

Education Sector

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Educational, Scientific and Cultural Organization





# Mobile learning as a catalyst to global citizenship education in China

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Case study by the UNESCO-Fazheng project on best practices in mobile learning



Approach: Bottom-up

Implementing organization: æ **Beijing Royal School** 

Year launched: 2010

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## Abstract

The Beijing Royal School was one of the pioneer schools in China in incorporating mobile learning into pedagogical transformation. Its mobile learning programme started in 2010. Stemming from the school's orientation towards global citizenship education, the Beijing Royal School recognizes mobile learning as both driver and enabler for supporting the development of students' cognitive, socio-emotional and behavioural dimensions, organized around knowledge acquisition, understanding and respect for difference and diversity, and responsible engagement with global issues. It takes advantage of a variety of mobile apps to support students' multilingual education, and uses open educational resources (OER) to support multicultural education, taking advantage of the up-to-date worldwide data and information available on the web. It also engages with students from other countries in projects and courses that help the students to widen their understanding of diverse cultures and social contexts. Overall, this case study illustrates how to use mobile technologies to support the implementation of a well-defined and clearly structured educational vision by embedding the use of mobile technologies in students' daily learning lives.

The Beijing Royal School case illustrates how mobile technologies can be integrated in global citizenship education to facilitate the development of the cognitive, socioemotional and behavioural dimensions through knowledge acquisition, understanding and respect for difference and diversity and responsible engagement with global issues respectively. The use of mobile technologies in the school contributes to the creation of the so called "information society", fostering the development of digital skills and competences while learning traditional subject areas.

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**Keywords:** 

China, global citizenship education, multilingual, multicultural, social responsibility

### 1. Introduction

Beijing Royal School (BRS) is a private high school situated in Beijing, China. The school provides education to 950 students from Grades 10 to 12, of whom 90 per cent are Chinese. The large majority of the students (98 per cent) continue their studies by attending universities overseas after graduation from the school. The staff of the school has a strong international component, since many faculty members come from different countries and others have experience teaching overseas.

BRS has a clear focus on preparing students to live and work in a global society, therefore the aim is to equip them with the ability to understand and engage with the world as global citizens. For this, it uses UNESCO's global citizenship education conceptual framework as a theoretical reference that guides the design of mobile-based teaching and learning activities aimed at the development of students' cognitive, socio-emotional and behavioural dimensions.

BRS considers mobile devices as a constituent tool of modern society which can help to deliver education more effectively. Therefore, it implements a hierarchical mobile learning model to support students' learning trajectory as part of the delivery of global citizenship education in the school.



## 2. The model

### 2.1 Vision

The vision of the school is to leverage mobile learning to support global citizenship education as part of the school's long-term mission of cultivating global citizens. In order to better understand the underlying logic of the mobile-learning-infused global citizenship education programme, it is helpful to revisit its theoretical background.

The process of globalization has significant implications for every domain of the society, including education. Consequently, the idea of global citizenship education emerged as a response to the increasingly globalized world and the constantly changing global context. Global citizenship education highlights the fundamental function of education in preparing children and young people to develop knowledge, skills and values to engage with today's interconnected and interdependent world (UNESCO, 2014, p. 15).

According to UNESCO (2015), global citizenship education entails three essential dimensions: the cognitive dimension, the socio-emotional dimension and the behavioural dimension. These three dimensions are interrelated, with different focuses throughout the learning process. Contextualizing UNESCO's global citizenship education framework into contemporary secondary education in China, the school interpreted the cognitive dimension as equipping students with general knowledge on local, national and global issues, as well as the dialectical relations between them. For the socioemotional dimension, the school emphasizes empowering students with independent thinking and critical inquiry abilities, which contribute to their understanding and respect of difference and diversity. In terms of the behavioural dimension, it encourages

students to participate in a wide range of local, national and global activities, and hence develop the skills required to engage with the world as global citizens through participation and practices.

The delivery of global citizenship education encountered two practical challenges. First, students need to complete both the state-mandated Chinese high school curriculum and a set of courses aligned with foreign university enrolment requirements, which represents double the workload of students in other institutions. As a result, the time that students have to acquire knowledge beyond the curriculum is limited. Second, since BRS is a boarding school, students spend most of the time on campus, which can make it difficult for them to participate in activities and events outside the campus.

Mobile learning, because of its potential to expand learning environments, connect classrooms and communities, and reach scattered demographics, provides a solution (UNESCO, 2014, p. 28). To support global citizenship education, the school initiated and developed a hierarchical mobile learning model based around the three dimensions of global citizenship education.

The school's administrators arrange staff meetings on a weekly basis and parent meetings twice a semester. One of the major objectives of these meetings is to reinforce the school vision and examine the progress towards the achievement of the vision. In addition, the school communicates regularly through messaging, e-mail and the school website to keep stakeholders informed and engaged.

### 2.2 School-wide programming

The mobile learning programme started in 2010. At that time, the idea of mobile learning was relatively new and in a preliminary phase in China, without a comprehensive guiding framework or systematic approaches. Therefore, instead of translating the concept of mobile learning into school-wide practices immediately, BRS staff decided to spend the initial year mapping out the mobile learning programme in detail. For this, they conducted a needs assessment, built a team, and organized visits to South High School in Minnesota, United States, to learn from its mobile learning practices. In addition, more than 100 teachers in the school started to take online courses offered by Harvard University, to enable them to develop a better understanding of mobile learning.

In 2012 BRS began to implement the mobile learning programme on both the infrastructural and pedagogical levels. During the initial phase, the school's Information Centre ran a few pilot mobile learning activities using different operating systems, prior to selecting the most suitable technology based on the teachers' and students' perceptions. Also, in an attempt to prepare teachers for the mobile learning programme, digital literacy and mobile teaching skills were incorporated into the capacity-building plan for teachers as two important criteria.

In the following years, the school kept updating its mobile learning environment and conducted an array of experimental mobile learning practices. In order to leverage mobile learning to achieve the school's long-term mission of cultivating global citizens, it employed the framework of global citizenship education proposed by UNESCO as a theoretical reference, and examined its mobile learning practices against the framework. By doing so, it not only systemized its mobile learning practices with a strong theoretical basis, but also identified the gaps between the existing mobile learning programme in the school and the key learning outcomes and learner attributes desired in the global citizenship education framework. Since then, the school has been designing and implementing mobile learning activities centred around three themes: knowledge acquisition, understanding and respect for difference and diversity, and responsible engagement with global issues, aimed at supporting the development of students' cognitive, socio-emotional and behavioural dimensions respectively.

In terms of monitoring and evaluation, the school's management team organizes regular meetings and exemplar classes for teachers and students to share their mobile teaching and mobile learning experiences as well as their general perceptions of the programme. By establishing regular communication and coordination channels, it is able to adjust and refine the mobile learning programme based on timely feedback from teachers, students and other stakeholders.

### 2.3 The mobile learning environment

In order to harness the potential of these technologies, the school has implemented a robust and easy-to-access mobile learning environment combining well-equipped infrastructure, digital educational resources and administrative support.

In relation to the infrastructure, campus-wide Wi-Fi enables students to access the internet at any time and anywhere on campus. In addition to Wi-Fi coverage, fixed-line broadband connection is also installed in each classroom to facilitate class activities. Most classrooms are equipped with console computers, projection systems, and smart boards that can interact with students' individual mobile devices.

The school features three mobile learning labs equipped with specialized lighting, enhanced acoustics, multiple displays and projection capabilities. In each of the labs, a console computer is installed to control classroom settings and preconfigured iPads. Through the console computer, teachers are able to transfer content instantly to students' iPads and monitor the activity of each device. Moreover, the labs are also connected to the satellite network, which is robust and free from any weather-related disruption, ensuring that the transfer of data is accurate and stable. A dedicated IT staff member is available on site to support teachers and students using the labs.

Regarding digital educational resources, the school provides students with a wide range of resources which have been selected from those available worldwide. To support the delivery of curricula, it has established databases containing the resources that are aligned with the school's international curricula and the Chinese curriculum. In total, the databases include digital copies of more than 5,000 books in both English and Chinese. Moreover, teachers and students are encouraged to develop their own open educational resources (OER). The digital educational resources are free to users, and can be accessed across multiple devices and operating systems. Students can retrieve the digital resources not only on campus, but also remotely using their individual devices.

Finally, the school also has implemented several administrative support systems. In particular, it adopted two systems: the Seiue (希悦)<sup>1</sup> system and the Lvya (绿芽)<sup>2</sup> smart campus system in school management, as well as a knowledge management system (KMS). The two administrative management systems offer an array of functions including generating schedules, providing course syllabuses, recording attendance, and providing assessment reports. The administrative management systems can also connect to WeChat, which is the most commonly used communication app in China today. WeChat is a free instant messaging app that can be used for text, voice and video chats among individual users or within a limited group. It also incorporates a variety of features such as video conferencing, file sharing, QR code scanning and translating. The connection between the administrative management systems

and WeChat has further facilitated the information flow among students and teachers.

All training materials and information is available and accessible through the KMS platform, which creates a collaborative learning environment by allowing teachers to submit and share their takeaways from training. Teachers can also track their interactive records, and credits are obtained each time through online discussion and feedback.

In response to the challenge of cyber safety and privacy issues, the school utilizes an isolated storage system. The core data, involving potentially sensitive student information, is stored in an isolated, private cloud system. Security concerns over the mobile learning environment also include protecting students from exposure to inappropriate content. BRS adopts strict information-filtering procedures, and individually configures each iPad and laptop provided to students.



**Picture 2: International Baccalaureate students using ManageBac in class.** 

<sup>1</sup> http://www.seiue.com/

<sup>2</sup> http://lvya.lvya.org/webs/th/login.do

# 2.4. Capacity-building and incentive strategy

Having realized the crucial role of educators in carrying out the mobile-learning-infused global citizenship education programme and the importance of their understanding of transformative and participatory teaching and learning, the school has conducted an array of capacity-building activities and introduced a set of incentive strategies.

### Capacity-building

BRS recruits highly qualified teachers with at least a Master's degree in specific subject areas. Around 40 per cent of staff and faculty members are from countries as diverse as the USA, United Kingdom, Canada, Australia, Malaysia, India, Pakistan, the Republic of Korea, Spain, the Netherlands, Colombia and South Africa. Another 40 per cent of BRS teachers have multiple years of education or work experience overseas. Global awareness and digital skills are taken into consideration throughout the recruiting process of teachers. Such attributes are assessed by face-toface interviews and demo lessons.

The school ensures that teachers are empowered to make effective use of mobile technologies in their classrooms through three types of training: school-wide, subject-specific and external. Four times each semester, the Mobile Learning Centre and the IT Centre offer school-wide training to teachers, introducing devices and applications that are helpful in all disciplines and can function across devices and operating systems. Subject-specific peer-to-peer training is integrated into weekly Professional Learning Community (PLC) meetings. For example, in the PLC science meeting, a physics teacher demonstrated how PhET, a simulation programme,<sup>3</sup> helps students to visualize and better understand complex scientific processes. In relation to the external training, on a regular basis the school's Teacher Development Centre selects teachers to participate in information and communications technology (ICT)-related national and international conferences and workshops, with the purpose of sharing their experience and learning from other educators on a broader scale. The insights and innovative ideas they gain are documented and shared with their colleagues in the school.

All training materials and information are available and accessible through the KMS platform, which creates a collaborative learning environment by allowing teachers to submit and share their takeaways from training.

### Incentive strategy

One incentive strategy implemented in the school to promote mobile teaching is the annual 'I Am a Teacher' showcase and competition, with winning teachers receiving cash prizes and special recognition among their colleagues and the entire school community. Teachers can record an abbreviated demo lesson in one of the special mobile learning classrooms mentioned previously and submit it to the contest.

Another incentive strategy is the school's support for online professional development. For example, teachers who successfully complete massive open online courses (MOOCs) earn professional development credits, which count positively in their annual performance evaluations. Meanwhile, the school supports teachers to attend the annual online Wide World training courses offered by the Harvard Graduate School of Education. Each year approximately ten teachers are selected to participate in these courses, which are facilitated by the use of iPads that allow for digital reading, group work, and the submission of assignments.

<sup>3</sup> PhET is an interactive simulations project from the University of Colorado, Boulder, USA, which creates free interactive maths and science simulations. See https://phet.colorado.edu/

Through partnerships with global universities, the school's qualified teachers receive scholarships and living stipends enabling them to enrol in year-long M.Ed. programmes, which combine action research, international study trips, digital skills, and a special focus on project-based learning in a global context. Graduates return with global awareness and digital learning strategies which benefit both their students and colleagues.

# 2.5 School-wide mobile learning practices

Over the years, the school has been experimenting with a wide range of mobile learning activities targeted at developing students' abilities in the cognitive, socio-emotional and behavioural dimensions of global citizenship education. These are organized around three themes: knowledge acquisition, understanding and respect for difference and diversity, and responsible engagement with global issues. It needs to be kept in mind that, despite this organization, many mobile learning practices target, or contribute to, multiple learner attributes.

## Mobile learning for knowledge acquisition (the cognitive dimension)

In the school, mobile technologies are used to support students' multilingual and multicultural education. For multilingual education, students are offered language courses in seven languages: Chinese, English, Korean, Spanish, French, German and Japanese. The use of digital educational content has significantly facilitated students' language-learning processes. For example, the use of digital reading material in class has improved the efficiency of curriculum delivery. The hypertext feature of digital reading material, with embedded audio, images and translation, enables students to spend less time looking up vocabulary in dictionaries, and hence smooths their reading process and frees more time for in-depth class discussion.

Teachers also encourage students to utilize mobile applications and platforms to assist their individualized language learning. One of the widely used applications among students is the exam preparation application Xiaozhan<sup>4</sup> TOEFL (小站托福). The app allows students to take mock exams at any time, and provides immediate feedback reports. Moreover, by analysing the feedback reports, teachers can identify key topics and areas that require further explanation, which they can then deliver during classes.

In an attempt to make language learning entertaining and motivating, the school also integrates mobile learning into an array of extracurricular activities, ranging from the annual Movie Dubbing Contest to an English drama festival to enhance students' language competency.

For multicultural education, the school provides a wide range of international curricula derived from different qualification systems worldwide, including Advanced Placement (AP) from the United States and Canada, Advanced Level (A-level) from the United Kingdom, the Ontario Secondary School Diploma (OSSD) from Canada, the Global Assessment Certificate (GAC) that is recognized for admissions and credit transfer by more than 90 universities around the world, and the International Baccalaureate (IB) that offers international education programmes to students in more than 146 countries. In addition, it has launched a special course named 'Global Perspectives' which focuses on diverse global themes, major global issues, and their interconnectedness.

Teachers in the school encourage students to not only develop basic curriculum competencies, but also deepen their understanding of the world. To achieve this objective, they promote the use of OER,

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<sup>4</sup> http://toefl.zhan.com/

facilitating students' ability to connect the theories and methodologies they learn in class to empirical information and data from around the world. For example, in the AP Statistics class, students use mobile devices to access and analyse statistics related to the UN Millennium Development Goals in different countries and regions. In the Economics class, teachers use messaging applications to share real-time reports and articles with students on current global economic issues, with the aim of making abstract concepts more relevant and easier to understand. Similarly, pre-AP literature students gain understanding of global challenges such as poverty, migration and gender inequality through a digital collection of short articles. The articles are sorted and updated by BRS teachers on a regular basis.

### Mobile learning for better understanding of difference and diversity (socio-emotional dimension)

In the school, teachers take advantage of mobile technologies to enable students to 'appreciate and respect difference and diversity' (UNESCO, 2015, p. 29). Instead of simply presenting different ideas and perspectives to students, the school puts more emphasis on enhancing students' ability for critical thinking and inquiry, fostering their participation in several international learning opportunities available on the web. For example, by taking MOOCs students can collaborate with their peers from other countries through communication tools such as Skype, WeChat and the school's satellite network. Such practices allow students to interact with people who have different cultural and intellectual backgrounds, and hence contribute to their acquiring the social and linguistic skills that are essential to global citizenship.

As a complementary practice, the school also encourages students to participate in international events and competitions such as Model United Nations (MUN) and Future Business Leaders of America (FBLA). With access to a wide range of OER resources, students can conduct self-directed research based on their topics of interest, and develop individual interpretations of diverse global issues.

## Mobile learning for responsible engagement in global issues (the behavioural dimension)

In addition to equipping students with global knowledge, critical thinking ability and understanding of difference and diversity, the school actively promotes international collaborations, and creates opportunities for students to engage with global issues. For example, after participating in a workshop organized by UN-Women, a team of students drafted, illustrated and digitally published a story book for rural children, which aimed at breaking through the gender stereotypes that hinder the personal development of girls and women, especially in rural areas. Another example comes from an AP Human Geography course. After learning the concept of the 'digital divide', the students started to arrange distance teaching sessions for South African primary school students to use mobile devices, and helped them created a multimedia profile of their local community.

### 2.6 Achievements

Since the official launch of the mobile learning programme in 2010, the school has made positive progress towards the objective of cultivating global citizens. This section outlines the major achievements in both overall development and specific subject areas.

## Multilingual education, multicultural education, and critical thinking abilities

As the pilot discipline, mobile-learning-infused multilingual education in the school has become a major accomplishment of its mobile learning programme. Mobile learning practices in multilingual education have contributed to an upward trend in students' major language test scores. In 2013, a group of BRS students participated in a mobile learning pilot programme in an English class, targeted at improving their SAT results. College Board Data on international students' average scores showed that BRS students outperformed their peers in both reading and writing after the same hours of instruction. Similar results are also reflected in the Test of English as a Foreign Language (TOEFL). Between 2016 and 2018, the proportion of students who scored over 100 in TOEFL grew from 18 per cent to 23 per cent.

Although it is difficult to determine the precise extent to which mobile learning is improving students' learning outcomes, the school implements regular surveys to collect students' perceptions about the importance of these technologies for learning. For example, in 2014 BRS conducted a study on the impact of mobile learning practices in English teaching and learning with five teachers and sixty students in Grade 11. In 2018, the school conducted a follow-up study to track the progress of the mobile learning practices in English learning through a survey administered to 115 students. Results showed that in the 2014 survey, 70 per cent of the respondents rated mobile learning 'very helpful' or 'helpful' for improving their English, and that in 2018 the figure had gone up to 82 per cent. The survey results also indicated that over the years, students keep exploring new devices and apps for learning English.

In addition, as presented in **Figure 1**, the 2018 student survey showed that students who use quiz and test preparation apps more frequently also tend to find these resources more helpful in terms of English learning, indicating a potential area for further development.

# **Figure 1:** Frequency of students' use of quiz and test prep apps, and their perception of their usefulness in learning English



### How helpful is mobile learning for improving English skills?

Source: Beijing Royal School.

The school uses international curricula as entry points to carry out multicultural education with the assistance of mobile learning. International curricula include the prerequisites that students have to fulfil before entering universities overseas. More broadly, many of the courses in international curricula play a complementary role to global citizenship education, especially in terms of expanding students' knowledge on local, national and global issues. Among all the international curricula delivered at the school, the AP programme, supported by mobile learning, has become an exemplar. BRS was the first Chinese school to introduce AP courses. Currently the AP programme covers twenty-six subjects, and ranks first in China. According to the 2014 survey, 87 per cent of those taking AP courses reported daily use of mobile devices and digital educational resources, e-books and MOOCs for learning.

Another achievement relating to the mobilelearning-embedded global citizenship education programme is the advancement in students' digital literacy. Through relevant courses and activities such as the AP Computer Science course and a student Programming Club, students' digital competency has been further cultivated. In March 2018, a group of students attended UNESCO's flagship ICT in Education Conference Mobile Learning Week in Paris, and demonstrated their digital skills including coding, movie-making and e-book development.

In general, the mobile learning programme has played a contributing role in expanding students' access to knowledge and information. A report from the school's Information Center indicates that in 2018, the school's online KMS was accessed more than 20,000 times by the students. An analysis of students' access to the school's online courses showed that in 2017, 87 per cent of the students logged into course websites via mobile devices every day, which is high compared with the OECD's (2017) report that 48 per cent of students surveyed declared that they used the internet in the school for learning purposes at least once a week, and 22 per cent used it daily.

### Understanding and respect for difference and diversity

In the 2018 survey, 92 per cent of participating students judged mobile learning to be 'helpful' or 'very helpful' in broadening their horizon and deepening their understanding of the world (**Figure 2**). These results support the potential of using these technologies to connect students with the global community and motivate them to investigate international themes.

### Figure 2: Survey data on how helpful mobile learning is in broadening horizons



How helpful is mobile learning in broadening your horizons and deepening your understanding of the world?

### Responsible engagement with society

Mobile learning and the global citizenship education programme synergistically promote students' engagement in communities both on and off campus. In the 2017 school year, the BRS Student Union organized forty-six social services and activities. As a 2018 graduate stated:

> I learned that mobile learning is powerful enough to introduce people to the unknown.

From then on, I started to realize my own privilege and wanted to make mobile learning an equal platform for everyone. Therefore, I actively search for ways and methods to help others in disadvantaged areas to learn about the world using mobile devices.

Indeed, students have been actively sharing their digital skills and global knowledge with a broader community. **Table 1** gives some examples.

Project (location)	Description of activities
Human Geography Camp (Parkview Primary School, Atlantis, South Africa)	A team of students and teachers led a week-long project in which pupils used donated mobile devices to conduct research and create multimedia presentations about their community's cultural, economic and environmental assets and problems.
Smart Phone Boot camp for Elders (Hui Chen Retirement Community Beijing, China)	A group of students taught elderly people who reside in nursing homes to use their smart phones, prioritizing communication functions and applications so that the elderly people can keep in touch with their friends and families.
Computer Tutoring (Baicao Primary School, Hebei Province, China)	In a computer lab donated and set up by the students, volunteers provide tutoring in English and basic computer skills to children in one of China's poorest regions. Continuous tutoring is offered online on a regular basis.
Save Abandoned Pets Campaign (Beijing, China)	A team of student used WeChat to launch a fundraising campaign to save abandoned pets.

### Table 1. Examples of social engagement promoted by mobile learning

In order to fully cultivate and mobilize its mobile learning resources, the school is exploring innovative models to serve broader communities, especially in less developed areas. In 2013, the school set up a Satellite Distance Learning Program, which aims at sharing educational resources, especially in language teaching, with students in rural China. Native Englishspeaking teachers from the school deliver English classes twice a week to students in rural China. So far, 387 hours of English lessons have been delivered via satellite and a total of 1,741 students have benefited from this programme, with some of the students learning with foreign teachers for the first time.

### 2.7. Broader impact and sustainability

The school funds its mobile learning programme through its tuition fees. BRS has enjoyed steady and slightly increasing enrolment over the past years, so the financial viability of the mobile learning programme is guaranteed.

The school encourages teachers and students to share their experiences on mobile learning and teaching through international networks and conferences such as the International Association for Mobile Learning, International Association for Development of the Information Society (IADIS), and UNESCO's Mobile Learning Week. As a result, the school's mobile learning experiences and practices have been documented in two publications: *Springer Handbook of Mobile Teaching and Learning, and Global Digital Innovation and Transformation in Chinese Education.*  To further foster the knowledge-sharing process, the school actively collaborates with educational institutions worldwide. To date, it has formed partnership with peer high schools and diverse institutions including Cambridge International Examinations (CIE), Pearson, UN Women, Eton College, Houston Christian High School, and Go Global North Carolina (GGNC).

Regarding external recognition, the school was evaluated as a 5A-level (highest ranking) social organization in Beijing. In 2015, the Ministry of Education of China selected BRS as an 'Experimental School on Instructional Improvement for Deep Learning' for its outstanding performance on extending educational opportunities via the use of technology.



## 3. Challenges and lessons learned

Encapsulated in the mobile learning programme is a series of pedagogical transformations towards the digital era that technologies may help to facilitate. However, over the past years of implementation, diverse challenges have been faced.

- The integration of technology and pedagogy: a well-equipped mobile learning environment is an essential precondition for carrying out a mobile learning programme. Nevertheless, moving beyond the infrastructural level, determining how to effectively adopt mobile learning practices in different subject areas, and hence serve the pedagogical needs of the school, remains a continuous challenge.
- (2) Balancing mobile learning and traditional learning methods: another challenge is to balance mobile learning and traditional learning methods. While mobile learning was employed with high expectations that it would push beyond the limits of traditional classroom learning methods, the strengths of traditional learning methods in certain subject areas should also be acknowledged. Therefore, instead of replacing traditional learning methods with mobile learning all at once, a gradual transition would be helpful to keep the balance. In other words, the aim is to adopt an evolutionary approach.
- (3) Diversifying evaluation mechanisms: with multiple ongoing mobile learning activities, it is difficult to evaluate the impact of any specific mobile learning activity on students' academic achievements. Therefore, the school has identified an increasing need to employ varied evaluation mechanisms to measure the nuanced impact of mobile learning on students' academic and personal development.

A systematic evaluation combining quantitative and qualitative methodologies and a regular feedback channel need to be established.

- (4) Community building: during the process of pedagogical transformation, schools need support from both policy-makers and other actors and stakeholders (OECD, 2016). To ensure the quality and relevance of mobile learning, the school finds it important to build a mobile learning community, with continuous input from different stakeholders.
- (5) Broader social impact: As mentioned in the previous section, BRS has not only developed its mobile learning programme among its students, but also shared its mobile learning resources with underserved communities. The content delivered by satellite to rural students is limited to English currently. In the future, BRS will strive to provide more subjects, benefit more students and generate a far-reaching and long-lasting impact.



Picture 4: Tablet use in class.

## 4. Transferability

The case of Beijing Royal School represents a mobile learning model with comprehensive top-down planning driven by school leadership. Because of the school's specific pedagogical orientation towards global citizenship, the strategies, main lines of action, and work plans of its mobile learning programme are all developed around the themes of global citizenship education. For schools that aim to leverage mobile learning to achieve specific educational purposes, this kind of top-down planning approach would be helpful in as far as it facilitates the effective integration of mobile learning with the school's long-term development plan.

Another strategy that can be helpful for schools conducting similar mobile learning programmes is the participatory approach. After the initial planning stage, the ownership of the mobile learning programme gradually disseminated from the school leadership to students, teachers and other stakeholders. The premise of the participatory approach is that the abilities of students and teachers to 'access, adapt, and create new knowledge' (Warschauer, 2003, p. 9) are essential to the sustainability of a mobile learning programme. Therefore, instead of focusing on the technology as such, the participatory approach takes a participant-centred standpoint, highlighting the active engagement of students, teachers and other stakeholders to enhance the sustainability of the mobile learning programme.



## 5. Conclusions and recommendations

This case study illustrates how mobile technologies can be used to support the implementation of a welldefined and clearly structured educational vision. In particular, two main characteristics of BRS's experience need to be highlighted. First, the school declared a longterm mission of cultivating global citizens, and decided to use the global citizenship education theoretical framework to guide the design and implementation of its mobile learning strategies and plans. This decision provided it with a clear structure to define priority areas, and facilitated a shared understanding of the pedagogical practices to be fostered.

Second, BRS decided to take advantage of mobile technologies to facilitate students' engagement in a range of activities that connect them with the outside world. The school provided the supporting infrastructure, educational resources and pedagogical opportunities for the students to participate in international and national projects, and learn about and with globally relevant themes. In doing this, it embedded the use of mobile technologies in students' daily learning lives (Erstad, 2012), mirroring the behaviours and attitudes of 'global citizens'.

The school's mobile learning programme has been in operation since 2010, and over the eight years of implementation to 2018, mobile learning has become deeply intertwined with the global citizenship education programme in the school. Mobile learning has gradually become a resilient, internalized power of pedagogical transformation. It is to be hoped that with further innovations and adjustments, the great potential of mobile learning in supporting global citizenship education will continue to be cultivated and recognized.



Picture 6: BRS PE class.

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### About the Fazheng Group

The Fazheng Group is a multi-business organization in China, which covers a wide range of interests including education. It has established a global school network providing comprehensive coverage of K-12 education.

Education

### The project Best practices in mobile learning

Funded by the Fazheng Group, the project aims to guide the planning and implementation of schoolwide mobile learning practices. The case study series consists of more than 15 initiatives including both top-down cases driven by governments and bottom-up cases initiated in individual schools, selected through desk research and a competitive call for proposals process.



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