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The Development and Application of the Academic Information Organization Level Scale for University Students: Postprint

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Abstract

[Purpose/Significance] This study conceptualizes personal academic information organization behavior as a holistic construct to simultaneously measure behavioral capacity and behavioral outcomes, develops a scale for assessing university students' academic information organization proficiency, and applies this instrument to conduct a preliminary analysis of the characteristics of personal academic information organization behaviors among undergraduate students at Peking University, with the aim of providing practically valuable recommendations for improvement.

[Methods/Process] In the scale development phase, an initial instrument was first constructed based on literature review and semi-structured interviews, subsequently purified through item analysis and factor analysis, and ultimately evaluated for quality via reliability and validity testing. In the application phase, the scale was deployed using methods including descriptive statistics, correlation analysis, and differential analysis.

[Results/Conclusions] The University Students' Academic Information Organization Proficiency Scale encompasses five key dimensions: computer file organization proficiency, paper-based material organization proficiency, academic information management literacy, academic workspace cleanliness proficiency, and classroom note organization proficiency. This scale provides a viable instrument for measuring personal information organization proficiency within university student populations, offers a novel perspective for research on personal academic information organization behaviors, and expands conceptual avenues for comprehensively understanding university students' information behaviors.

Full Text

Development and Application of the Personal Academic Information Organization Level Scale for College Students

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Abstract

[Purpose/Significance] This study treats personal academic information organization behavior as a holistic construct to measure both behavioral capability and outcomes, developing a scale for assessing college students' personal academic information organization level. The scale is then applied to analyze the characteristics of personal academic information organization behaviors among Peking University undergraduates, providing practical recommendations for improvement. **[Method/Process]** In developing the scale, an initial version was constructed based on literature review and semi-structured interviews, then purified through item analysis and factor analysis, and finally evaluated through reliability and validity testing. In applying the scale, descriptive statistics, correlation analysis, and difference analysis were employed. **[Results/Conclusion]** The scale comprises five key dimensions: computer file organization level, paper material organization level, academic information management literacy, academic space cleanliness level, and class note organization level. This scale provides a feasible instrument for measuring personal information organization level among college student populations, offers a new perspective for research on personal academic information organization behavior, and expands understanding of college students' information behaviors.

Keywords: personal academic information organization behavior; personal academic information organization level; scale development; college students; factor analysis

1. Introduction

Personal academic information organization behavior refers to the management activities implemented on personal academic information collections for future use, including the selection and implementation of organization schemes, as well as updating, deleting, and backing up items within the collection. This represents a crucial activity for college students in academic contexts. Today's knowledge workers face two major challenges when using personal information collections: information overload and information fragmentation, which cause them to waste substantial time and effort locating useful information [1]. Deeply organizing personal academic information can help college students avoid information overload and fragmentation, thereby reducing information anxiety, saving time

and energy in information retrieval, and improving learning efficiency. Additionally, personal academic information organization behavior involves integrating new information items into existing organizational structures—an external behavior that requires internal cognitive activity of connecting new knowledge with prior knowledge. Different organization strategies involve varying degrees of organization, which affects students' mastery of knowledge and consequently impacts academic performance [2]. Therefore, deeply organizing personal academic information can also help college students more proficiently master information-related knowledge, use useful information more efficiently to complete learning tasks, and improve learning outcomes.

Given the significance of personal academic information organization behavior for learning, its measurement holds important value. By measuring college students' personal academic information organization behavior, targeted assistance can be provided to help them improve deficiencies, thereby positively influencing learning. However, current research remains limited, lacking studies that treat personal information organization behavior as a whole to measure its behavioral capability or outcomes, and corresponding measurement instruments are also absent. To fill this research gap, this paper systematically reviews the concept of personal information organization behavior and related research, follows standard procedures for scale development, defines the concept of personal academic information organization level, identifies the key dimensions that personal academic information organization level should encompass, and ultimately develops and validates the College Student Academic Information Organization Level Scale, aiming to provide measurement tools for related research.

2. Personal Information Organization Behavior and Related Research

2.1 Concepts of Personal Information Management and Personal Information Organization Behavior

Personal information organization behavior is a sub-behavior of personal information management. W. Jones defines Personal Information Management (PIM) as “the practice and study of the activities a person performs to acquire, create, store, organize, maintain, retrieve, use, and distribute information needed to complete various tasks and fulfill various roles and responsibilities” [3]. Some researchers have further operationalized the concept of PIM and proposed PIM framework models, among which the model by W. Jones and J. Teevan has the greatest influence [4]. They point out that PIM is an interactive process between information and needs in personal information space, with core operations being input-storage-output. Therefore, complete PIM behavior includes three types of activities: First, finding/re-finding activities, driven by personal information needs, which establish a mapping from needs to information. Activities that seek unknown information items are called finding activities, while activities that locate known information items from existing personal information collections are called re-finding activities. Second, keeping activities, which establish a mapping from

information to needs, refer to activities of storing information for future use. Third, meta-activities, which support the previous two groups of activities to form mappings between needs and information, refer to activities that manage personal information space to facilitate information re-finding. Meta-activities include: organization and maintenance, involving the selection and implementation of personal information space organization schemes, as well as updating, deleting, and backing up information items in personal information collections; management of privacy and information flow, involving activities that enable individuals to control how information flows in and out of their personal information space and various security issues; measurement and evaluation, involving questions about the effectiveness and efficiency of tools and methods used to manage and use personal information; and sense-making, involving individuals' attempts to understand their personal information collections and their implications for life.

The “personal information organization behavior” studied in this paper corresponds to “organization and maintenance” under meta-activities in the PIM model of W. Jones and J. Teevan, referring to management behaviors implemented on personal information collections for future use, including the selection and implementation of personal information space organization schemes, as well as updating, deleting, and backing up information items in the collection.

2.2 Related Research on Characteristics of Personal Information Organization Behavior

Research on characteristics of personal information organization behavior has investigated users' organization behaviors toward different carriers and types of information across different populations. Some studies focus on single personal information organization behaviors, investigating various organization behavior characteristics through multiple methods (such as ethnography [5], interviews [6-7], logging [8], questionnaires [9-11], automated computer programs [12-13], etc.). Among them, D. Mizrachi and M.J. Bates systematically observed college students' personal academic information organization behaviors, involving the organization of paper academic materials, electronic academic materials, and class notes [5]. Their identified paper academic material organization behaviors focused on activities such as placing, classifying, sorting, labeling, and discarding; electronic academic material organization behaviors focused on computer academic files, including naming and classifying activities; and class note organization behaviors focused on organization activities, including external changes to form, location, and format, as well as internal content changes. Regarding computer file organization behaviors, existing related research has also investigated activities beyond naming and classifying. For example, C. Massey et al. focused on deletion activities and desktop placement activities, measuring variables such as the number of files, number of folders, number of desktop files, and percentage of desktop files within folders [12]. Li Zhangchao and Xie Xiao focused on backup activities, investigating several personal computer information backup behaviors [14].

Other studies focus on organization strategies in personal information space, summarizing users' organization strategies across multiple organization behaviors into different categories. Taking computer file organization strategies as an example: T.W. Malone summarized office workers' desktop paper file organization strategies as piling and filing [15], which many subsequent researchers (e.g., [16]) applied to computer files. R. Boardman and M.A. Sasse summarized computer file organization strategies as total filer, extensive filer, and occasional filer [17]. S.J. Chang and M.H. Ko summarized them as post-building and pre-building [18]. S. Henderson summarized them as piler, filer, and structurer [19]. S. Hardof-Jaffe et al. summarized them as piling, one-folder filing, small-folder filing, and big-folder filing [2].

Existing research either focuses on single personal information organization behaviors or on organization strategies in personal information space, lacking studies that treat organization behavior as a whole to measure its behavioral capability or outcomes, as well as corresponding measurement instruments. However, the content they focus on constitutes components of the personal information organization behavior set and can provide reference for measuring personal information organization capability. Based on this, this paper attempts to develop the College Student Academic Information Organization Level Scale on the basis of existing research to holistically measure the level of personal academic information organization capability. The specific steps are: compiling an initial scale based on literature review and semi-structured interviews, purifying the scale using item analysis and factor analysis, and evaluating scale quality through reliability and validity testing. Additionally, this paper applies the scale to briefly analyze the characteristics of personal academic information organization behaviors among Peking University undergraduates to provide practical improvement recommendations.

3. Development of the College Student Academic Information Organization Level Scale

This section follows the standard procedure proposed by G.A. Churchill [20] to develop the College Student Academic Information Organization Level Scale, with specific steps including item development, scale development, and scale evaluation.

3.1 Item Development 3.1.1 Clarifying the Conceptual Domain

Clarifying the concept of personal academic information organization level is the starting point for scale development. We define this concept by defining personal academic information and personal academic information organization behavior: College students' personal academic information refers to information they create and collect for completing academic tasks; College students' personal academic information organization behavior refers to their manage-

ment behaviors implemented on personal academic information collections for future use, including the selection and implementation of organization schemes, as well as updating, deleting, and backing up information items in the collection;

College students' personal academic information organization level refers to the behavioral capability or behavioral outcome of personal academic information organization behavior. As behavioral capability, it refers to college students' ability to organize personal academic information; as behavioral outcome, it refers to the degree to which college students' personal academic information is organized. These two meanings are interrelated—stronger capability leads to better outcomes—and both are measured through extensive organization behaviors.

3.1.2 Identifying Key Dimensions

Due to the lack of established theory, we identified key dimensions that college student academic information organization level should include based on existing literature, yielding four dimensions: paper academic material organization level, computer academic file organization level, class note organization level, and personal academic information management literacy.

First, D. Mizrachi and M.J. Bates argue that although undergraduates are described as “digital natives,” their world is partially paper-based and partially digital, and they even prefer paper materials when studying [5]. Therefore, based on information carriers, college student academic information organization level can be roughly divided into paper academic material organization level and electronic academic material organization level.

Second, among electronic academic materials, computer academic files occupy the dominant position. Research by R. Boardman and M.A. Sasse shows that participants organize computer files more extensively than web bookmarks or emails [17]. S. Hardof-Jaffe et al. consider computer folder hierarchies as the standard mechanism for organizing personal information in digital environments [2]. D. Mizrachi and M.J. Bates note that most discussions on electronic academic material organization behaviors focus on computer files, with only a few addressing emails [5]. Therefore, to streamline content and highlight key points, computer academic file organization level is used to represent electronic academic material organization level.

Third, college students spend most of their learning time in classrooms, which generates class notes as a type of academic information. D. Sinn et al. investigated the likelihood of college students using information sources for information activities in academic contexts, with class notes receiving the highest score [21], indicating they are the information source college students care about most. Additionally, class notes have unique characteristics: their original recording is completed under intense time pressure and often requires subsequent content organization; their content is continuous while recording is fragmented, necessitating the integration of multiple recordings. This means class notes have different organization behaviors from general academic materials. Moreover,

class notes can be either paper-based or electronic. Therefore, beyond paper academic material organization level and computer academic file organization level, class note organization level is listed as a separate dimension.

Finally, S. Majid et al. argue that in PIM activities, “meta-level” activities are most directly related to personal information management literacy [22], meaning personal academic information management literacy can also reflect personal academic information organization level. Therefore, in addition to the organization levels of three types of academic information, the dimension of personal academic information management literacy is added.

3.1.3 Generating Sample Items

College student personal academic information organization level, as the behavioral capability or outcome of personal academic information organization behavior, should be measured through extensive organization behaviors. Therefore, using the four key dimensions of college student academic information organization level as a framework, we collected organization behaviors that reflect each dimension to serve as sample items in the initial scale. Item generation generally employs two methods: first, developing and adapting existing scale items based on existing research; second, collecting events related to research questions through qualitative methods such as interviews [23]. We used both methods to generate sample items, ensuring content validity while making the scale more applicable to the research context.

- (1) Literature-based: Although existing literature on personal information organization behavior characteristics lacks directly quotable scale items, the single personal information organization behaviors and personal information space organization strategies they focus on are components of the organization behavior set and can provide reference for generating sample items. Therefore, we first identified the main behavior categories included in each key dimension of college student academic information organization level based on existing literature, then referred to organization behaviors and strategies in the literature to collect organization behaviors under each category as sample items, ultimately generating 32 sample items. When collecting organization behaviors, we determined the measurement granularity of each dimension based on importance or the size of the information collection—dimensions with higher importance or larger information collections were measured with more behaviors.
- (2) Interview-based: To verify the applicability of sample items from existing literature in real-world contexts and identify gaps, we conducted semi-structured interviews with college students to collect their personal academic information organization behaviors. From March 6 to 8, 2020, we conducted online interviews with six Peking University undergraduates of different genders and grades, with each interview lasting approximately 40 minutes. Interview results confirmed that the various organization behaviors included in existing items exist in college students’ learning lives,

validating the usability of literature-derived sample items. Additionally, we collected two organization behaviors not covered by existing items from interview results and added them to the sample item set (OCF16, OCN1). Through this process, we generated 34 sample items across four key dimensions as the basis for compiling the initial scale, as shown in Table 1 .

3.2 Scale Development 3.2.1 Data Collection

- (1) Questionnaire Design: Data were collected using a questionnaire survey method. The questionnaire included a background information section and a main section. The background information section included five single-choice questions on gender, school, grade, faculty, and academic ranking. The main section was the initial College Student Academic Information Organization Level Scale. By adapting sample items into Likert five-point scale questions, we compiled the initial scale. The scale included four key dimensions and 34 items, with five frequency options for each item scored 1-5, where items corresponding to OPM8, OCF1, OCF12, and OCF13 were reverse-scored. Scale scores were calculated as “total score \div number of items,” with a range of 1-5, where higher scores indicate higher personal academic information organization level.

Before formal investigation, we invited 20 college students to pilot the questionnaire and provide feedback on readability, content clarity, and format. Based on feedback, we revised the questionnaire for better understanding, such as using more concise and accessible language, standardizing ambiguous items, adjusting the order of some items, and adding noun and case explanations for difficult-to-understand items. This resulted in the “College Student Academic Information Organization Level Questionnaire” for large-scale distribution.

- (2) Questionnaire Distribution and Recovery: The questionnaire was distributed to Peking University undergraduates through the Wenjuanxing platform. A total of 1,173 questionnaires were recovered. After eliminating questionnaires from non-Peking University undergraduates and invalid questionnaires with identical or highly patterned answers to most items, 866 valid questionnaires were obtained, yielding a valid response rate of 73.83%.
- (3) Sample Characteristics: Sample characteristics are shown in Table 2 . The sample covers students of different genders, grades, faculties, and academic rankings in a relatively balanced and comprehensive manner, demonstrating high representativeness.

3.2.2 Item Analysis

First, we used the critical ratio method (top 27% as high group, bottom 27% as low group) to test item discrimination. Results showed that the significance of independent samples t-tests for all items was less than 0.001, with discrimination reaching acceptable levels, so no items needed deletion. Second, we calculated

CITC and CAID indicators to test item correlation. The CITC coefficient for OPM8 was 0.168 (less than 0.4), and the overall Cronbach's α coefficient of the scale increased after its deletion (from 0.902 to 0.904), so it should be deleted. The remaining 33 items passed this stage and proceeded to the next analysis phase.

3.2.3 Exploratory Factor Analysis

The KMO value was 0.885 (>0.5), and Bartlett's test of sphericity was significant ($p < 0.001$), indicating that items may share underlying variables and factor analysis was appropriate. The ratio of sample size to number of items was approximately 13:1, far exceeding the reference standard of 4:1, indicating sufficient sample size. We expected good factor analysis results.

We used principal component analysis with varimax rotation to extract factors with eigenvalues greater than 1 for exploratory factor analysis of the initial scale. Following these principles, we sequentially deleted unreasonable items: first deleting items with factor loadings less than the minimum requirement of 0.4 [32] on all factors; then deleting items with loadings greater than 0.4 on two or more factors simultaneously, with differences less than 0.2; next deleting factors with fewer than 3 items; finally deleting items inconsistent with their factor meaning. Throughout the process, only one item was deleted at a time before starting a new round of factor analysis until the optimal factor structure was obtained.

After deleting 8 items including OPM3, we ultimately extracted 5 factors comprising 25 items, with a cumulative variance contribution rate of 58.523%, exceeding the 40% standard [33], indicating that the selected factors captured substantial information from the original data. In the rotated component matrix after varimax rotation, item loadings ranged from 0.449 to 0.850, all exceeding the minimum requirement of 0.4, as shown in Table 3.

On Factor 1, 7 items reflected college students' ability to organize computer academic files, or the degree to which computer academic files were organized, thus named "Computer File Organization Level." On Factor 2, 6 items reflected college students' ability to organize paper academic materials, or the degree to which paper academic materials were organized, thus named "Paper Material Organization Level." On Factor 3, 5 items reflected college students' personal academic information management literacy, thus named "Academic Information Management Literacy." On Factor 4, 4 items reflected college students' ability to maintain clean academic information space, or the cleanliness of academic information space, thus named "Academic Space Cleanliness Level." On Factor 5, 3 items reflected college students' ability to organize class notes, or the degree to which class notes were organized, thus named "Class Note Organization Level." These 5 factors and 25 items constitute the revised College Student Academic Information Organization Level Scale.

Compared with the initial scale compiled from literature and interviews, the revised scale adds the key dimension of "Academic Space Cleanliness Level"

while retaining the other four key dimensions from the initial scale.

3.2.4 Confirmatory Factor Analysis

We further used confirmatory factor analysis to test the stability of the revised scale's internal structure. The ratio of sample size to number of items was approximately 17:1, far exceeding the reference standard of 4:1, indicating sufficient sample size. Using AMOS software, we used the 25 items from exploratory factor analysis as observed variables and the 5 factors as latent variables to construct a structural equation model. Test results are shown in Figure 1 [Figure 1: see original paper] and Table 4 .

Regarding standardized factor loadings, all item loadings ranged from 0.408 to 0.851, exceeding the minimum requirement of 0.3 [36] and all reaching significant levels. Regarding structural equation model fit indices, although strictly speaking the RMR, NFI, and CFI indices were slightly inadequate, they reached acceptable levels, while other indices achieved good levels. Results indicate that the five-factor model obtained from exploratory factor analysis showed good fit, and the revised scale can serve as the formal College Student Academic Information Organization Level Scale.

The formal scale consists of 5 subscales. Both the total scale and subscales are calculated as "total score \div corresponding number of items," with ranges of 1-5. The total scale score is called "Personal Academic Information Organization Level," while subscale scores are called "Computer File Organization Level," "Paper Material Organization Level," "Academic Information Management Literacy," "Academic Space Cleanliness Level," and "Class Note Organization Level," representing sub-dimensions of personal academic information organization level. Based on this, we evaluated the quality of the formal scale.

3.3 Scale Evaluation

3.3.1 Reliability Testing

We tested the internal consistency of the College Student Academic Information Organization Level Scale through split-half reliability, homogeneity reliability, and composite reliability. For split-half reliability, the Spearman-Brown coefficients for the total scale and all subscales ranged from 0.713 to 0.846, all exceeding the standard value of 0.7. For homogeneity reliability, Wu Minglong suggests that for a scale with good reliability, the total scale's α coefficient should preferably be above 0.8, and subscales' α coefficients should preferably be above 0.7 [37]. Results showed the total scale's α coefficient was 0.895, and subscales' α coefficients ranged from 0.748 to 0.837, all meeting requirements. For composite reliability, subscales' CR values ranged from 0.753 to 0.852, all exceeding the standard value of 0.7 [38]. Results demonstrate that the scale's item system has consistency in conceptual layout, and the scale overall and its various dimensions are reliable.

3.3.2 Validity Testing

We tested the content validity and construct validity of the College Student Academic Information Organization Level Scale.

- (1) Content Validity: First, during item development, we strictly followed the procedure of clarifying the conceptual domain, identifying key dimensions, and generating sample items. Sample items were comprehensively derived from both literature and interviews, ensuring measurement items comprehensively cover various aspects of personal academic information organization level. Second, when compiling the initial scale, we invited 20 college students to pilot the questionnaire and made repeated revisions based on feedback, ensuring measurement items clearly reflect the content of the concepts being examined. In summary, the measurement items of the College Student Academic Information Organization Level Scale align well with the target concepts.
- (2) Construct Validity: First, we conducted correlation analysis on the total scale and all subscales. Results showed Spearman coefficients between subscales ranged from 0.219 to 0.464, indicating low-to-moderate correlation; coefficients between subscales and the total scale ranged from 0.582 to 0.767, indicating moderate-to-high correlation, significantly higher than coefficients between subscales. This indicates subscales are consistent in direction, measuring the same concept, yet have obvious differences and cannot substitute for each other. Second, from exploratory factor analysis results, the 25 items' loadings ranged from 0.449 to 0.850, all exceeding the minimum requirement of 0.4, with no cross-loadings, indicating high correlation between items and their belonging factors and low correlation with other factors, ensuring items' singular directionality toward measured dimensions. Finally, from confirmatory factor analysis results, all items' standardized factor loadings ranged from 0.408 to 0.851, exceeding the minimum requirement of 0.3 and all reaching significant levels; subscales' CR values ranged from 0.772 to 0.852, all exceeding the standard value of 0.7; AVE values ranged from 0.396 to 0.534, all reaching acceptable levels [39], indicating good convergent validity. The square roots of all subscales' AVE values were greater than the maximum standardized correlation coefficients with other subscales, indicating good discriminant validity. In summary, empirical data obtained from the College Student Academic Information Organization Level Scale are consistent with the internal logic of the target concept.

Reliability and validity test results demonstrate that the College Student Academic Information Organization Level Scale has good quality and can be applied in practice.

4. Application of the College Student Academic Information Organization Level Scale

We used the College Student Academic Information Organization Level Scale to briefly analyze characteristics of personal academic information organization behaviors among Peking University undergraduates, demonstrating the scale's practical application value.

4.1 Overall Situation First, we conducted descriptive statistics on the sample's personal academic information organization level and its dimensions. Results showed the sample's mean personal academic information organization level was 3.447, with sub-dimension means ranging from 3.167 to 3.771, all slightly above the theoretical midpoint of 3, indicating Peking University undergraduates have theoretically moderate-to-high personal academic information organization capability.

We further compared organization levels across the three main types of academic information: computer academic files, paper academic materials, and class notes. Friedman test results showed significance less than 0.001, indicating significant differences in organization levels among the three types of academic information. Post-hoc comparisons revealed the sequence "Computer File Organization Level (3.771) > Paper Material Organization Level (3.359) > Class Note Organization Level (3.167)" was significant, indicating Peking University undergraduates have relatively strong capability in organizing computer files, moderate capability in organizing paper materials, and relatively weak capability in organizing class notes, suggesting they need to further improve their class note organization behaviors.

4.2 Comparison Across Subgroups Second, we compared personal academic information organization levels across different gender, grade, and faculty subgroups in the sample, with results shown in Table 5. Significant differences existed between male and female students' organization levels, with females scoring higher, indicating female Peking University undergraduates have stronger personal academic information organization capability than males. No significant differences existed across different grades. Significant differences existed across different faculties. Post-hoc comparisons revealed "Economics and Management > Information and Engineering" was significant, indicating Economics and Management faculty students have stronger personal academic information organization capability than Information and Engineering Science faculty students. From a broader perspective, the ranking of organization levels across faculties was "Economics and Management > Humanities > Social Sciences > Medicine > Information and Engineering > Interdisciplinary > Science," with the top three faculties all being humanities/social sciences and lower-ranked faculties being science and engineering (interdisciplinary nature uncertain), indicating humanities students have stronger personal academic information organization capability than science and engineering students. These subgroup compari-

son results show that some subgroups have relatively weaker personal academic information organization capability, such as males and science/engineering students, who need to further improve their personal academic information organization behaviors.

4.3 Relationship Between Personal Academic Information Organization Level and Academic Performance

Finally, we conducted correlation analysis between personal academic information organization level and academic ranking. Results showed significant positive correlation at the 0.01 level, with a Spearman coefficient of 0.1, indicating that students with higher organization levels had better academic rankings and performance. This result confirms the positive effect of organizing personal academic information on academic performance, consistent with the conclusion in [2].

5. Conclusion

Personal academic information organization behavior is an important activity in college students' learning lives. Deeply organizing personal academic information can help them improve learning efficiency and outcomes, making its measurement valuable. Based on this, this paper follows standard procedures to develop a College Student Academic Information Organization Level Scale with good quality that can be applied in practice. The scale includes five key dimensions: computer file organization level, paper material organization level, academic information management literacy, academic space cleanliness level, and class note organization level. Additionally, this paper applies the scale to briefly analyze characteristics of personal academic information organization behaviors among Peking University undergraduates, revealing the positive effect of organizing personal academic information on academic performance and providing targeted recommendations for improving students' organization behaviors.

Existing research on personal information organization behavior characteristics either focuses on single personal information organization behaviors or on organization strategies in personal information space. This paper treats personal information organization behavior as a whole to measure its behavioral capability or outcomes, developing the College Student Academic Information Organization Level Scale. This scale provides a feasible instrument for measuring personal information organization level among college student populations, offers a new perspective for studying personal academic information organization behavior, and develops new ideas for comprehensively understanding college students' information behaviors.

The scale also has practical application value. First, it can be used to depict the current status of personal academic information organization behaviors in specific college student populations and timely identify deficiencies in organization level. Second, it can be used to explore reasons for inadequate personal

academic information organization level and indicate directions for improvement. For example, the scale can measure sub-dimensions of personal academic information organization level to identify the weakest links and prioritize improvement efforts. Finally, it can be used to explore improvement methods for personal academic information organization behaviors, such as analyzing influencing factors of personal academic information organization level to propose new improvement approaches.

As this is the first attempt to measure personal academic information organization level, certain limitations are inevitable: Due to time and resource constraints, this study's sample was limited to Peking University undergraduates, which may affect the scale's generalizability to some extent. Future research should expand the sample range for repeated validation and revision of the scale. To streamline content and highlight key points, the current scale only representatively measures computer file organization level in the electronic academic material organization level section, with insufficient comprehensive measurement. Future research could include other types of materials such as emails and web bookmarks, as well as organization behaviors on mobile devices, and could employ field observation methods in addition to literature review and interviews to more comprehensively collect sample items.

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English Abstract

Development and Application of the Personal Academic Information Organization Level Scale for College Students

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Abstract: [Purpose/significance] Taking personal information organization behavior as a whole to measure its ability and results, this paper develops the Personal Academic Information Organization Level Scale for College Students and applies it to analyze the characteristics of personal academic information organization behavior among Peking University undergraduates, providing practical improvement suggestions. [Method/process] In scale development, the initial scale was prepared based on literature review and semi-structured interviews, then purified through item analysis and factor analysis, and finally evaluated through reliability and validity tests. In scale application, descriptive statistics, correlation analysis, and variance analysis were used. [Result/conclusion] The scale includes five dimensions: computer document organization level, paper material organization level, academic information management literacy, academic space cleanliness level, and class note organization level. The scale provides a feasible tool for measuring personal information organization level among college students, offers a new perspective for studying personal academic information organization behavior, and develops new ideas for comprehensively understanding college students' information behavior.

Keywords: personal academic information organization behavior; personal academic information organization level; scale development; college students; factor

analysis

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.