Knowledge hub
-
Collection of best practices

Summary of the best practice

1. Title of the best practice (e.g. name of policy, programme, project, etc.) *

Practice of hybrid teaching at universities in eastern and western China

2. Country or countries where the practice is implemented *

China

3. Please select the **most relevant** Action Track(s) the best practice applies to *

- [ ] Action Track 1. Inclusive, equitable, safe, and healthy schools
- [ ] Action Track 2. Learning and skills for life, work, and sustainable development
- [ ] Action Track 3. Teachers, teaching and the teaching profession
- [x] Action Track 4. Digital learning and transformation
- [ ] Action Track 5. Financing of education

4. Implementation lead/partner organization(s) *

XuetangX

5. Key words (5-15 words): Please add key descriptive words around aims, modalities, target groups etc. *

Digital transformation, content digitization, teaching digitization, management digitization, data-driven teaching, data-driven governance, big data decision-making, smart teaching, Rain Classroom, Clone Classes, hybrid teaching at universities in eastern and western China, continuous teaching amid COVID-19, new models of knowledge sharing, university teachers and students

6. What makes it a best practice? *

With “Clone Classes” of Rain Classroom and “digital twins”, universities in eastern and western China adopt hybrid teaching to achieve the replication and mapping of original classrooms in the digital virtual space, and share quality classes of universities in eastern China with universities in western China. While breaking temporal and spatial limitations, hybrid teaching ensures the synchronism of the teaching process, develops new teaching scenarios, creates new models of knowledge sharing, breaks the walls of universities, and enables the sharing of quality teaching resources among universities.

Description of the best practice

7. Introduction (350-400 words)
   This section should ideally provide the context of, and justification for, the practice and address the following issues:
   i) Which population was affected?
   ii) What was the problem that needed to be addressed?
   iii) Which approach was taken and what objectives were achieved? *

Universities in eastern China and western China see unbalanced development. It is urgent to use digital technology to share the quality classroom resources of universities in eastern China with those in western China, so as to improve the quality of classroom teaching at universities in western China. As China's first MOOC platform, XuetangX was launched by Tsinghua University in 2013. On the one hand, XuetangX provides learners with quality MOOCs and advances educational equity. On the other hand, it is committed to developing educational technologies based on artificial intelligence and big data to help Chinese universities realize digital transformation and improve the quality of education at universities in eastern and western China. In 2016, XuetangX released the smart teaching tool "Rain Classroom". Building on years of development, Rain Classroom has set up "sensors" for scenes such as teaching videos, teacher-student interaction, slideshows and notes on blackboards in classroom teaching, which can perceive, record and analyze the massive teaching content, teaching behaviors and interactive data in teaching scenes in real time. Such development not only improves the digitization of classrooms and enables the application of big data to teaching and management, but also gathers initial technological experience for the realization of a new model of knowledge sharing. Building on "Rain Classroom", leveraging digital twins, we can reconstruct the perceived teaching scenes in the digital world to create "Clone Classes" apart from initial classes. In "Clone Classes", students of universities in western China can have extensive communication and interaction in real time.

8. Implementation (350-450 words)
   Please describe the implementation modalities or processes, where possible in relation to:
   i) What are the main activities carried out?
   ii) When and where the activities were carried out (including the start date and whether it is ongoing)?
   iii) Who were the key implementation actors and collaborators? (civil society organizations, private sector, foundations, coalitions, networks etc.)?
   iv) What were the resources needed (budget and sources) for the implementation? *

In 2020, through “Clone Classes” on Rain Classroom, XuetangX built bridges between Tsinghua University and universities in Wuhan and other COVID-stricken regions, and created innovative models of inter-university course sharing through information technology amid COVID. Tsinghua University has established contacts with Huazhong University of Science and Technology, Wuhan University, Huazhong Agricultural University, Xinjiang University, Taiyuan University of Technology and other universities, dug into their education needs, and found out courses they need. Through “Clone Classes” of Rain Classroom, the students of these universities and Tsinghua students can attend classes at the same time and share quality course resources of Tsinghua University. As of June 30, 2020, 102801 learned signed up for “Clone Classes” of Rain Classroom. In order to tackled unbalanced education development of universities in eastern and western China, with the support of “Clone Classes” of Rain Classroom, universities in eastern and western China kicked off hybrid teaching in 2021 to enable the sharing of quality courses of universities in eastern China with universities in western China in real time, so that students from eastern and western China could attend the same class. In the fall semester of 2021, 14 universities(Zhejiang A&F University,Ningbo University, Shanghai Normal University, Shanghai Lixin University of Accounting and Finance, Fujian University of Technology, Shanghai University of International Business and Economis, Beijing University of Posts and Telecommunications, Beijing Institute Of Fashion Technology, Fujian Business University, Shanghai University Of Engineering Science, Zhejiang Technical Institute of Economics, Zhejiang Institute of Mechanical & Electrical Engineering, Sanda University, Ningbo City College of Vocational Technology)from Beijing, Shanghai, Zhejiang, and Fujian launched 55 open courses, with the participation of 9 universities （Xinjiang Agricultural University, Kashi University, Shihezi University, Xinjiang Shihezi Vocational Technical College, Changji University, BaYin Guoleng Technology College, Xinjiang Tianshan Vocational and Technical University, Minjiang University） in Xinjiang, covering more than 10,000 teachers and students from universities in western China. In the spring semester of 2022, 28 new courses in universities in eastern China were added to “Clone Classes” of Rain Classroom.

9. Results – outputs and outcomes (250-350 words)
   To the extent possible, please reply to the questions below:
   i) How was the practice identified as transformative? (e.g., impact on policies, impact on management processes, impact on delivery arrangements or education monitoring, impact on teachers, learners and beneficiary communities etc.);
   ii) What were the concrete results achieved with regard to outputs and outcomes?
   iii) Has an assessment of the practice been carried out? If yes, what were the results? *

As a new model of knowledge sharing, “Clone Classes” emphasize synchronism with the teaching activities of offline classes. This goes beyond the traditional sharing of course resources. Instead, it enables the online extension of all courses of universities in eastern China, especially offline courses, to create new forms of classroom teaching that combine the advantages of online technology and the atmosphere of offline classrooms. First, as “Clone Classes” carry forward the simplicity and user-friendliness of Rain Classroom, teachers are no longer hindered by technological dilemmas and can share quality knowledge in real time extensively. With the help of Rain Classroom, tens of thousands of classes have become the source of knowledge sharing, benefiting more learners who wish to attend the courses of renowned universities in real time. Second, “Clone Classes” have created innovative patterns of teaching. “Clone Classes” have not only enabled teaching in different places, but also created utmost synergy between universities in eastern and western China and built virtual rooms for teaching and research among universities. This can facilitate teaching exchanges among universities in eastern and western China, and advance their continuous improvement of teaching designs. Third, “Clone Classes” create new teaching scenes, breaking temporal and spatial limitations while maintaining the synchronism of teaching.
The Opinions of the Ministry of Education on Higher Education Development in Central and Western China in the New Era published in 2020 encourage teachers from eastern and western China to jointly create and develop courses, and improve the teaching quality of universities in western China through digital technology. The hybrid teaching practice of universities in eastern and western China has enabled the sharing of quality classroom resources, making it possible for teachers and students in eastern and western China to share the same class. It has also improved the professionality and teaching ability of teachers in universities in western China, and enabled digital teaching to benefit all.

10. Lessons learnt (300 words)
    To the extent possible, please reply to the following questions:
    i) What were the key triggers for transformation?
    ii) What worked really well – what facilitated this?
    iii) What did not work – why did it not work? *

The practice of hybrid teaching of universities in eastern and western China shows that the application of digital technologies including AI and big data in teaching and learning has changed the teaching of teachers, the learning of students, the management of universities, and the patterns of education.
The eastern and western parts of China are interconnected thanks to technologies. The emergence of "Clone Classes" has played an active role in removing the imbalance of educational resources, advancing educational equity and improving educational quality. "Clone Classes" present a model that can be used for reference and replication. "Clone Classes" have created a new model of knowledge sharing based on openness, built synchronous classrooms for universities in eastern and western China, enabled the coordinated development of teaching and learning at universities in eastern and western China with digital technology, and provided strong support for quality improvement of talent training at universities in western China.

11. Conclusions (250 words)
    Please describe why may this intervention be considered a "best practice". What recommendations can be made for those intending to adopt the documented "best practice" or how can it help people working on the same issue(s)? *

The application of "Clone Classes" is the best case of practice showcasing changes in teaching and learning as well as a new model of extensive real-time classroom sharing enabled by digital technology. This model does not require high costs for hardware, and can easily realize inter-university classroom sharing. Based on the large number of users of Rain Classroom, "Clone Classes" can be quickly expanded among Chinese universities, making it possible for teachers and students in eastern and western China to share the same class.

12. Further reading
    Please provide a list and URLs of key reference documents for additional information on the "best practice" for those who may be interested in knowing how the results benefited the beneficiary group/s. *

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