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Exploration and Reflection on Cross-boundary Pandemic Emergency Services by Library Con- sortia: A Case Study of the Fujian Province University Digital Library Consortium (FULink) Postprint

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Date: 2023-04-01T00:00:00+00:00

Abstract

[Purpose/Significance] To investigate methods for responding to major public safety emergencies, thereby providing reference and enlightenment for emergency information service work of library consortia in China.

[Method/Process] Based on SWOT analysis of library consortia and library-affiliated enterprises, an introduction to the emergency service initiatives of the FULink library consortium, and experience sharing, a cross-boundary cooperation model is proposed for consortia to collaborate with other institutions such as publishers and database vendors.

[Results/Conclusion] The cross-boundary cooperation model is grounded in practice and demonstrates strong operability. When facing major public safety emergencies, cooperation among libraries and between libraries and affiliated enterprises—where each party leverages its strengths to compensate for weaknesses—is essential for collectively overcoming crises.

Full Text

Exploration and Reflection on Crossover Emergency Ser- vices by Library Alliances During the Pandemic: A Case Study of the Fujian Province University Digital Library Alliance (FULink)

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Abstract: *[Purpose/Significance]* This study examines methods for responding to major public safety emergencies, providing reference and inspiration for emergency information services of library alliances in China. *[Method/Process]* Based on a SWOT analysis of library alliances and library-affiliated enterprises, this paper introduces the emergency service measures and experience sharing of the FULink Library Alliance, and proposes a cross-institutional cooperation model between the alliance and publishers, database agents, and other organizations. *[Result/Conclusion]* The crossover cooperation model is grounded in practice and highly operable. In the face of major public safety emergencies, libraries must cooperate with each other and with affiliated enterprises, drawing on each other's strengths to overcome difficulties together.

Keywords: library alliance; epidemic; crossover cooperation

Classification Number: G250

DOI: 10.13266/j.issn.0252-3116.2020.15.002

By June 2020, the pandemic had erupted in over 200 countries and regions worldwide, with more than 9 million confirmed cases and numbers continuing to climb, constituting a major international public safety event. The pandemic has profoundly impacted China's economy, causing sharp revenue declines in culture, entertainment, retail, catering, and tourism industries; slowing the resumption of work and production in manufacturing and construction due to restricted movement of people and goods; and leading to the emergence of remote work, online education, and fresh food logistics technology companies. This paper analyzes the threats and challenges posed to libraries by strategic adjustments of cultural enterprises closely related to libraries, and shares the emergency service measures and experiences of library alliances to provide reference and inspiration for emergency information services of library alliances in China.

1. Impact of the Pandemic on Library-Affiliated Enterprises

The pandemic's rapid onset delivered a fatal blow to numerous enterprises closely connected with library operations. As economic benefits continuously declined, companies adopted self-rescue measures by adjusting their industrial structures and shifting service ports forward. While these emergency measures addressed literature resource needs during the pandemic, they were constrained by the lack of a unified service platform, with each enterprise serving its own users and unable to aggregate resources, gather users, or concentrate services.

2. SWOT Analysis of Library Alliances and Library-Affiliated Enterprises

SWOT analysis is a common method in competitive intelligence analysis, first proposed by management professor Heinz Weirich of the University of San Francisco in the early 1980s. SWOT is an acronym for Strengths, Weaknesses,

Opportunities, and Threats. During the pandemic, libraries and library alliances face both advantages and opportunities, as well as disadvantages and threats.

2.1 Strengths (S)

Libraries possess undeniable strengths, including diverse information resources, comprehensive professional talent teams, unified retrieval platforms, and the ability to connect closely with or even transcend libraries to serve users directly through gifting and selling e-books, such as People's Publishing House, Higher Education Press, and Superstar Digital Library. Database agents have also launched free index databases and partial full-text databases for researchers, such as CNKI, Wanfang, and VIP databases. Even foreign database agents have joined in. Typical library alliances include CALIS, CASHL, BALIS, ZADL, NSTL, Capital Library Alliance, Jilin Province Library Alliance, and FULink. Library alliances can pool the strengths of member libraries to achieve resource co-construction, sharing, and integrated information services.

2.2 Weaknesses (W)

During library closures, on-site services cannot be provided, such as print book circulation, space services, reading services, face-to-face consultations, reading promotion lectures, and information literacy training. Bidding companies have suspended operations, and cooperation with some suppliers has expired, making renewal impossible and failing to meet readers' latest resource demands. Mutual visits, learning, and exchanges among library alliance members have also been forced to stop.

2.3 Opportunities (O)

The special period has generated various special needs: How to ensure online teaching? How to serve scholars and thesis-writing students "isolated" at home? How to convert offline lectures and training to online formats? Libraries and library alliances should accurately grasp these special needs of different reader types, broaden service content, and provide targeted services. Within the library alliance, internal division of labor and cooperation should be implemented to achieve win-win outcomes through resource co-construction, sharing, and service collaboration, reducing duplicate work and breaking through school boundaries to serve users jointly.

2.4 Threats (T)

During the pandemic, publishers, database agents, book suppliers, and other institutions have pushed free resources directly to readers, bypassing libraries. Users unable to return to campus need VPNs to access library digital resources, but many users who cannot use VPNs turn to search engines like Baidu to retrieve digital resources and pay for full text, calling into question the value of libraries. Therefore, libraries and library alliances must leverage their strengths,

seize opportunities, and through crossover cooperation with publishers, database agents, book suppliers, and other institutions, effectively transform threats into opportunities for information services for teachers and students through targeted promotion, online training, and methods such as “improving efficiency, scientific division of labor, and avoiding duplication.”

3. Specific Practices of FULink in Response to the Pandemic

Based on the above SWOT analysis, FULink has leveraged its strengths and seized special period opportunities. With the joint efforts of all university libraries in the province, service methods were transformed, service content was broadened, and literature resource services were successfully provided to teachers and students of all 89 universities during the pandemic.

The Fujian Province University Digital Library Alliance (FULink) was established in 2009. After ten years of development, it has achieved “co-construction and sharing of literature resources among 89 university libraries in the province.” Currently, it has integrated over 66 million print books from 89 member libraries, revealed print books from more than 700 libraries nationwide, and can provide 760 million electronic documents, including 6.7 million Chinese book titles (3.2 million with full text), 12 million Chinese journal articles, 19 million Chinese newspaper articles, 6.8 million Chinese dissertations, 6.8 million Chinese conference papers, 29 million foreign journal articles, 2.502 million foreign dissertations, 2.6 million foreign conference papers, and 49 million open academic resources. FULink’s organizational structure consists of seven working groups and one office, each playing its role during the pandemic [Figure 1: see original paper].

[Figure 1: see original paper] Organizational Structure of the Fujian Province University Digital Library Alliance (FULink)

Upon receiving closure notices, the FULink Secretariat began overall coordination, organizing each working group to coordinate emergency services during the pandemic.

3.1 Enhanced Technical Support to Ensure Network Connectivity

Network connectivity is the guarantee of library services during the pandemic. Information technology working group staff immediately deployed efforts to: (1) strengthen maintenance of the FULink central machine room and various application service systems, ensuring connectivity between the center and member libraries and data exchange; (2) understand, trial, and promote video conferencing and teaching platforms such as DingTalk, Education Network Zoom, Superstar Learning Platform, Welink, XuetangX, Tencent Meeting, and iCourse to teachers and students; (3) ensure 24-hour normal operation of online digital resources (<http://www.fulink.edu.cn/> and data centers of various university

libraries); and (4) plan the “Classes Suspended but Learning Continues: Delivering Textbooks and Teaching References Home” campaign, building an “Electronic Teaching References” platform through multi-party cooperation among libraries, database vendors, and publishers to meet teachers’ needs on the platform as quickly as possible.

3.2 Remembering “One Core, Two Wings” to Provide Precise and Meticulous Services

To ensure that teachers and students of all 89 alliance universities could smoothly use FULink and their own institutions’ literature resources, the database introduction working group, subject service working group, and intellectual property information service working group faced the most arduous tasks. First, they ensured that teachers and students remembered the “One Core, Two Wings” approach. The “One Core” refers to each institution’s VPN usage method; the “Two Wings” refer to the Fujian Province University Digital Library Alliance website (<http://www.fulink.edu.cn/>) and individual university library data center websites, such as Fuzhou University Library (<http://libdc.fzu.edu.cn/>). Libraries jointly worked with academic affairs offices and network centers to train teachers and students on using their institutional VPNs through WeChat articles, online Q&A, and remote QQ sessions, enabling them to log in to FULink and library websites to search for electronic documents with ease. This seemingly simplest daily information literacy skill became a prominent issue during the pandemic, as many teachers and students could not use VPNs and access campus networks.

Next, they organized forces across institutions to integrate all free literature resources from cross-industries, including integration results from other university libraries, which the new media working group uniformly released on the official FULink WeChat account to achieve literature resource co-construction and sharing. For example, they shared information about 22 free online teaching platforms announced by the Ministry of Education and integrated free publisher resources from Tsinghua University Press and Higher Education Press, as well as free database resources during the pandemic from VIP Database and Superstar Digital Library. In short, they collected all resources not available through the “Two Wings” for users. By the time of submission, they had sent over 20 articles and hundreds of data resources, reaching 17,584 readers with total reads of 26,272 and 1,987 shares.

Finally, they worked together to overcome difficulties. Two major characteristics emerged in universities: (1) comprehensive implementation of online teaching; and (2) student feedback that lack of textbooks seriously affected learning. Libraries proactively contacted academic affairs departments to collect textbook and teaching reference catalogs needed for online courses. They worked overtime to provide electronic textbooks and teaching references through self-built characteristic databases, database vendors, and publishers according to different circumstances. For copyright issues that could not be resolved, circulation

staff searched library collections, and if print versions were available, they were couriered to teachers, who could then take photos for students based on course schedules. Some universities directly couriered textbooks to students, basically solving the textbook problem for “classes suspended but learning continues.”

3.3 Enhanced Service Promotion and Disinformation Identification

The new media working group communicated the central government’s spirit on COVID-19 prevention and control and vigorously promoted good deeds in the fight against the pandemic, such as conveying General Secretary Xi Jinping’s speech at the meeting on coordinating COVID-19 prevention and control with economic and social development on February 23 [3]. They collected and compiled promotional materials including “Interpretation of Basic Knowledge of Novel Coronavirus Pneumonia,” “How to Prevent Novel Coronavirus Pneumonia,” “How to Wash Hands and Wear Masks Correctly? Let You Know Early!,” “Fujian Psychological Self-Help Manual for Prevention and Control of Novel Coronavirus Pneumonia,” and “Public Protection Guide for Novel Coronavirus Pneumonia,” and pushed them to teachers and students. They also ensured coverage in campus news reports—for example, Fuzhou University Library was featured eight times in university news with reports like “Library Provides Numerous Services to Jointly Fight the Pandemic,” highlighting the library’s emergency services.

Another important task for the new media working group was identifying disinformation. During the pandemic, much fake news proliferated on networks and social media, spreading like a virus and inciting panic and damaging national image. The group used key skills in media and information literacy to promote IFLA’s (International Federation of Library Associations and Institutions) eight techniques for identifying fake news released in 2016 [4] and a series of laws and regulations including the “Public Security Administration Punishments Law of the People’s Republic of China” [5].

3.4 Patent Information Services to Support Pandemic Response

From the beginning of the pandemic, the intellectual property information service group launched a “Special Patent Database for Epidemic Prevention and Control,” receiving attention and praise from researchers and being fully reprinted by the Fuzhou Intellectual Property Center. Team members proactively contacted relevant research teams to provide emergency product information services, achieving excellent results. For example, Fuzhou University’s patent information service group provided services for teams participating in COVID-19 prevention and control technology research and development regarding “coronavirus fluorescence PCR detection kits,” “coronavirus IgG/IgM antibody detection kits,” “remote thermal imaging thermometers,” and “mobile phone-based immunochromatographic reagent detection devices.” Based on each research team’s needs, they efficiently and accurately provided patent literature

information delivery and patent analysis services, helping to accelerate scientific and technological output [6].

3.5 Service Statistics and Performance Evaluation

One of the user service group's responsibilities is statistics and performance accounting for services such as "document delivery," "union borrowing," "book CDs," and "mobile FULink." During the pandemic, the group tracked and supervised service conditions at each member library, conducting performance evaluation and statistical analysis to provide accurate data after the pandemic. Facing the diversified, personalized, and urgent needs of teachers and students during the pandemic, this work effectively ensured FULink's "Didi-style" order-grabbing service and "Taobao-style" free shipping business, better guaranteeing high-level and convenient "one-stop" information resource services such as document provision and delivery [7].

3.6 Mining and Integrating Characteristic Resources

The characteristic database group not only mined characteristic resources from existing databases such as the "Teaching References Characteristic Database" and "Master's and Doctoral Dissertation Database," but also improved cross-industry free textbook and teaching reference databases launched during the pandemic, continuously updating and perfecting established characteristic resource databases to serve teachers and students.

3.7 Cooperating with Businesses to Promote Reading

To promote patriotism, practice socialist core values, realize the Chinese Dream of the great rejuvenation of the Chinese nation, further advance nationwide reading initiatives, and build scholarly campuses, FULink cooperated with businesses during the pandemic to hold events such as the "Xuewen Cup Film Review Competition," "Quanyou Cup Book Review Competition," and "Zhongke Cup · Career Forward · University Student Employment Skills and Knowledge Competition," releasing multiple WeChat articles to accompany the competitions and stimulate students' learning interest.

German philosopher Karl Jaspers once said: "The essence of education is one tree shaking another tree, one cloud pushing another cloud, one soul calling another soul." During the pandemic, FULink's 89 member libraries broke through the barriers of 89 university campuses and position settings. Whether directors or librarians, book dealers or database agents, or relevant university departments, all cooperated with libraries to create a favorable work environment that stimulated staff's professional sense of achievement and responsibility, providing strong support for achieving comprehensive victory in the pandemic battle.

4. Problems and Insights

During the pandemic, FULink's service work achieved some results but also revealed several problems: (1) Insufficient sensitivity—initially failing to attach enough importance and wasting time by treating COVID-19 as a common epidemic, only realizing the textbook shortage problem when comprehensive online teaching began, creating urgent time pressure; (2) Working in isolation with duplicated efforts—each university library independently collected and organized textbook catalogs from their academic affairs departments, inevitably creating duplicate demands; and (3) Most libraries lacked contingency plans for major public safety emergencies, leading to some detours and learning-by-doing.

4.1 Insight 1: Clarify Service Content and Solutions

As this pandemic was unprecedented and the situation constantly changing, domestic libraries could only reference emergency responses from the 2003 SARS outbreak. However, SARS's harm, scope, and impact were far less severe than COVID-19. Yang Jixian's "Crisis Management and Service Work in Libraries from the Perspective of the Atypical Pneumonia Event: Experience from Lingnan University Library" [8] and Mang Yiping and Jin Wenyan's "Discussion on Preventive Disinfection in Libraries from the Perspective of Atypical Pneumonia" [9] introduced extensive work on remote reader services, library environmental hygiene, and librarian psychological counseling, but did not address university "classes suspended but learning continues." Foreign libraries mainly provided authoritative information, promoted emergency health knowledge, virtual libraries, video images, briefings, and subject navigation. Libraries should draw from these experiences when developing service content and solutions, adapting them to the evolving pandemic situation with precision and meticulousness.

4.2 Insight 2: Address Urgent Needs and Anticipate Requirements

Librarians participating in pandemic emergency services worked extremely hard under tight deadlines and heavy tasks, requiring not only strong responsibility but also carefulness, patience, and compassion. They served diverse needs: researchers writing national natural science foundation proposals, teachers conducting remote instruction, and various students. Without face-to-face communication, they could only use email, WeChat, QQ, and phone calls, sometimes facing misunderstandings from teachers and complaints from students in remote areas due to network issues.

4.3 Insight 3: Strengthen Cooperation Within the Alliance and with Relevant Parties

German philosopher Karl Jaspers's words about education apply here. During the pandemic, FULink's 89 member libraries broke through campus barriers and position limitations. Directors, librarians, book dealers, database agents,

and university departments all cooperated to create an environment that stimulated professional achievement and responsibility, providing strong support for pandemic response.

Insights and Recommendations

(1) Establish Emergency Mechanisms for Major Public Safety Events. Each library should develop emergency service mechanisms for major public safety events. Current emergency plans mostly focus on fire and theft prevention, which is clearly insufficient. Major public safety events leave libraries without protocols, resulting in slow action. Libraries must organize experts and scholars to discuss and establish emergency service mechanisms based on their actual conditions. Relevant national departments should strengthen provisions in the “Regulations for Primary and Secondary School Libraries (Rooms)” and “Public Library Law of the People’s Republic of China,” which currently only generally require “safety facilities, systems, and emergency plans,” and the “Regulations for University Libraries,” which states that “universities should attach importance to public safety management, adopt various protective measures, and formulate emergency service plans for emergencies to protect personal safety” [10]. These provisions should be enhanced with specific requirements for major public safety event emergency services.

(2) Develop Crossover Emergency Service Cooperation Measures. During this pandemic, the most prominent issue was that self-rescue measures by publishers, database agents, book dealers, and remote office enterprises threatened to replace libraries. Multiple publishers launched free e-books and textbooks; almost all domestic and foreign database agents offered free databases; various remote office, video conferencing, teaching platforms, management systems, and mini-programs emerged like bamboo shoots after rain. These were self-rescue measures during the special period and will become pathways for them to overcome economic difficulties, posing new challenges that make librarians question their own value. If libraries continue to ignore this, their decline is inevitable. Therefore, libraries must analyze and research the difficulties faced by crossover industries and actively cooperate with them for mutual benefit.

(3) Strengthen All-Staff Emergency Service Training. After the pandemic, library directors must establish emergency service mechanisms for major public safety events and, more importantly, strengthen training in librarians’ emergency service capabilities to enable them to 胜任 special services during special times. They should serve as: (a) Promoters—disseminating authoritative and reliable knowledge and information; (b) Educators—teaching health knowledge including disease origins, prevention, medications, vaccines, medical care, and isolation; and (c) “119” emergency responders—providing consultation and emergency services through virtual libraries, video images, briefings, and subject navigation, while counseling the public and alleviating unnecessary panic [11].

(4) Maintain Constant Vigilance and Prepare for the Future. As the saying goes, “preparation ensures success, while unpreparedness leads to failure.” During this pandemic, most FULink member libraries responded quickly to demands for electronic textbooks and teaching references because the FULink Characteristic Database Group had years earlier assigned each member library to work with their academic affairs departments to build characteristic databases of textbooks and teaching references used in all courses, providing students with electronic reference materials after class. Most member libraries had already established characteristic databases such as “Textbook and Teaching Reference Characteristic Database” and “Master’s and Doctoral Dissertation Database,” laying the foundation for future integration with the Fujian Province Online Education Alliance (FOOOC).

(5) Include Emergency Service Projects in Libraries’ and Library Alliances’ 14th Five-Year Plans. As all industries are currently formulating 14th Five-Year Plans, libraries should seize this opportunity to include emergency services for major public safety events as important items in their plans. After plan completion, they should be implemented in annual plans, and library annual reports should cover basic emergency service conditions [10].

Libraries cannot predict every public emergency, but they can prepare in advance and have the responsibility and obligation to continuously summarize service measures and experiences from each event for future reference. The energy of a single library is always limited. Under the library alliance framework, member libraries can scientifically divide labor, cooperate closely, and work with affiliated enterprises to overcome difficulties together, achieving a “1+1>2” effect. The Fujian Province University Digital Library Alliance (FULink) has provided its own answer.

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Author Contributions: Dai Xiaoxiang: Data collection and organization, paper writing, content revision;

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Exploration and Thinking of the Crossover Cooperation Emergency Services from Library Alliance in Epidemic Situation—Taking the Fujian Province University Digital Library Alliance (FULink) as an Example

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Abstract: *[Purpose/significance]* This paper studies the methods for responding to major public safety emergencies, providing reference and inspiration for the emergency information service work of library alliances in China. *[Method/process]* Based on the SWOT analysis of library alliances and library-affiliated enterprises, the introduction of emergency service measures and experience sharing of the FULink Library Alliance, a cross-institutional cooperation model between the alliance and publishers, database agents, and other institutions is proposed. *[Result/conclusion]* The crossover cooperation model is based on practice and has strong operability. In the face of major public safety emergencies, cooperation between libraries and between libraries and affiliated enterprises, drawing on each other's strengths, can overcome difficulties together.

Keywords: library alliance; epidemic situation; crossover cooperation

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

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