Constructing a Progressive Practice System for Master of Library and Information Science Based on Situated Learning Theory: A Case Study of East China Normal University (Postprint)

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Abstract

[Purpose/Significance] The profound transformation of the information environment requires library and information science (LIS) education institutions to cultivate specialized and application-oriented talents for broad-based information professions. In response to this, East China Normal University has explored a systematic solution for the practical ability cultivation of Master of Library and Information Science (MLIS) professional master's students.

[Method/Process] Taking the MLIS professional master's program at East China Normal University as an example, this study utilizes situated learning theory to systematically introduce how to construct a practical ability cultivation system for MLIS professional master's students from several major aspects, including training orientation, capability development, and guarantee and implementation mechanisms.

[Results/Conclusion] The constructed progressive practice system for MLIS professional master's students is competency-oriented. Through refined design of training orientations and customized configuration of capability modules, and following the implementation pathway of "cases/experiments → practical training/practice → professional internship," it integrates "instance situation perception → practice situation embedding → practice situation construction" into every aspect of MLIS professional master's cultivation, thereby effectively achieving progressive and systematic enhancement of practical abilities for library and information science professional master's students.

Full Text

Preamble

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Constructing a Progressive Practical Ability Training System for Master of Library and Information Studies Based on Situated Learning Theory: A Case Study of East China Normal University

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Abstract

[**Purpose/Significance**] The profound transformation of the information environment requires library and information science education institutions to cultivate specialized, application-oriented talents for broader information professions. In response, East China Normal University has developed a systematic solution for cultivating practical abilities in its Master of Library and Information Studies (MLIS) program. [**Method/Process**] Taking ECNU's MLIS training as an example, this paper systematically introduces how to construct a practical ability training system from the perspectives of training orientation, capability development, and guarantee mechanisms, drawing on situated learning theory. [**Result/Conclusion**] The constructed progressive practical ability training system for MLIS is oriented toward post competency. Through elaborately designed training orientations and customized capability modules, and following the implementation path of "Case/Experiment → Practical Training/Practice → Professional Internship," the system integrates "instance situation perception → practice situation embedding → practice situation construction" into every aspect of MLIS education, effectively achieving gradual and systematic improvement of MLIS students' practical abilities.

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As China's graduate education enters a stage of deepening reform, adapting to demand, and improving quality, professional degree graduate education, as an important component of China's graduate education system, must closely integrate its development with social needs and clarify its reform direction. China's MLIS (Master of Library and Information Studies) training objective is to "cultivate high-level, application-oriented, and interdisciplinary specialized talents in library and information science who can comprehensively apply knowledge of management, economics, law, and computer science to solve practical problems

in library and information work, and who can meet the needs of social informatization and national economic construction." This addresses the critical question of "what kind of talents we should cultivate," clarifying that professional degree education in library and information science should be career-centered and focus on enhancing practical competencies. The iSchool talent cultivation objective further breaks through the limitation of training only for library professions, pointing toward broader information careers in enterprises, banks, commercial institutions, and other fields to cultivate new types of information professionals. This indicates the direction for "which industries and fields we should cultivate talents for." Information work encompasses all aspects of information creation, storage, processing, utilization, and dissemination. Today's rapid development of information technology is continuously reshaping information professions, and in the future we must break through traditional library careers to cultivate talents for broader information professions.

1. Current Status and Challenges of MLIS Practical Ability Training in China

Since the first batch of MLIS degree authorizations in 2011, MLIS enrollment in China has shown continuous growth, increasing more than sixfold by 2017, with a total of 4,053 graduate students enrolled. The annual increase in MLIS enrollment reflects a broad student market that recognizes the role of library and information knowledge and technology in facilitating personal career development, and also indicates that China's MLIS training objectives accurately align with social development needs. However, high-quality education and effectiveness remain the foundation for sustainable student enrollment. All training institutions should measure their educational effectiveness by the extent to which they achieve MLIS training objectives. To some degree, MLIS graduates' employment situation can serve as a "barometer" for the effectiveness of practical ability cultivation.

According to Duan Yufeng's "Satisfaction Survey Analysis Report on MLIS Graduate Training Quality," two contrasting phenomena exist in China's MLIS training: First, there is a contrast between the broad information professions and the narrow actual employment destinations of graduates. For example, in 2014, the proportion of graduates working in state organs and public institutions reached 59%, while those in state-owned enterprises exceeded 18%. Even though the proportion working in private enterprises increased in 2015, most graduates' employment remained concentrated with limited choices. Second, there is a contrast between the high relevance of school internships and the low relevance of graduates' actual work. Over 83% of 2014 graduates were basically satisfied with the internship component, and more than 82% considered their internship work relevant to their major. However, over 75% of MLIS students actually engaged in administrative management work after graduation, more than 72% considered their actual work poorly related to their major, and over 68% reported that lack of practical and work experience hindered their job search.

While these contrasting phenomena may be influenced by various individual and environmental factors, they should indeed serve as a warning to training institutions: there remains a significant gap between actual training quality and training objectives, training effectiveness is not yet significant, and students' professional competency and practical abilities urgently need enhancement.

Analysis of the above situation reveals that, on one hand, the effectiveness of China's MLIS practical ability training is closely related to how training institutions implement the training objectives in practice, involving training models, methods, curriculum systems, teaching approaches, and other aspects. However, current practices in this regard have drawn widespread criticism, with key common issues including unclear practical positioning in training objectives, insufficient curriculum support for practical ability development, outdated teaching models, and inadequate implementation of the dual-mentor system. A 2016 survey by Zhang Donghai of 56 graduate schools further corroborates these findings: in terms of time allocation between coursework and professional practice, approximately 80% of professional master's students had completed all coursework in their first academic year before entering the professional practice phase; in curriculum design, 57.8% of professional master's students considered professional foundation courses similar to those for academic master's, and 43.3% considered school professional foundation courses overly theoretical and lacking in practice; in terms of mentorship, the proportion of off-campus mentors who could provide concentrated guidance once per week was as low as 5.5%, and professional master's students' satisfaction with off-campus mentors was significantly lower than with on-campus mentors. This demonstrates that the disconnect between MLIS training objectives and educational practices is a major obstacle hindering the effectiveness of China's MLIS practical ability training.

On the other hand, a sound quality supervision system serves as the "gatekeeper" ensuring MLIS practical ability training quality. Currently, China's professional master's quality supervision system consists of government administrative approval and qualification evaluation, self-assessment and self-inspection by graduate training institutions, and third-party services and evaluations by professional organizations. Collaboration among government, training institutions, and third-party organizations is key to ensuring professional master's training quality. In terms of government supervision, on May 24, 2019, the Academic Degrees Committee of the State Council and the Ministry of Education issued the "Notice on the 2018 Special Evaluation Results and Handling Opinions for Degree Authorization Points." The evaluation results showed that compared with academic master's, the overall situation for professional master's was slightly worse: among 607 master's professional degree authorization points nationwide, 1,121 projects had a qualification rate of 92.86%, with 37 projects evaluated as "unqualified" and 43 as "limited-term rectification." The unqualified rate was relatively high. Meanwhile, all 12 MLIS projects evaluated were qualified, with an overall good performance. In terms of third-party supervision, entrusted by the State Council's Education Supervision Committee, the Degree and Graduate Education Development Center of the Ministry of Educa-

tion (referred to as the "Degree Center") organized the first national professional degree level evaluation in 2016 in the form of a third party, and published the results in 2018. Although MLIS was not included in this pilot evaluation, the evaluation took the "training process" as an important indicator, emphasizing the examination of training process effectiveness and the cultivation of students' practical abilities and career development capabilities, which represents significant progress and offers implications for MLIS future development. Overall, China's MLIS quality supervision system remains imperfect, and the absence of supervision by training institutions and third-party organizations constitutes another major dilemma in enhancing MLIS practical ability training effectiveness.

In summary, facing the "two contrasting phenomena" and "two major dilemmas" in China's MLIS training, existing research has addressed how to enhance MLIS students' practical abilities, with more discussion on the "first major dilemma," but overall lacks systematic thinking, strong theoretical guidance, detailed implementation paths, and adequate demonstration of implementation effects. Therefore, presenting exploratory achievements and experiences in MLIS practical ability training based on institutional realities is of great significance.

2. Situated Learning Theory and Its Application in Professional Master's Practical Ability Training

The field of learning theory research has long shown great enthusiasm for exploring "how people learn," and situated learning theory is a product of this inquiry. Since the 1990s, it has become a hot topic in contemporary Western learning theory research and has gradually permeated cognitive science, artificial intelligence, and other fields.

2.1 From "Individual Knowledge Construction" to "Situated Knowledge Construction"

Situated learning theory posits that knowledge is situated and learning is rooted in context. Discussing learning in isolation from individuals' real-life environments is meaningless. Unlike information processing theory, which emphasizes individuals' conscious reasoning and thinking and highlights cognitive differences, situated learning theory emphasizes that knowledge is related to individuals' daily life situations and their social and cultural groups. Knowledge is not a static intellectual structure in individuals' minds but is generated through interaction with the environment. In other words, the same conceptual knowledge may have vastly different meanings in different cultural contexts, and decontextualized knowledge cannot be truly understood and applied by students.

In cultivating MLIS students' practical abilities, training institutions must establish awareness of situated knowledge and emphasize context creation. Such contexts can be virtual or real, based on classroom teaching or existing in real-life scenarios. In China's professional master's education, the highly acclaimed

case teaching and experimental teaching methods create virtual scenarios like cases and experiments to attach knowledge and enhance student understanding based on classroom needs. However, situated learning emphasizes that even when creating virtual contexts, the focus should be on solving ill-structured, authentic problems, and designers should provide students with certain support and implement continuous on-site evaluation. Dalian University of Technology's "3C Practical Innovation Curriculum System," which integrates professional knowledge with its application contexts through enterprise case analysis practice courses, enterprise diagnosis and consulting practice courses, and innovation and entrepreneurship practice courses, serves as an excellent example of applying situated knowledge in cultivating students' practical and innovative abilities.

2.2 From "Explicit Knowledge Acquisition" to "Tacit Knowledge Acquisition"

American cognitive psychologist Sternberg believes that practical ability is the practical capability individuals accumulate through solving practical problems in the process of learning by doing from general life or work experience, and surviving in real environments through such knowledge. Compared with explicit knowledge that can be textualized and completely transferred, tacit knowledge is difficult to express verbally and transfer, including intuition, thinking patterns, and technical know-how. Through research on apprenticeship, Lave explained that the learning mechanism for apprentices to acquire tacit knowledge is "legitimate peripheral participation"—apprentices gain entry permission to a social system with legitimate status, initially observing and participating peripherally to subtly learn how predecessors conduct professional work, collaborate, and handle conflicts, gradually moving from peripheral to full participation, and completing their identity transformation from "novice" to "expert" through a series of mature practices. Tacit knowledge helps learners understand the values, norms, and discourse systems of a social system and forms the basis for learners' socialization transformation.

Situated learning theory's deep insight into the mechanism of tacit knowledge acquisition enlightens schools to not only focus on explicit knowledge transmission but also create contexts conducive to students' tacit knowledge learning, providing opportunities for tacit knowledge acquisition.

2.3 From "Learning Groups" to "Communities of Practice"

Communities of practice are the core concept of situated learning theory and the basic field where learning occurs. Learning is the process of continuously participating in communities of practice. Unlike traditional learning groups, communities of practice do not require members to be co-present nor have clear social boundaries. Their core characteristics are: 1) the community has cultural traditions and members share common pursuits; 2) the community has an interdependent system where members can collaborate and interact; 3) the

community has reproductive capacity, with dynamic replacement of internal member identities and roles; and 4) community members share skills, resources, and experiences. Learners can enter communities of practice through "legitimate peripheral participation," gradually moving from the periphery to the core of the community by observing expert work, interacting with community members, sharing community resources, and participating in community practice activities.

Communities of practice are effective carriers for improving practical ability. Strong organizational structures, harmonious team atmospheres, and compatible team cultures facilitate practice development and promote good community operation, which forms the foundation for steady improvement of community members' practical abilities. Library and information science professional master's training institutions should strive to construct communities of practice and encourage students to actively participate in community practice activities to enhance their practical abilities. The action learning project organized by East China University of Science and Technology in MBA student training is representative, requiring students to conduct team-based collaborative learning on real management problems existing in enterprises. Each team has complementary abilities, is equipped with professional mentors, conducts in-depth enterprise field investigations, holds regular seminars, and ultimately forms and implements project solutions. This project has broken through traditional group learning forms and is committed to constructing practical learning communities, offering reference for other professional master's training institutions.

3. ECNU's Progressive Practical System for MLIS Based on Situated Learning

ECNU's library and information science discipline has a long history and good reputation. In 1979, under the joint efforts of Mr. Chen Yu and Mr. Sun Yunchou, ECNU began building its Department of Library Science. In 1984, it became one of the first institutions authorized to confer master's degrees in library science. In 2007, it was approved as a first-level master's degree authorization point in library, information, and archival management. In 2010, it obtained MLIS professional degree authorization, making it one of the first universities in China to receive MLIS authorization. Since MLIS enrollment began in 2011, ECNU's application and enrollment numbers have increased annually, currently enrolling approximately 40 students per year.

In response to the current status and challenges of China's MLIS practical ability training, as well as ECNU's historical accumulation and regional advantages in library and information science, and adhering to the principle that "professional master's education should be oriented toward practical ability cultivation," ECNU has restructured and implemented its training system, particularly the practical system. In terms of training orientation, ECNU conducted top-level design based on post competency, forming three distinctive training orientations: information resource construction (emphasizing library science),

informetrics (emphasizing information science), and business analysis (emphasizing information analysis) (see Figure 1). Corresponding capability systems were established for each orientation, including basic skills modules, professional skills modules, and advanced skills modules. Based on this top-level design, ECNU uses the implementation path of "Case/Experiment → Practical Training/Practice → Professional Internship," supported by professional case libraries, virtual experimental platforms, and practice bases, with process control as the guarantee. Through three progressive stages of instance situation perception, practice situation embedding, and practice situation construction, ECNU has built a situated learning-based progressive practical system for MLIS.

3.1 Top-Level Design of MLIS Training Program Oriented by Post Competency

Currently, most universities' MLIS curriculum design is discipline-based, neglecting student ability development. Professional master's training should be oriented toward practical ability and employment market needs. In the internet era, library and information science has maintained its traditional distinctive characteristics while advancing with the times, forming new disciplinary fields. Consequently, MLIS students' employment fields include not only traditional library and information institutions but also product operations and data analysis positions in internet enterprises. Therefore, MLIS education needs to formulate corresponding training programs and teaching plans with the goal of enhancing students' post competency.

3.1.1 Refined Training Orientations The profound transformation of the information environment has created diverse career choice platforms for MLIS graduates, and library and information science professional master's training institutions should also advance with the times to achieve refined training that aligns with students' career development planning and social development needs. Based on MLIS students' employment goals, undergraduate backgrounds, and the characteristics of library and information science, ECNU organized discussions among university faculty, library experts, information experts, and senior enterprise managers. Using top-level design methods, ECNU formed three training orientations for MLIS: library management and services, informetrics and intelligence analysis, and business data analysis. These three orientations reflect both the disciplinary attributes of library and information science and respond to the application needs of library and information technology in multiple scenarios, helping students establish career positioning before enrollment. Through systematic training, students gain confidence to enter employment positions corresponding to library services, government and enterprise information intelligence research, and enterprise data analysis, ultimately achieving practical application of their learning.

According to these three different orientations, ECNU organized the compilation of eight corresponding textbooks to support teaching needs, including: 1)

for the library management and services orientation: *Public Library Management and Services* and *20th Century Western and Chinese Library Science*; 2) for the intelligence analysis orientation: *Information Analysis Methods Based on Text Feature Computation*; and 3) for the business data analysis orientation: *Introduction to Business Analysis* and *Python and Data Science*. These textbooks better assist professional learning and are more suitable for students' differentiated development.

3.1.2 Customized Capability System Currently, MLIS training, from training programs to curriculum design, does not have obvious career orientation. How to achieve seamless connection between "professional knowledge" and "career needs" is an important issue. Based on the MLIS competency model, ECNU customized the capability training design for the three training orientations, forming the MLIS capability system (see Figure 2). MLIS student capabilities are divided into basic skills, professional skills, and advanced skills. Basic skills are required for all students, professional skills are mastered hierarchically by MLIS students in different orientations, and advanced skills are targeted at cultivating different skills for students in different orientations. In these three levels of skill cultivation, the practical system adopts a progressive ladder approach: basic skills are developed mainly through cases/experiments, professional skills require the addition of practice/practical training, and advanced skills require further development through professional internships.

3.2 Instance Situation Perception: "Case Teaching + Experimental Teaching" Enriches Classroom Learning

The instance situation perception stage establishes corresponding case teaching and experimental teaching systems in classroom teaching. Through contextualized case teaching and operationalized experimental teaching, students perceive and understand library and information science practice. In existing MLIS theoretical courses, teachers are encouraged to adopt case teaching and experimental teaching methods, with requirements that each course include case teaching content and that methodology courses have experimental components. Additionally, ECNU has built complete experimental courses and established joint laboratories with enterprises to promote experimental teaching development.

3.2.1 Case Teaching "A case is a record of a complex situation. A good case is a tool that introduces part of real life into the classroom so that teachers and the entire class can analyze and learn from it, enabling classroom discussions to focus on thorny problems that exist only in real life." Each case represents a situation that helps students indirectly gain practical experience through analysis and discussion. ECNU not only emphasizes the use of case teaching methods in MLIS courses but also leads students in case development. Through this experiential learning approach, students can understand the application scenarios of professional knowledge, thereby stimulating their interest in learning. To more

fully support case teaching, ECNU leverages the mature case teaching advantages of its Economics and Management Faculty and MBA programs, taking the lead in China to develop original library and information science cases. Its independently collected and compiled cases have won multiple awards in national case competitions. Through continuous exploration, the university has gradually formed the ideas and methods of "case research, case teaching, and case training" for library and information science case teaching.

3.2.2 Experimental Courses Experimental courses include two categories: The first category consists of experimental components embedded in professional courses, where instructors integrate various software, relevant data analysis tool applications, specific project operations, and practical case analyses into teaching, primarily through teacher demonstration and explanation. The second category consists of complete experimental courses, where instructors design and provide basic experimental skills training to equip students with fundamental abilities to process and analyze experimental data. ECNU has built four course experiments and two experimental courses. Experimental content includes three progressively advanced levels: 1) thematic experiments targeting course content and knowledge points; 2) comprehensive experiments integrating multiple knowledge points; and 3) exploratory experiments conducting exploratory attempts to solve practical problems.

Since 2013, ECNU has been building multiple experimental courses at the MLIS level, including *Business Information Management Software Tools Training* and *Data Mining and Business Intelligence*. To promote experimental course construction, ECNU has established joint laboratories with multiple companies, such as a big data marketing joint laboratory with Acxiom and a collaborative management laboratory with Fanwei, a knowledge management software developer. Additionally, the university regularly holds experimental teaching seminars to jointly promote MLIS experimental teaching and project training.

3.3 Practice Situation Embedding: "Industry Experts Coming In + Students Going Out" Strengthens Practical Skills

The practice situation embedding stage integrates practice into courses, projects, and other activities by inviting industry experts to participate in daily teaching and leading MLIS students into real work scenarios, thereby strengthening students' hands-on abilities.

3.3.1 "Industry Experts Coming In" to Teach Practical Knowledge The university primarily strengthens student-industry expert exchanges by increasing practical content in courses, offering practical courses, and conducting project cooperation with industry enterprises. Since 2011, ECNU has offered an annual *Frontiers in Library and Information Science* course consisting of 16 lectures, inviting practicing experts from the library and information industry to introduce the latest business frontiers and developments. This has continued for

six years and has been warmly welcomed by students. Through active strengthening of school-enterprise cooperation, ECNU and Teradata jointly developed the *Data Mining and Business Intelligence* thematic course, taught annually by Teradata's senior directors and consultants to help students interact closely with industry experts and absorb their industry experience. Since 2012, experts from Haier or COMAC's intelligence departments have been invited annually to offer short-term innovative practice courses in intelligence analysis. Since June 2017, four MLIS practical courses have been offered annually by off-campus experts: *Data-Driven Knowledge Services*, *Intelligence Analysis and Decision Support*, *Business Analysis Environment Building*, and *Business Data Analysis Industry Cases*, focusing on teaching library and information science practice. Inviting industry experts into the classroom to teach practical knowledge helps students obtain first-hand practical experience and fully mobilizes their learning enthusiasm.

3.3.2 "Students Going Out" to Gain Practical Experience The university guides students into practical scenarios through field visits and competition participation. First, industry mentors bring students to their units annually for on-site teaching and observation. Second, ECNU arranges 2-3 internship visits each year, such as visits to Zhejiang Provincial Library, Hangzhou Library and its branches, and rich intra-city visits including Pudong Library and Shanghai Library. Finally, the university encourages students to participate in various competitions, making full use of training opportunities to complete competition tasks in teams under teacher guidance. Students' repeated achievements in various competitions further confirm the effectiveness of these measures.

3.4 Practice Situation Construction: Conducting Professional Internships in Practice Bases

In the practice situation construction stage, to enable students to connect and reconstruct the practical activities from the previous two stages, ECNU uses practice base mentors for on-site teaching, allowing students to take primary responsibility for practical topics and tasks, and enhancing practical abilities through teamwork and full participation in community practice activities.

3.4.1 Building High-Quality Practice Bases Three main criteria are considered in practice base selection: 1) industry representativeness of the base; 2) stable part-time mentor teams; and 3) practice base management teams. Based on the three main MLIS training orientations, ECNU has selected ten practice bases, with a demonstration practice base built for each orientation. Three demonstration bases have been established: Pudong Library, Qingdao Haier Group, and Teradata Co., Ltd., with Pudong Library becoming the first and only MLIS practice base in China. During the practice base internship stage, ECNU actively contacts enterprises and strengthens practice process control. Before student practice each year, practice bases must submit annual practice

plans, content, mentor arrangements, and student numbers and quality requirements. During and after internships, the university regularly communicates with practice bases to supervise teaching standards and promote student internship progress.

3.4.2 Conducting On-Site Teaching and Project Cooperation On-site teaching at enterprise practice bases aims to improve students' comprehensive application abilities of course knowledge, cultivate practical abilities, and enhance skills for solving practical application problems. Taking the national-level MLIS demonstration practice base Pudong Library as an example, six on-site teaching courses were built between 2013-2016. The course organization form is "on-site topic + student group + industry mentor," with content covering real problems encountered in library operations such as public library management, document resource construction, reader services, public cultural services, extended services, and information consulting. During on-site teaching, library mentors primarily guide students, while university mentors refine topics and provide supporting materials. Student groups complete topic report writing within six months and ultimately obtain course grades through presentations and reports, which become important components of student practical teaching performance evaluation. Additionally, 3-5 cooperation projects are formed annually with Pudong Library regarding its business problems, completed through joint guidance and student participation. By personally participating in a complete project, students can fully activate scattered knowledge points in their minds, construct meaningful connections, form complete knowledge systems, and acquire tacit knowledge through full participation in community practice activities, ultimately achieving flexible application.

3.4.3 Promoting Practice Result Implementation Results formed during student internships and on-site teaching at practice bases should be further promoted and applied. To promote result implementation, ECNU consolidated student practice results into two textbooks and over 30 cases. For example, during practical teaching at Pudong Library, a library service practice case collection and the textbook *Public Library Management and Services* (Shanghai Scientific and Technological Literature Press, October 2015) were formed. Using the revised case collection, ECNU participated in the first "National MLIS Teaching Case Competition," winning five third-prize or above awards, ranking first nationally. During on-site teaching at Teradata, two textbooks were formed: *Business Data Mining* (East China Normal University Press, September 2015) and *Business Analysis Practice* (East China Normal University Press, December 2017). These textbooks serve not only as important guides for professional practice teaching but also as important reference materials for course teaching. Promoting the implementation of student practice results can enhance students' sense of learning achievement and confidence.

3.4.4 Integrating Thesis Topics with Practical Experience Professional master's thesis topics should be practice-oriented and focus on solving practical problems. Therefore, ECNU encourages students to fully integrate their practical experience into topic selection for in-depth exploration of practical problems. In the thesis stage, the university adjusts the thesis proposal time to 3-4 months after student internships and introduces enterprise mentors to form mentor teams jointly participating in student proposal defenses. Through these measures, students are urged to integrate practical experience through their theses, explore meaningful questions, and solve practical problems.

4. Guarantee Mechanisms for the Progressive MLIS Practical System

4.1 Strengthening Process Management

Good process control is crucial for improving MLIS practical ability training quality. To ensure expected results from student internships at practice bases, ECNU and practice bases have jointly established cooperation mechanisms and management systems, including mechanisms for conducting on-site courses, project cooperation, student internship norms, thesis guidance procedures, practice base feedback, and weekly reporting systems for process management, ensuring smooth practice implementation.

4.2 Enhancing Environmental Support

Faced with changing national development situations and profound information environment transformations, enhancing MLIS students' practical abilities and post competencies has become a systematic project. By building joint laboratories, cloud experimental platforms, and case libraries, ECNU has effectively enhanced the environmental support capacity of the MLIS practical system. The university has established advanced and exemplary educational cloud laboratories in collaboration with business data analysis company Acxiom and knowledge management system development company Fanwei. Meanwhile, ECNU has built multiple experimental platforms, including business analysis cloud experimental platforms, business analysis virtual simulation experimental platforms, and various self-developed teaching and research tools and case libraries, providing content, technology, tools, and methodological support for cases, experiments, and practical training, thereby fully guaranteeing the efficient operation of the practical system.

5. Implementation Effects of the Progressive MLIS Practical System

5.1 Significant Improvement in Students' Practical Abilities

Through the progressive practical system training, ECNU MLIS students' comprehensive qualities and practical abilities have been significantly enhanced. In

terms of theses, between 2015-2016, three MLIS students' theses were awarded ECNU-level excellent thesis awards through theoretical research on practical experience. In terms of innovative practice, MLIS students have repeatedly achieved excellent results in various professional competitions, such as winning second prize in the 2016 Shanghai Library Open Data Application Development Competition, successfully entering the finals of the Shanghai Meteorological Bureau Open Data Competition, and winning first prize in the China Unicom "Wo+ Haichuang" Open Data Application Competition (among 270 teams nationwide). In terms of employment, MLIS graduates' destinations have become more diversified, aligning with ECNU's original intention of continuously delivering talents to libraries, intelligence institutions, and data (analysis) enterprises through its three training orientations.

5.2 Further Consolidation of School-Enterprise Cooperation

Good school-enterprise cooperative relationships facilitate the establishment of long-term student internship mechanisms and form the foundation for maintaining the progressive MLIS practical system. Practice bases play important roles in practical teaching, and ECNU currently maintains good cooperative relationships with ten practice bases. For example, Pudong Library has primarily recruited ECNU MLIS graduates in recent years, while data warehouse company Teradata has recruited 6-8 ECNU MLIS students annually since 2015. On one hand, ECNU can maintain smooth communication channels, actively exchange opinions with practice bases on MLIS internship issues, enhance practice bases' sense of responsibility and ownership in the MLIS internship stage, and practice bases' dedicated training further improves student satisfaction with practical teaching. On the other hand, through solid practical course learning at school, MLIS students' good performance at practice bases gains recognition, which in turn promotes the consolidation of school-enterprise relationships, achieving a virtuous cycle of cooperation.

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Lan Weiping: Participated in drafting the initial manuscript and was responsible for final revisions;
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Yu Haiyan: Participated in drafting the initial manuscript.

Announcement from *Library and Information Service* on Further Strengthening Punishments for Academic Misconduct

To further promote academic ethics construction, resist academic misconduct, and establish a fair, just, and open academic exchange ecological environment, the editorial department of *Library and Information Service* will further strengthen punishment for academic misconduct in response to persistent problems. For authors who submit the same manuscript to multiple journals (especially first authors and corresponding authors), they will be blacklisted and their submissions will not be accepted for five years. If published papers involve academic misconduct such as duplicate publication, plagiarism, or fabrication, measures including retraction, public announcement on the journal and online platforms, blacklisting, and lifetime submission rejection will be taken. *Library and Information Service* is willing to work together with academic and journal colleagues to resolutely resist academic misconduct and promote the healthy development of library and information science and related disciplines.

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