Wisdom&Learning

Be in awe of education, for it shapes the soul of human,
Be cautious to technologies, for its adoption has to be effective,
Be entangled with 'wisdom', for uncertainty tends to be increasing,
Be serious to academics, for academic research requires evidence.

——Dean Ronghuai Huang, delivered at the closing ceremony of the Second US-China Smart Education Conference on March 20, 2017

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北京师范大学智慧学习研究院
Smart Learning Institute of Beijing Normal University

Smart Learning Institute of Beijing Normal University

The Smart Learning Institute (SLI) of Beijing Normal University is a comprehensive experimental platform involving scientific research, technology development and instructional teaching, which is jointly established by Beijing Normal University and a global educational technology company, Elernity (a subsidiary of NetDragon). SLI focuses on finding learning patterns powered by ICT, creating smart learning environment and platforms for lifelong learning, as well as supporting diversified, personalized and differential learning needs for digital learners.

- Focusing on the methods of design, optimization and evaluation for learning environment as well as developing the key technologies for learning environment engineering aims at providing a widely_x0002_spread solution for promoting smart learning.
- Constructing the theory of smart learning and exploring the approaches of integrating ICT with Education aims at offering an international exchange and cooperation platform to smart learning research.
- Studying on the characteristics and patterns of schooling, family education, community education, enterprise learning and public learning aims at providing support for constructing a learning oriented society and smart city.
- Expanding the experimental areas and schools for smart learning as well as exploring the characteristics of ICT-based instruction and the models of future schools aims at promoting educational transformation and innovation.

Co-Dean Dejian LIU

Chairman of the Board, Executive Director of NETDRAGON, The Special Allowance Expert in State Council, Co-Dean of Smart Learning Institute of Beijing Normal University, Chair Professor at the College of Education of Harvard University.

Co-Dean Ronghuai HUANG

Co-Dean of Smart Learning Institute of Beijing Normal University, Director of UNESCO International Research and Training Centre for Rural Education, Director of National Engineering Laboratory for Cyberlearning and Intelligent Technology

Open Series in Springer

- Lecture Note in Educational Technology
  Series Editors: Huang, R., Kinshuk, Jemni, M., Chen, N.-S., & Spector, J.M.
- Smart Computing and Intelligence
  Series Editors: Huang, R., Kinshuk, & Dede, C.
- New Frontiers of Educational Research
  Series Editors: Zhongying Shi, Ronghuai Huang, Zuoyu Zhou.

Springer's Journals

- Smart Learning Environment
  (The Official Journal of IASLE)
  Editors: Huang, R., Kinshuk, & Soloway, E.
- Journal of Computing in Education
  (The Official Journal of GCSCE)
  Editors: Huang, R., Hwang, G.-J., Kong, S.-C., & Chen, W.

Design and Learning Laboratory

Study on the features and patterns of design, computational and innovative thinking for youth; Develop courses and books about design methodology, computational thinking and ICT; Build cooperative platform with world-renowned universities, enterprises and institutes for design and innovation.

The 48H Competitive Game of Education Design(2019.01)

Discuss with Prof. Larry Leifer at d.School of Stanford University (2017.04.11)

Smart City and Learning Environment Laboratory

Release Conference of White Paper: Smart Learning nvironments in China 2015 (2015.09.20)

Index Report of Smart Learning Environments in Chinese Cities

Index Report of Smart Learning Environments in Chinese Cities

Study on the typical learning fields in smart cities and learning societies; Create database of smart learning environment; Publish serial reports on leraning environment as well as service industry and products of cyberlearning.

Open Educational Resources (OER) Laboratory

Study on the solution of OER under its impact to the developing countries; Construct the OER community for The Belt & Road countries ; Publish reports on the trends of ICT in education

The Third US-China Smart Education Conference (2018.03)

Series of Horizon Report in China At a Glance: Education evelopment in the Belt & Road Countries

Smart Learning and OER International High-end Forum (2017.05.25)

ICT-based Instruction Center

Initial Conference in Experimental Area of Smart Education in Fuquan, Guizhou rovince

101 Education PPT Solution

Explore the methodology of integrating ICT into education with large-scale experiments; Study on the solutions of smart classroom and smart campus; Provide the services for transferring education through the bridge of the theory and practice.

Educational Robotics Center

Study on the scenarios of robotics in education and the trend of artificial intelligence; Develop the courses for robotic education and STEAM education for K-12 schools. Design educational robotic for various learning fields, such as school, family, etc.

2016 Educational Robotics White Paper: The Global Development

The Next Big Thing: Global Development tatus and Trends in Educational Robotics

Prototype of Educational Robotics

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Important Events

Release of Research Report on Behavioral Analysis in Informatization Classroom

On April 26, at the sub-forum of the 4th Digital China Summit, the “Research Report on Behavioral Analysis in Informatization Classroom”, jointly completed by the Smart Learning Institute (SLI) of Beijing Normal University (BNU) and the research team of NetDragon Websoft Incorporation, was officially released. The report sheds light on promoting the deep integration of information technology and teaching process. Prof. Ronghuai Huang, Co-Dean of SLI, Ms. Rongxia Zhuang, Director of the Open Educational Resources (OER) Laboratory, attended the sub-forum and comprehensively interpreted the report on behalf of the project team.

Zhuang Rongxia, director of the SLI Open Educational Resource (OER) Laboratory, interpreting the research report

03

Seminar on Knowledge Graph of K12 Education

On May 24, seminar on knowledge graph of K12 education sponsored by National Engineering Laboratory for Cyberlearning and Intelligent Technology, co-sponsored by Tsinghua University Knowledge Engineering Group, was held on Changping Campus of Beijing Normal University. The seminar focused on how the knowledge graph of K12 education can play a role in open and personalized learning in the field of intelligent education, and released the K12 education knowledge service platform. At the seminar, the participants witnessed the release of the K12 education knowledge service platform (open.edukg.cn).

The Academic Seminar on the Application of Artificial Intelligence in Education and the Kick-off Meeting of Educational Informatization Strategy Research Base (Beijing), Ministry of Education

On April 29, the academic seminar on the application of artificial intelligence in education and the kick-off meeting of Educational Informatization Strategy Research Base (Beijing), Ministry of Education (MOE) was held in Changping campus of Beijing Normal University. Hua Shu, Deputy Director of the Department of Science, Technology and Informatization, MOE; Changshan Ren , Chief of the Informatization Division, Department of Science, Technology and Informatization, MOE; Fei Dou, Vice Dean of the Scientific Research Institute and Director of the Office of Science and Technology of Beijing Normal University, and other leaders attended the meeting. Dean Ronghuai Huang was appointed as Director of Educational Informatization Strategy Research Base (Beijing), MOE, and Lili Tong, Haijun Zeng and Junfeng Yang as Deputy Directors, while Yaonan Wang - academician of Chinese Academy of Engineering and Professor of Hunan University - as Director of the Academic Committee of the Base (Beijing).

Hua Shu, Deputy Director of the Department of Science, Technology and Informatization, MOE

Professor Ronghuai Huang of BNU and other experts, appointed by the Base as Director and Deputy Directors

Yaonan Wang, Academician of Chinese Academy of Engineering, appointed as Director of the Academic Committee

Cooperation & Communication

Dean Huang was invited to attend the kick-off meeting of “Smart Education Demonstration Areas” in Haidian District and delivered a speech

On May 12, Haidian District held the kick-off meeting of “Smart Education Demonstration District”. More than 500 participants, including leaders from the Ministry of Education, municipal and district government, directors of cooperative universities and school districts in Haidian, secretaries and principals of primary and secondary schools, attended the meeting. Dean Huang shared his thoughts and explorations on the development of smart education in Haidian district of Beijing from a professional perspective.

Project Status

Special Interview on Artificial Intelligence Education Governance

The project aims to conduct research on governance and norms of the application of artificial intelligence technology in the field of education, providing suggestions for improving the review of artificial intelligence in education and management system. After interviews in the first stage, the project team compiled and released the handbook Governance Framework for the Application of Artificial Intelligence Technology in the Field of Education--Summary of Interviews with 20 Experts on the training of Department of Science, Technology, and Informatization of the Ministry of Education. This handbook condenses the views of 20 domestic scholars, business practitioners, education managers, primary and secondary school teachers and parents in the field of artificial intelligence and education, shedding light on the research.

Submitted by Youjie Yao

The Development of Information Technology Curriculum Standard for Higher Vocational Education

On April 9, the Ministry of Education officially released the Information Technology Curriculum Standard for Higher Vocational Education. As the first national curriculum standard for information technology curriculum of higher vocational education, this book is of great significance. When releasing the book, Dean Huang, as the leader of the expert panel, introduced the overall structure of the standard formulation.

Submitted by Youjie Yao

The 14th Five-Year Planning Project on Beijing Education Informatization

The project team consulted the directions of national policies under the instructions of leaders and experts from Beijing Municipal Education Commission and actively improved the plan, which was recognized by relevant leaders. The final draft was submitted at the end of June.

Submitted by Yongzhong Wang

Educational Reform and Development Planning of Beijing Pinggu District during the 14th Five-Year Period

On April 26, the project team extended the expert demonstration meeting organized by Pinggu District government. The experts at meeting affirmed the project results and believed that this plan has been promoting the future educational development of Pinggu District. The project team successfully passed the Acceptance Review Meeting for the plan.

Submitted by Yongzhong Wang

Smart Campus Program in Wuhou District, Chengdu

The project team assisted the Education Bureau in Wuhou District to complete the selection for pilot schools for the construction of smart campus project in the smart educational demonstration areas, the investigation of smart educational products, and the design of project planning. Wuhou Education Bureau affirmed the results of project advancement.

Submitted by Yongzhong Wang

Leaders of Education System in Wuhou District Visited NetDragon

The project team completed the preliminary draft of “2021 Evaluation and Analysis Report on China Internet Education Products,” and communicated and discussed the evaluation results with educational enterprises, soliciting for their opinions and discussing future cooperation. The project team accompanied Dean Huang to visit Chongqing Software Evaluation Co., Ltd. and Chongqing Xin’an Network Security Level Evaluation Co., Ltd. They investigated the software evaluation related qualification, evaluation management, standard formulation, work flow, and so on.

Submitted by Yanli Jiao

SLI-ALECSO Joint Lab Project

The lab is an international academic cooperation platform jointly built by Smart Learning Institute (SLI) of Beijing Normal University and Arab League Education, Cultural and Scientific Organization (ALECSO). It aims to connect Asia and the Arabic region and carry out research, discussion and exchange, resource sharing and other cooperation in the field of educational science and technology. ALECSO Database covers the detailed data in education, science and technology, culture, economic development and demographics of 22 Arabic countries. At present, it is available in English and Arabic.

Submitted by Tingwen Chang

Books & Articles

Exclusive Interview by Economic Daily

Dejian Liu, Chairman of NetDragon Websoft Holdings Limited: an Internet Designer Who Creates Happiness


10 人物
创造快乐的互联网设计者
潜心打造“一卷尺王国”
保持企业凝聚力

On the eve of the 4th Digital China Summit, Economic Daily published an in-depth exclusive interview with Mr. Dejian Liu, “Mr. Dejian Liu, Chairman of NetDragon Websoft Holdings Limited: an Internet Designer Who Creates Happiness,” which describes how Mr. Dejian Liu and his team embraced the tide of digital economy and started a business following the pace of digital Fujian Construction over the past 20 years.

"According to the report, over the past 20 years, Mr. Dejian Liu’s career track seemed to be progressing along the hierarchy of people’s needs, from biotechnology research and development to the game development and operation, and then to the field of education. Biotechnology meets people’s health needs, making people vibrant, healthy and happy; games meet people’s spiritual needs, keeping people in a good mood; education meets people’s soul needs, giving people interesting souls and happy growth.

In the interview, Mr. Dejian Liu also elaborated the “open” corporate culture of NetDragon for the first time. It is mentioned that in the Internet era, openness and transparency has become the consensus of the whole society, while Mr. Dejian Liu’s openness is not only for the company’s internal management, but also for making openness and transparency a new label of NetDragon. The idea of openness and transparency is rooted in Liu Dejian’s management philosophy. At present, Netdragon is committed to becoming a “transparent” company and administrating “in the way of openness.” Employees’ affairs, performance, rewards and punishments, and promotion are open; most of the company’s meetings are broadcast live for all employees to know the company’s affairs at any time. The report expounds Mr. Dejian Liu’s legendary path of entrepreneurship from three perspectives: focusing on industries of interest, building an open and transparent enterprise and participating in education.

Academic Papers

Preliminary Study on the Results of the Online-Merge-Offline (OMO) Learning Approach in the Post-COVID-19 Era

Abstract:

The COVID-19 pandemic revealed the need for new innovative methods to effectively maintain education in times of crisis and uncertainty. This study first presents the Online-Merge-Offline (OMO) learning approach, a way of learning that caters to the new needs of students and teachers in the post-COVID-19 era. OMO learning utilizes a hybrid infrastructure that combines Open Educational Practices and real-time learning spaces, both online and offline. This study then discusses the early results of a pilot experiment investigating OMO learning in China for three months from three dimensions: space design requirements, technological considerations, and pedagogical considerations. A qualitative, two-stage study focused on content analysis and a multiple-case study were carried out in the context of courses about English language learning with 30 teachers and students. The obtained findings showed that, although both teachers and students had a positive attitude towards OMO learning, they mentioned that a comprehensive set of core and functional competencies are needed—including the use of online platforms, communication skills, class management, and the effective use of resources. Additionally, the findings showed that more effort should be paid to classroom design, such as infrastructure, to efficiently support OMO learning. This study exemplifies a new approach toward the future of education to ensure sustainable education in this complex and uncertain world.

Unobtrusive monitoring of learners' game interactions to identify their dyslexia level

Ahmed Tlili, Huang Huairong, Zhang Dingwen, etc.

Abstract: Several research studies have highlighted that the traditional method of identifying dyslexia within learners is time consuming, expensive and might not be effective as some people acquired the skills to hide their disability. Particularly, no tool or method was reported in the Arab region (22 countries) that could help identify dyslexia within Arab learners. Therefore, this paper presents a developed and validated educational game to implicitly identify the level of dyslexia within learners based on their game play traces. The game was played by twenty-six children within a private school for special education with the supervision of experts from a private center for learners with disabilities. The obtained results showed that the accuracy level of identifying learners with dyslexia with the use of the game is high. Additionally, the experts reported a favorable perception and high technology acceptance degree towards the game. The findings of this research could enhance the educational technology field by providing an educational game design for implicit identification of dyslexia level.

The Exploration on Artificial Intelligence Education Based on Integrated Teaching Method

Zhang Yunfeng, Liu Dejian

Abstract: Based on integrated teaching method, this paper explores to build a dimensional learning system with multiple-role fusion, which relies on thematic curriculum+teaching resources+experience tools+open developer platforms, integrates perception, experience and practice, and reengineers the education and teaching process; it also explores to expand the practice path of artificial intelligence education, which integrates activities online and offline, in and out of school, associations and events, and so on, enriching the content and form of artificial intelligence education.

Construction of New Generation of Smart Campus in 5G Era

Wang Yunwu, Zhuang Rongxia, etc.

Abstract: In 2020, known as the first year of 5G and the first year of WiFi 6 popularization, human society has entered the 5G er. 5G, as the foundation of the seventh information revolution, will accelerate the integration of new generation information technology. The development of smart campus can be divided into five stages: campus network, campus informatization, digital campus, smart campus (intelligent campus) and new generation of smart campus (OMO smart campus). With the promotion of 5G, WiFi 6, AIot and other multi-network integration, intelligent interconnection will start the construction of a new generation of smart campus. At present, 5G+WiFi 6 ultra high-speed network has gradually formed scale, which has laid the foundation for the construction of a new generation of smart campus. The trend of smart campus transformation to new generation of smart campus is increasing. The new generation of wisdom campus will present eight characteristics: high intelligence, high sense of experience and high satisfaction, intelligent interconnection (intelligent interconnection), ultra high-speed network, intelligent analysis, smart decision-making, systematic reform of education as well as guidance of innovation. In the future, the construction of new generation of smart campus based on 5G+WiFi 6+AIot multi-network integration has broad prospects.

Exclusive Interview

Binbin Qi
Smart Learning Institute, Beijing Normal University, Postdoctor.

Q: How do you feel about your experience as a postdoctoral fellow in SLIBNU?

A: Until now, I think this experience is extremely valuable to me. When I was in my Ph. D. program, I always followed SLIBNU. As soon as my doctoral dissertation was submitted for external review in June 2020, I couldn't wait to send my resume to the Institute. During the interview and application, the teachers here were very friendly and helped me a lot. Also, when learning and communicating with my mentor Professor Huang Ronghuai, I always sincerely admire his vision. Thanks to the platform and opportunities that he has given to me, I can have extensive contacts and exchanges with scholars and business experts, and engage in some cutting-edge and challenging research work.

Q: Would you like to share some of your research experiences with us?

A: My main research interests include haptic interaction, virtual reality and teaching behavior analysis. In the future, I will focus on the application of virtual reality technology in education, and explore and explain the regularity of immersive learning in combination with the theory of cognitive psychology. My past research experiences mainly have two stages:

When getting a master's degree in educational technology at Nanjing Normal University, my tutor was mainly engaged in the research of computer three-dimensional graphics and digital geometry processing. Under his guidance, I began to know haptic (natural) interaction and tried to apply it to education. At that time, my research mainly focused on algorithm design and my master's thesis is titled "Research on 3D

Shape Editing Technology Based on Haptic Feedback." After getting master's degree, I studied for a doctorate in the School of Information Management of Nanjing University. The switch of discipline from science to management had a great impact on my research. My lack of systematic management knowledge and the

flexible switch of research paradigms gave me a shock. After a short impetuosity and confusion, I still hoped to keep my existing research and blende it with information management, providing some new ideas for the solution to problems in the field. Therefore, during that time, I read a lot of classic materials in the field, tried to break the shackles of the original technical thinking, and explore and analyze the demands for technology from the perspective of discipline.

Q: Could you please introduce some of your research related to the Institute?

A: Also, considering "Research on the Digital Service Convergence of Libraries-Museums-Archives," the key project of NSFC, my final research was to combine virtual reality, natural interaction and the field of public culture represented by libraries, museums and archives. The main idea is to focus on the multi-modal interaction between users and libraries-museums-archives digital resources in virtual situations, starting from the basic theoretical model of multi-modal interaction, conducting research from the two dimensions, system design and user cognition, and taking the barrier-free resources service in libraries, museums and archives as the application foothold. Its main value lies in providing users with an immersive, natural and smooth interaction mode, improving the accessibility of digital resources and services, promoting the fair supply of public cultural services, and providing reference for the development of "people-oriented" interactive information services in libraries, museums and archives. Now the research can apply information technology to the fields of knowledge, and basically realize the combination of technology and fields. This interdisciplinary research experience is also particularly important for my current work because it enables me to better perceive the concerns and differences of people from different disciplinary backgrounds, and integrate multidisciplinary perspectives to recognize and interpret research problems.

Q: Could you introduce some of your research work in SLI?

A: I'd like to share two research projects. One is my postdoctoral fund project "Research on Interactive Model of Motor Skills Teaching Based on Tactile Internet and Its Application." With the birth and popularization of 5G mobile communication technology, Tactile Internet or Tactile Communication is gradually coming into reality. It is defined as a low-latency, high-reliability, and high-security interconnected infrastructure. Through studying the multimodal natural interaction mode for motor skills teaching, we expect to propose the real-time interaction and collaboration of vision, hearing and touch among multiple people in a shared virtual environment, and realize the service mode of distance education with high immersion and multimodal interaction, so as to promote educational equity, improve the quality of education and the development of students'individualization.

The other is the new cooperation project between BNU and Huawei on scientific research innovation in education informatization. Focusing on the application fields related to "new infrastructure for education," it carries out in-depth cooperation in "education-specific operating system," "virtual simulation experimental environment," "research on intelligent teaching agent," "embodied cognition and teaching behavior analysis" and "smart learning space (classroom construction)." It is expected to empower education based on Huawei's leading ICT technologies such as Harmony OS and F5G, and work together on the research and development of forward-looking new technologies, new models and new applications. We expect to explore feasible paths for the application of information/intelligence technology to teaching through cooperation with experts from different disciplines to address the real problems in education, and co-incubate solutions with Huawei for application examples in smart education demonstration areas.

Q: What are your expectations for the future development of the Institute?

A: As the birthplace of "smart education" theory and the national strategic research base of smart education and educational informatization, the Institute has particularly good foundation, no matter in terms of journals, conferences or international cooperation. I think it has become a very good platform in the field of educational technology. I have two expectations to its development. The first is to hold regular academic lectures and forums, building a communication platform for people with different disciplinary backgrounds. The second is to further play a pivotal role among circles of academic and business as well as the front-line schools; and to gain greater influence in practical fields through cooperation with enterprises like Huawei.