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Application of Digital Technology in Education Quality Assurance of Schools

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ABSTRACT: *Education quality assurance is a crucial process that helps elevate educational standards to achieve quality and efficiency. In the current digital era, digital technology has played a significant role in supporting education quality assurance processes at the school level. This article aims to study the application of digital technology in school-level education quality assurance using document analysis and descriptive analysis methods. The study findings reveal that digital technology can be applied in various aspects of education quality assurance, including information management systems, monitoring and evaluation systems, online learning systems, and communication and participation systems. However, challenges in implementation remain, such as budget constraints, personnel skills limitations, and technological infrastructure. This study recommends developing supportive policies, personnel development, and infrastructure investment to effectively promote the use of digital technology in education quality assurance.*

KEYWORDS *- Digital Technology, Education Quality Assurance, School, Information System*

I. INTRODUCTION

Education stands as a fundamental cornerstone for the continual advancement of both national integrity and social progress.(Wongeh et al.2022)Consequently, ensuring and improving the quality of education emerges as an essential endeavor, one that is aimed at effectively raising educational standards across all levels. This continual process is vital for attaining a level of quality that resonates in harmony with the diverse needs of society and the ever-evolving labor market, thus fostering opportunities for growth and development.(Alam & Mohanty, 2023) The Office for National Education Standards and Quality Assessment (ONESQA) has established guidelines for education quality assurance to enable educational institutions to continuously develop education quality (Office for National Education Standards and Quality Assessment, 2021).

During the transformative and pivotal period of the Industry 4.0 revolution and the subsequent emergence of a fully-fledged digital society,(Ugobueze2024) digital technology has had a profoundly significant impact on various sectors, most notably in education. In response to this undeniable shift in paradigms, the Ministry of Education has introduced the comprehensive Digital Education Policy, which is explicitly aimed at encouraging the seamless integration of advanced technology into the critical realm of educational management (Ministry of Education, 2020). Consequently, the effective implementation of digital technology in the assurance of education quality stands as a vital and strategic approach for significantly improving the overall efficiency and effectiveness of quality assurance procedures in educational institutions.(Catacutan et al.2023)

In the expansive and continually advancing domain of educational quality assurance, a wide array of innovative and state-of-the-art digital technologies can be found.(Vu et al., 2021)(Cruz & Forman, 2022)(Arant et al., 2021) Each of these technologies is designed to fulfill its own specific, unique, and highly specialized functions, all aimed at enriching the learning experience. Among these are Database Management Systems, which meticulously organize, manage, and store vast amounts of vital information with incredible efficiency; Geographic Information Systems (GIS), which not only provide spatial analysis but also offer advanced mapping capabilities to visualize data geospatially; E-Learning Systems that passionately facilitate online education, expanding access to learning materials for students; and a diverse range of online monitoring and

evaluation systems that diligently track progress and outcomes for both educators and learners alike.(Aithal and Srinivasan2024) Additionally, there is an extensive array of applications specifically designed to support effective data management, analysis, and tracking processes essential for educational institutions and organizations aiming to improve their practices and outcomes (UNESCO, 2021).

However, the application of advanced digital technology in the education quality assurance of various schools still faces a number of significant challenges, such as budget constraints, the varying skill levels of personnel, the overall technological infrastructure available, and the acceptance of these tools by users.
(Chamusca, 2023) Therefore, conducting thorough studies on the application of digital technology in education quality assurance of schools is of utmost importance for identifying and finding appropriate as well as effective development approaches that can enhance the educational landscape.

Research objective:

1) To study the forms of digital technology application in education quality assurance of schools
2) To analyze the benefits and limitations of using digital technology in education quality assurance of schools
3) To propose guidelines for developing the application of digital technology in education quality assurance of schools

II. METHODOLOGY

This study is qualitative research using documentary research and descriptive analysis methods. The data used in the study consists of:

Primary Sources including government policies, laws, regulations, and various announcements related to education quality assurance and digital technology

Secondary Sources including academic articles, theses, research reports, books, and online media related to the topic

Data from websites and online databases of relevant agencies such as the Office for National Education Standards and Quality Assessment, Ministry of Education, and international organizations

Data analysis uses content analysis and data synthesis methods to find conclusions and recommendations consistent with the study objectives.

III. RRELATED CONCEPTS AND THEORIES

Education Quality Assurance Concepts

Education Quality Assurance is perceived as a thorough and ongoing procedure that involves careful planning, effective implementation, vigilant monitoring, and comprehensive evaluation of the different aspects of education management. (Suleiman,2023)This ensures that the education delivered adheres to and meets established quality standards (Kitti Wisittkul, 2020). The crucial components that are foundational to ensuring education quality assurance incorporate several key areas that are essential to a successful educational experience. (González-Pérez & Ramírez-Montoya, 2022) : a)Internal Quality Assurance - this is an incredibly vital process that educational institutions undertake on their own initiative to effectively control, monitor, evaluate, and continuously develop the quality of education being provided to students. By concentrating on these crucial aspects, educational institutions can improve their approaches and methods to uphold elevated educational benchmarks. (Qazi & Al-Mhdawi, 2025), b) External Quality Assurance refers to the assessment and consequent certification of educational quality carried out by independent external organizations. This process guarantees an unbiased examination of educational practices, and c)Continuous Quality Improvement - this is an ongoing process aimed at the regular enhancement and development of education quality, contributing to the overall improvement of educational standards. (Arifin et al.2022)

Digital Technology Concepts in Education

Digital Technology, within an educational context, pertains to the application of various digital tools and systems designed to support and facilitate teaching and learning processes, alongside management and

educational evaluation (Selwyn, 2022). Some of the important digital technologies that are widely utilized in education include the following: Learning Management System (LMS) - a sophisticated digital platform utilized to efficiently manage content, assignments, and to meticulously track learner progress over time. Education Information System - this refers to a comprehensive system that aids in the effective management of vital data associated with educational institutions, students, and personnel. (Huang, 2023) Online Assessment Tools - these are specialized tools designed to assist with testing, evaluation, and the thorough analysis of learning outcomes achieved. Communication and Collaboration Systems - these tools are essential for promoting effective communication among teachers, students, and parents, enhancing engagement and collaboration in the educational environment.

Technology Acceptance Model (TAM)

The Technology Acceptance Model, developed by Davis in 1989, elucidates the various factors that play a critical role in influencing users' acceptance and utilization of technology and comprises several significant components: Perceived Usefulness - this pertains to users' belief that the technology in question will indeed contribute to an increase in work efficiency. (Hanham et al., 2021)Perceived Ease of Use - this reflects users' belief that the technology can be navigated and utilized with ease. Attitude Toward Using - this encompasses users' overall feelings and perceptions concerning the use of technology. (Li, 2025) Behavioral Intention to Use - this indicates the users' intention to adopt and use the technology effectively in their respective tasks.

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Information Management Systems: Essential Tools for Upholding and Enhancing Education Quality Assurance in Schools Information management systems serve as the backbone of education quality assurance in schools, providing critical functionalities that aid in the collection, storage, and analysis of data pertinent to educational quality (Office of the Permanent Secretary, Ministry of Education, 2021). Significant systems include: Education Management Information System (EMIS) - a comprehensive platform that gathers a multitude of data from educational institutions, encompassing student demographics, educator credentials, curricular information, financial allocations, and infrastructure details. This invaluable system facilitates administrators in monitoring and evaluating institutional performance with speed and precision. Digital Database - the transition to storing data in a digital format enables convenient, rapid access to vital information. It substantially mitigates the risk of data loss while promoting efficient data backup solutions. Automated Reporting System - this innovative tool streamlines the creation of essential quality assurance reports, including those on academic performance, budget utilization, and personnel development, thereby significantly saving time and minimizing the likelihood of errors during report formulation.

Monitoring and Evaluation Systems

Monitoring and evaluation play a crucial role in ensuring the quality of education in schools. The advent of digital technology significantly enhances the efficiency of these processes (Guskey, 2020). The Online Assessment System facilitates the creation, scoring, and thorough analysis of test results. This system offers rapid feedback to students, while also enabling educators to conduct detailed evaluations of students' strengths and weaknesses. (Tuah & Naing, 2021)The Progress Tracking System is designed to monitor student growth across multiple dimensions, including academic achievement, behavior, and participation in extracurricular activities. This system serves as a continuous tool for teachers and parents to observe and support student development. (Aniegwu et al.2022) Additionally, Data Analytics Tools are instrumental in examining educational data to identify trends, challenges, and potential areas for improvement. These tools can assess student performance in various subjects, track dropout rates, and analyze the various factors that contribute to student success. (Fahd et al.2022)

Online Learning Systems

Online learning systems serve as vital aids not only for managing the intricate processes of teaching and learning but also as essential instruments for ensuring the quality of education provided by schools (Anderson & Dron, 2021). The Learning Management System (LMS) acts as a comprehensive platform designed to oversee various educational elements, such as learning content, assignments, communication, and evaluations. By utilizing LMS, educational institutions can effectively monitor key aspects like student attendance, academic progress, and assessment outcomes. (Oguguo et al.2021) On the other hand, the Adaptive Learning System employs artificial intelligence to tailor educational content and teaching methods, accommodating the unique abilities and requirements of each learner, which ultimately enhances the learning experience. Additionally, the Learning Resource Repository plays a crucial role in storing and sharing essential teaching materials, documents, and other educational resources, providing both educators and students with quick and convenient access to valuable resources. (Zibani et al., 2022)

Communication and Participation Systems

The engagement and interaction of various stakeholders play an essential and crucial role in ensuring the overall quality of education within schools, as highlighted by Epstein (2018) in his work on educational frameworks. An Integrated Communication System is designed to facilitate seamless dialogue among teachers, students, parents, and administrators by utilizing multiple channels such as email, mobile applications, and notification systems that keep everyone informed and involved. (Singh, 2025) Moreover, the Participation Platform is established to encourage not just parents but also community members to actively engage in school events, share their valuable feedback, and assess their satisfaction levels regarding the educational services provided. (Yun et al.2021) Furthermore, the Survey and Feedback System is specifically designed to gather comprehensive insights and recommendations from students, parents, and school staff, which are instrumental in significantly enhancing the overall quality of education and ensuring that it meets the diverse needs of all stakeholders involved. (Gray et al.2022)

IV. BENEFITS OF USING DIGITAL TECHNOLOGY IN EDUCATION QUALITY ASSURANCE

Streamlined Efficiency in Data Management Through the use of digital technologies, the processes involved in data collection, storage, and retrieval are made more efficient, allowing for swift and accurate management while reducing redundancy and minimizing errors (Wichai Wongyai, 2020). These technologies also enhance data backup solutions, significantly lowering the risk of data loss. 6.2 Reduction in Operational Costs and Time The integration of digital technology results in notable declines in operational costs in various areas, such as decreased dependence on paper, reduced expenses related to document delivery, and quicker report preparation times (Suthee Suwannawong, 2021). Automation enables staff to focus on more vital tasks. 6.3 Enhancement of Data Accuracy and Reliability Digital platforms are essential in minimizing errors associated with manual data entry, implementing accuracy verification mechanisms, and tracking data changes, which collectively improve data precision and trustworthiness (Johnson & Smith, 2021). 6.4 Support for Evidence-Based Decision Making Sophisticated data analysis tools allow administrators to perform in-depth data evaluations, identify trends, and generate informed forecasts, resulting in decisions based on trustworthy empirical data (Evidence-based Decision Making). 6.5 Promotion of Operational Transparency and Accountability The deployment of digital systems encourages a transparent culture, permitting the tracking and verification of processes with well-documented work histories, thereby enhancing institutional accountability and trustworthiness.

V. LIMITATIONS AND CHALLENGES IN USING DIGITAL TECHNOLOGY

1)Financial Limitations for Digital Investment Implementing digital technology necessitates substantial financial resources, encompassing expenses related to acquiring equipment, software, installation, and ongoing maintenance (Office of the Secretary-General of the Education Council, 2020). Many schools, particularly those located in rural regions, face budgetary constraints that hinder their capability to adopt digital technologies.

2) Shortcomings in Personnel Expertise A considerable number of school staff members, particularly veteran educators, still do not possess the necessary digital technology expertise, which may require them significant time to learn and adapt (Kittipong Wannatanasarn, 2021). This deficiency in digital skills can result in ineffective utilization of technology or create resistance to adopting new practices.

3) Challenges Related to Technological Infrastructure Insufficient technological infrastructure, including unstable internet connections, unreliable electrical systems, and a lack of essential equipment, presents major challenges to the successful implementation of digital technology (UNESCO, 2020).

4) Concerns Regarding Data Security Storing information in digital formats introduces security vulnerabilities, such as potential data breaches, hacker intrusions, and data loss due to technical malfunctions. Therefore, safeguarding data security becomes a crucial obstacle for organizations.

5) Hesitation Towards System Transition The transition from traditional systems to digital formats may face opposition from personnel accustomed to conventional working methods. Worries about the complexity of new technologies and fears of making mistakes can lead to reluctance in embracing these changes.

VI. CASE STUDIES: DIGITAL TECHNOLOGY APPLICATION IN MODEL SCHOOLS

1) Urban Primary School Implementation of a Comprehensive Digital Student Data Management System in Bangkok The primary school in Bangkok has adopted a digital student data management system that consolidates various aspects of school operations, including student profiles, teacher information, scheduling, financial data, and evaluation metrics within a single platform. This innovative approach has led to a remarkable reduction in report preparation time, cutting it down from three days to merely two hours while enhancing the accuracy of data by 95%. Additionally, a Parent Application has been developed to enable parents to monitor their children's academic progress, attendance, and school announcements in real time, resulting in an impressive 80% boost in parent engagement and involvement.

2) Rural Secondary School Adoption of a Learning Management System in Chiang Rai Province In the Chiang Rai province, a secondary school has integrated a Learning Management System as part of the government's Digital School initiative to streamline teaching and learning processes. This implementation has yielded several positive outcomes, such as providing students with 24/7 access to learning resources, allowing teachers to continuously assess student progress, and ultimately improving average academic performance by 15%. However, the school has faced challenges, including intermittent internet connectivity and varying levels of digital competency among teachers, necessitating further professional development and training.

VII. GUIDELINES FOR DEVELOPING DIGITAL TECHNOLOGY APPLICATION

1) Policies and Strategies for Enhancing Digital Technology in Education To foster the integration of digital technology in ensuring educational quality, the government and relevant agencies are tasked with formulating articulate policies. This includes the establishment of a comprehensive Digital Master Plan for Education that delineates specific objectives, strategic approaches, and implementation frameworks, all bolstered by appropriate financial resources (Ministry of Education, 2021). In addition, it is essential to formulate Standards and Best Practices pertinent to the application of digital technology within educational institutions, ensuring a unified trajectory for development and utilization. Furthermore, establishing Incentives and Support mechanisms is crucial for educational institutions that demonstrate effective use of digital technology.

2) Enhancing Personnel Competence for Technology Integration A pivotal aspect of the effective application of technology lies in the development of digital competencies among school personnel. This involves Continuous Training and Development opportunities for teachers, administrative staff, and support personnel, covering both technological proficiency and the integration of these technologies into pedagogical practices. Establishing Learning Communities will provide platforms for teachers to exchange knowledge and experiences regarding technology utilization. Additionally, the recruitment of Educational Technology Specialists is imperative for offering guidance and support in practical usage.

3) Investment in Technological Infrastructure Sustained investment in technological infrastructure is essential and encompasses several key components: Enhancing Internet Network capacities to ensure sufficient speed and reliability, particularly in underserved rural areas. This also includes the procurement of Equipment and Software, such as computers, tablets, projectors, and audio-visual systems, alongside establishing Backup Power Systems and robust data security measures.

4) Fostering Collaboration and Engagement Facilitating collaborations among diverse agencies and creating avenues for stakeholder involvement will enhance the effectiveness of technology implementation. Developing Cooperation Networks that link educational institutions, governmental bodies, private enterprises, and non-profit organizations is vital. It is also important to Provide Opportunities for Parents and Communities to engage in the development and utilization of technology. By cultivating experience-sharing and mutual learning across various educational settings, these collaborative efforts can significantly enrich and transform the educational landscape, driving innovation and enhancing pedagogical practices and learning outcomes.

VIII. CONCLUSION

The application of digital technology in education quality assurance of schools has high potential to help elevate education quality. Digital technology can be applied in various forms, from information management systems, monitoring and evaluation systems, online learning systems, to communication and participation systems.

Benefits of using digital technology in education quality assurance of schools include increased efficiency in data management, reduced costs and time in operations, increased data accuracy and reliability, supporting evidence-based decision making, and increased transparency and accountability.

However, there are still several limitations and challenges, such as budget constraints, personnel skills limitations, technological infrastructure problems, data security issues, and resistance to change.

For effective application of digital technology in education quality assurance of schools, development is needed in several areas: developing clear policies and strategies, continuous personnel development, adequate infrastructure development, and creating cooperation and participation from all sectors.

This study shows that digital technology plays an important role in developing education quality, but success depends on systematic preparation and implementation. Investment in technology alone is not sufficient, but requires comprehensive development of personnel, infrastructure, and support systems.

Educational institutions that succeed in applying digital technology usually have visionary leaders, ready personnel, and support from all sectors. Therefore, developing digital technology in education quality assurance of schools must be a holistic process that comprehensively considers various factors.

REFERENCES

[1] Aithal, P. S., & Srinivasan, R. (2024). Envisioning a scientific, sustainable, holistic, spiritual and all-rounded Indian school education system as per NEP 2020 inspired by Sanathana Dharma. *Poornaprajna International Journal of Philosophy & Languages (PIJPL)*, 1(1), 1-53. ssrn.com

[2] Alam, A., & Mohanty, A. (2023). Educational technology: Exploring the convergence of technology and pedagogy through mobility, interactivity, AI, and learning tools. *Cogent Engineering*. tandfonline.com

[3] Anderson, T., & Dron, J. (2021). Digital technologies and learning in the post-COVID era: A systematic review. *Computers & Education*, 175, 104-318.

[4] Aniegwu, G. E., Onyesolu, M. O., Onyenwe, I. E., & Ugoh, D. (2022). A web-based parent-teacher collaborative system for monitoring students' academic performances in Nigerian schools. Open Access Library Journal, 9(6), 1-16. scirp.org

[5] Arant, R., Larsen, M., & Boehnke, K. (2021). Acceptance of diversity as a building block of social cohesion: Individual and structural determinants. *Frontiers in Psychology*. frontiersin.org

[6] Arifin, S., Darmawan, D., Hartanto, C. F. B., & Rahman, A. (2022). Human resources based on total quality management. *Journal of Social Science Studies (JOS3)*, 2(1), 17-20. metromedia.education

[7] Catacutan, A., Kilag, O. K., Diano Jr, F., Tiongzon, B., Malbas, M., &Abendan, C. F. (2023). Competence-based curriculum development in a globalized education landscape. *Excellencia: International Multi-disciplinary Journal of Education (2994-9521)*, 1(4), 270-282. researchgate.net

[8] Chamusca, P. (2023). Public policies for territorial cohesion and sustainability in Europe: An overview. *Sustainability*. mdpi.com

[9] Cruz, T., & Forman, F. (2022). Spatializing justice: Building blocks. [HTML]

[10] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.

[11] Epstein, J. L. (2018). *School, family, and community partnerships: Your handbook for action* (4th ed.). Corwin Press.

[12] Fahd, K., Venkatraman, S., Miah, S. J., & Ahmed, K. (2022). Application of machine learning in higher education to assess student academic performance, at-risk, and attrition: A meta-analysis of literature. Education and Information Technologies, 1-33. vu.edu.au

[13] González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st century skills frameworks: Systematic review. *Sustainability*. mdpi.com

[14] Grana, F. (2019). Integrated thinking: Aligning purpose and the business model to market opportunities and sustainable performance. Retrieved from https://www.researchgate.net/publication/333245116

[15] Gray, G., Schalk, A. E., Cooke, G., Murnion, P., Rooney, P., & O'Rourke, K. C. (2022). Stakeholders' insights on learning analytics: Perspectives of students and staff. Computers & Education, 187, 104550. sciencedirect.com

[16] Guskey, T. R. (2020). Getting standards-based grading right: What, why, and how. *Educational Leadership*, 77(8), 20-26.

[17] Hanham, J., Lee, C. B., & Teo, T. (2021). The influence of technology acceptance, academic self-efficacy, and gender on academic achievement through online tutoring. *Computers & Education*. sciencedirect.com

[18] Huang, J. (2023). A big data based education information system for university student management. *Journal of System and Management Sciences*. aasmr.org

[19] Johnson, M., & Smith, R. (2021). Digital transformation in education: Challenges and opportunities. *International Journal of Educational Technology*, 18(2), 156-174.

[20] Kitti Wisittkul. (2020). *Education quality assurance: Concepts and practice*. Bangkok: Chulalongkorn University Press.

[21] Li, W. (2025). A study on factors influencing designers' behavioral intention in using AI-generated content for assisted design: Perceived anxiety, perceived risk, and UTAUT. *International Journal of Human–Computer Interaction*. tandfonline.com

[22] Ministry of Education. (2020). *Digital education policy*. Bangkok: Cooperative Printing House of Thailand.

[23] Ministry of Education. (2021). *Digital technology master plan for education 2021-2027*. Bangkok: Office of the Permanent Secretary, Ministry of Education.

[24] Office for National Education Standards and Quality Assessment. (2021). *National education standards 2018*. Bangkok: V.T.C. Communication Company Limited.

[25] Office of the Permanent Secretary, Ministry of Education. (2021). *Manual for developing information systems for school management*. Bangkok: Cooperative Printing House of Thailand.

[26] Office of the Secretary-General of the Education Council. (2020). *Report on monitoring and evaluation of national education management 2020*. Bangkok: Prikwan Graphic.[20]Office of the Permanent Secretary, Ministry of Education. (2021). *Manual for developing information systems for school management*. Bangkok: Cooperative Printing House of Thailand.

[27] Oguguo, B. C., Nannim, F. A., Agah, J. J., Ugwuanyi, C. S., Ene, C. U., & Nzeadibe, A. C. (2021). Effect of learning management system on Student's performance in educational measurement and evaluation. Education and Information Technologies, 26, 1471-1483. researchgate.net

[28] Qazi, A., & Al-Mhdawi, M. K. S. (2025). Benchmarking higher education excellence: Insights from QS rankings. *Benchmarking: An International Journal*. [HTML]
[29] Selwyn, N. (2022). *Education and technology: Key issues and debates* (3rd ed.). Bloomsbury Academic.
[30] Singh, P. (2025). Streamlining telecom customer support with AI-enhanced IVR and chat. preprints.org
[31] Suleiman, A. (2023). Quality assurance strategies in higher education institutions. *IOSR Journal of Research & Method in Education*. researchgate.net
[32] Suthee Suwannawong. (2021). Application of information technology in educational institution management. *Journal of Educational Administration*, 28(3), 78-91.
[33] Tuah, N. A. A. & Naing, L. (2021). Is online assessment in higher education institutions during COVID-19 pandemic reliable?. Siriraj Medical Journal. tci-thaijo.org
[34] UNESCO. (2020). *Education in a post-COVID world: Nine ideas for public action*. UNESCO Publishing.
[35] UNESCO. (2021). *Digital technologies in education: Policy brief*. UNESCO Institute for Statistics.
[36] Ugobueze, A. N. (2024). The role of citizenship education on enhancing the promotion of unity in Nigeria: Implication for primary education. *Journal of Education and Teacher Training Innovation*, 2(2), 92-101. pusmedia.com
[37] Vu, T. D. T., Huy, D. T. N., Trang, N. T. H., & Thach, N. N. (2021). Human education and educational issues for society and economy—Case in emerging markets including Vietnam. *Ilkogretim Online*. dinhtranngochuy.com
[38] Wichai Wongyai. (2020). *Information systems for educational administration*. Bangkok: Thammasat University Press.
[39] Wongeh, N. E., Adeniran, A. S., &Welgba, R. Y. (2022). Education and national unity. *Sapientia Foundation Journal of Education, Sciences and Gender Studies*, 4(3). sfjesgs.com
[40] Yun, J. J., Choi, B., & Kim, J. (2021). Changes and challenges in museum management after the COVID-19 pandemic. Journal of Open Innovation: Technology, Market, and Complexity, 7(2), 148. sciencedirect.com
[41] Zibani, P., Rajkoomar, M., & Naicker, N. (2022). A systematic review of faculty research repositories at higher education institutions. Digital Library Perspectives. emerald.com