thinking and analytical abilities. They should avoid relying blindly on unverified internet opinions or speculative content. While searching for data, students must learn to distinguish facts from viewpoints, evaluate source credibility, and analyze the cost-benefit ratio (time and effort versus data quality) of their search strategies. Adopting a structured approach to filter out digital noise and synthesize fragmented market or academic data is vital for ensuring high-quality research and decision-making.

5.1.4 Cultivate Digital Information Ethics

College students must raise their self-discipline and compliance awareness regarding digital property and cyber-laws. They should strictly follow citation ethics, avoid copying or plagiarism, and reject any form of cyber-bullying or inappropriate online comments. In daily digital communications, including academic and business emails, students should maintain professional formatting and respectful language. Treating digital communication etiquette as a personal habit helps build a clean, healthy, and civil digital community.

5.2 University-level Collaborative Education Governance

5.2.1 Configure Modular Curriculum, Lectures, and Competition Resources

Universities should move beyond basic computer literacy and literature search classes to develop a modular, cross-disciplinary curriculum that integrates database operations, big data analytics, and modern business case studies. Furthermore, academic institutions must invest in compiling high-quality New Business textbooks that align with contemporary commercial realities. Hosting regular guest lectures on information literacy can expose students to expert insights on industry databases. Finally, schools should encourage active participation in innovation and entrepreneurship competitions, integrating theoretical teaching with hands-on practice through real-world business projects.

5.2.2 Improve the Information Literacy of the Faculty Team

The faculty team represents the core foundation of academic cultivation, and their digital capabilities directly influence student outcomes. To address the issue of single-discipline knowledge structures

among some business teachers, universities must accelerate the cultivation of "dual-qualified" and compound educators. Professional teachers should keep pace with industry trends, integrate current digital tools into classroom instruction, and combine textbook theories with real-time market developments to stimulate students' innovative thinking. Given differences in faculty backgrounds and ages, institutions must establish continuous training programs and allocate dedicated funds to enhance teachers' digital literacy.

5.2.3 Strengthen Campus Cyber-ethics Construction and Guide Students Correctly

Higher education institutions must recognize digital information as a core strategic resource. Because college students interact closely and form a highly connected online group, they are particularly susceptible to cyber-interference and disinformation. Universities should launch targeted campus campaigns and special lectures in collaboration with university libraries. To protect students during their transition from school to professional life, schools must establish healthy network environments by monitoring malicious platforms and restricting cyber-violence. Ultimately, schools should guide students toward healthy, civil, and legal online habits.

6. Conclusion

This study conducted an empirical investigation into the demand characteristics and internal path mechanisms of Chinese economics and management college students' information literacy under the background of New Business. The modified structural equation model demonstrated excellent fit with our empirical dataset. The path results prove that "consciousness-knowledge-competence-ethics" forms a progressive, step-by-step endogenous transmission chain. Importantly, the significant negative relationship between information consciousness and direct information ethics indicates that initial, shallow information-seeking behaviors are prone to ethical neglect due to instrumental rationality. Cultivating strong information ethics requires sequential development through knowledge acquisition and practical competence building. Future research can expand on this study by conducting multi-regional and tracking comparative surveys to further enhance the generalization and reliability of the findings, providing a long-term scientific framework for cultivating cross-disciplinary, application-oriented business talents in Chinese higher education.

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