

## **Teaching Mixed Methods Research through Blended Learning: Implications from a Case in Hong Kong**

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### **Abstract**

This paper discusses the pedagogical aspect of using multiple learning strategies to teach Hong Kong school teachers mixed methods research. The authors examine the implications of blending traditional teaching and more innovative learning strategies with online platforms, small group work, peer interaction, and role plays to increase student comprehension and execution of mixed methods research. The authors illustrate how blended learning pedagogy can be integrated into a mixed methods research course, how these in-service teaching-students' learning outcomes can be improved, and how blended learning could benefit them in their own daily teaching practice. Implications for teaching in-service teaching students in Hong Kong are addressed.

**Key words:** blended learning; research methodology; mixed methods research; in-service teaching students; e-Learning

### **Introduction**

Ways of learning have dramatically changed, or expanded to be more precise, in the past two decades. Teaching and learning have moved far from the simple image of teacher-centered lecturing in a physical classroom. Multiple venues and multiple modes of learning are involved, and in order to be effective, instructors must actively involve all participants in the learning process and serve not only as the lecturer, but also as facilitators for them. Through such a change, blended learning has garnered increased attention recently in education. Blended learning is a pedagogical approach where more than one delivery mode is used to optimize learning outcomes (Singh & Reed, 2001). It is a coherent teaching approach that openly integrates the strengths of face-to-face and online learning (Garrison & Vaughan, 2008). Thus, the mix of traditional teaching with online teaching and interactive forms of classroom training will increase and support student engagement and persistence in the class (Throne, 2003). According to McKeachie and Svinicki (2006), blended learning results in positive cognitive outcomes for a wide range of students, including adult learners.

In recent years the Hong Kong government has promoted the development of quality kindergarten education in Hong Kong (Education Bureau, 2015). In response to this action, many teachers have come back to universities as part-time "in-service teaching-students" to obtain continuing education to expand their teaching credentials. These students are required to take one or more research methodology courses, and carry on a research project using the knowledge they obtain through the courses. However, learning research methods and conducting empirical research has not been easy for these in-service teaching-students (Wu, 2008), and reasons for such a difficulty can be varied.

First of all, for those in-service teachers who decide to have further education after working hours, designing and conducting research may prove challenging. According to Law, Joughin, Kennedy, Tse, and Yu (2007),

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in-service teaching students who maintained their employment as professional educators were often tired during their evening sessions. Attending traditional learning (i.e., face-to-face or lecture classes) therefore was more difficult, as time commitment became a great strain and learning needs were left unmet.

Another issue is the teaching experience and working format. Literature indicates that one's teaching often influences one's research agenda, and vice versa (Dana & Yendol-Hoppey, 2014). Preschool and kindergarten teachers in Hong Kong normally teach only one class for the whole year, without much interaction with children in other classes. When they design a research project, they focus solely on observing and assessing children in their own classrooms or interviewing parents or other family members of their students. Typically, they have small sampling sizes to collect data, and have limited knowledge on the process of conducting research. As a result, the rigour of research was often weak even though some teachers would use checklists, rating scales, or questionnaires. When teaching research methodology through blended learning approaches, these teachers would have more collaboration opportunities, can share and observe others' work through media and other online resources, and learn how to use research methods accurately to conduct solid research within their own teaching environment.

Further, Hong Kong kindergarten teachers usually do not feel competent in conducting rigorous research (Bocar, 2013). It could be related to the fact that they have not received appropriate training on research methodology, especially mixed method approaches, and they do not yet fully comprehend the application and significance of research. Mixed methods research is still considered to be a new paradigm in research, and a natural complement to traditional qualitative and quantitative research (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2005). Research shows that learning systematic research knowledge can provide in-service teaching students with necessary tools to engage in a critical reflection and inquiry regarding their own teaching practice, and can empower them to make pedagogical improvements through their own actions (Pellerin & Paukner, 2015). However, professional training based on systematic research is lacking at the in-service levels (Burbank & Kauchak, 2003). It is critical to teach these students systematic research methods during their college training, so that they learn to conduct research in meaningful ways (National Council of Teachers of English, 2008). Sufficient knowledge and skills on research methods can lead to greater involvement of these students conducting research during their teaching practice.

Given the above facts and situation that Hong Kong in-service teaching-students are experiencing, an integration of blended learning strategies into a traditional learning format may benefit these students and create an active and learning environment for them. According to recent research (Hess, Hagemeyer, Blackwelder, Rose, Ansari, & Branham, 2016), compared to traditional learning formats, blended learning can "help overcome the limitations of meeting time and space, reach a larger number of students, support instructional methods hard to achieve using textbooks, save training costs, produce high student ratings, increase student perceptions of achieving course objectives, and achieve academic results equivalent to strict face-to-face teaching" (p.2). Combining physical classroom instruction with e-learning, blended learning can maximize the benefits of both face-to-face and online methods (Bicen, Ozdamli & Uzunboylu, 2014). It can also include many different forms or strategies, sometimes complemented with instructor-led training and other learning formats. Research has reported high student satisfaction, as well as instructor satisfaction, with blended learning (Albrecht, 2006; Vaughan & Garrison, 2006). This is consistent with the result of a study conducted by Bourne and Seaman (2005), who indicated that both teachers and students could benefit through blended learning processes.

The authors of this article previously examined students' feedback through course evaluation, and the results clearly indicated that students' experiences in learning mixed method research through blended learning strategies had positive impacts on their learning. Thus, the authors found importance in exploring the

implications of using the pedagogical strategies of blended learning in teaching in-service teaching students mixed methods research in Hong Kong. Specifically, the significance of combining traditional teaching and more up to date learning strategies such as online learning, group work, peer interaction, and role plays will be discussed.

### **A Case in Hong Kong**

In-service teachers in Hong Kong are not only busy, but they are also unfamiliar with the process of conducting research. When teaching research methodology to these students, every step for conducting a project needs to be explained and illustrated clearly. All the research steps, from designing a project to writing up the final reports require a great effort from any researcher, let alone from these less experienced in-service teaching students. A basic research methodology course with a blended learning pedagogy is necessary for in-service preschool and kindergarten teaching-students. These in-service teaching-students come to the university to take courses after a whole day of activities at their school. Some of them can easily lose focus if the class is mainly taught by lectures and PowerPoint presentations.

In the following sections, the authors will illustrate the integration of blended learning in a specific research methodology class taught by the first author. All students in this class were preschool and kindergarten teachers, working from early morning until late afternoon, before coming to the university for the evening class. In order to maximize the teaching and learning outcomes, the instructor utilized blended learning pedagogy to teach mixed-methods research.

### **Course Structure of the Mixed Methods Class**

Classes for in-service students in Hong Kong are mostly arranged in the evening, from 6:30 pm to 9:30 pm, as in-service students work during the day, and they needed time to travel to the university. There were ten sessions (which were called Modules in Hong Kong) for each course, and three hours for each session, one session each week. Regarding the content, students in this class were provided with various information on the essential steps of conducting research, including but not limited to:

- asking research questions phrased appropriately
- explaining the rationale for doing the research
- conducting literature review
- designing data collection methods
- collecting and analyzing data
- presenting results and discussing implications
- writing final report

Each of the steps mentioned above was addressed specifically in one of the ten sessions. Most commonly, each session was purposely arranged to address one step, with information being supplemented for related steps. As a common practice in Hong Kong, all students are given a syllabus, schedule, references, and criteria for assessment at the first session of a course. Readings and relevant materials/references were listed for each session, and students were required to carefully prepare for the class before each session and bring with them questions they may have when attending the class.

The most common and more traditional instructional tool is whole-class lecture, which is considered as passive and dependent on teachers to funnel “knowledge into the somewhat retentive minds of students” (Smart, Witt, & Scott, 2012, p. 392). Lectures were still employed in the sessions of this research methodology course, but they were not the major part of the teaching, and certainly did not account for the entire three-hour session; rather, lectures were supplemented with other teaching methods. The instructor

would normally gave lectures either at the beginning of the sessions or after a group discussion. The maximum size of the class was 40, and as was usually the case in Hong Kong, the class had a full number of students. The instructor designed brief PowerPoint presentations, printed reading references for the class, and uploaded all the materials to the institutional based online learning platform (i.e., Blackboard). The whole-class lectures typically lasted for less than an hour, followed by small group discussions or presentations, peer work, library search, and/or internet communications. The content of the lectures were more theory- or knowledge-based, with a purpose to explain clearly the step-by-step approaches to research methods in early childhood education.

Most of the students were new to research, although many of them had rich experiences in teaching preschool and kindergarten children. Topics of the course included practical issues such as designing research questions, conducting literature reviews, critically addressing the literature to present an argument, selecting proper methods to collect data in order to answer the research question, and literally conducting the research by collecting data and analyzing the results. These are all important issues that were addressed during the lectures, some briefly and some in detail. Evidently it was not easy to cover all of the topics in a ten-session course, but the instructor used multiple approaches through blended learning, to provide more hands-on activities for students to practice and reflect what they learned.

### **Group Discussions and Presentations**

Research on classroom observations shows that students' own initial thoughts on certain topics can be changed or expanded as they discuss with classmates and understand how others think (Smart, Witt, & Scott, 2012). In most of the sessions, students had opportunities to work in groups. In this university at Hong Kong, all students were assigned to certain classes and they normally stayed in the same class until they graduated. However, this research methodology class was an exception, and the in-service teaching students were all from different classes. Most of them did not know each other very well and did not have much chance, if any at all, to communicate with each other outside their night classes. It was evident in this research methodology course that group discussion or presentation has been the most popular strategy for the instructor to engage all students in the learning process. Students were either randomly assigned by the teacher, or were grouped by sitting areas, with 6 to 8 group members together, who might be from the same or different schools, and might have different knowledge or interests over the topics. The instructor would walk around and talk to one group at a time to discuss with them and answer their questions.

Students in the class were at various levels of understanding of and readiness in conducting research. While some students knew very little about research, some others might have basic knowledge and skills regarding particular elements of research. These include the definitions of qualitative and quantitative research methods, meanings of reliability and validity, how to conduct a search for journal articles, and key issues of writing research reports with a proper format. All these were topics for group discussions during the class. After a certain amount of time (normally 15-20 minutes), students would be asked to present and share the main ideas or questions raised from their group discussion. Many of the students were articulate and well engaged in the group discussion.

### **Role Plays**

Teachers in Hong Kong are familiar with role play, which actively involves movement, and is considered to be specifically at the crux of children's learning as it is "the best medium for harnessing and directing students' focus" (Ostroff, 2014, p. 73). Teachers use this popular strategy in preschool and kindergarten settings with children, especially those who are five to six years of age. In this research methodology course,

role play was also employed with the aim to provide in-service teaching students with more visual and practical experience in conducting research. The students were asked to improvise and demonstrate the role play within the same session of class, instead of preparing it in advance.

Students were lively and enthusiastically engaged in the role play activities. It was noticeable that these in-service teaching-students were eager to plan fun activities for their students (e.g., making costumes and toys, designing drama performances, or preparing any other activities). During the role play activities, the instructor also observed that mock interviews with parents or teachers, during which funny scenarios happened in classroom or at home were displayed (e.g., a crying or mischievous kid), resulted in high engagement in the students' learning process.

After the role play activities, students would discuss on relevant topics and were given instructions or feedback on how to improve the process when conducting research in real classrooms or family settings. It was evident that role play was among the most effective ways for students in this class to understand research issues, including how to prepare an interview, how to ask questions properly and to engage interviewees, how to observe young children as participants or non-participants, and how to take notes or make audio or video-recordings.

## **Debates**

Debate is one of the blended learning strategies that can be effective in learning, as it is considered to be able to enhance students' learning motivation through vigorous preparation, presentation, defense, and classmates' participation and interaction (Alén, Domínguez, & de Carlos, 2015). In this research methodology course, debate was employed by grouping in-service teaching students into two competing teams of 3-4 students each. The teams would debate on topics such as the advantages and disadvantages of quantitative and qualitative research, different types of observations, the use of case studies, and/or generalization of results from quantitative studies. Alén, Domínguez and de Carlos (2015) suggest that debates help students develop diverse and relevant learning and critical thinking abilities. Through debate and presentation activities (typically two teams holding opposite stands), as well as an instructor-led discussion after the debate, students would understand better many issues that might be controversial or not clear enough to them before. Such issues might include how to compose meaningful research questions, what the strengths and weaknesses of certain research methods were, and how to employ mixed methods research in the best way to suit their research projects.

## **Peer Work and Interactions**

Peers are defined as groups of people of similar interest, age, background, or social status. Working in peer groups and having active interaction with one another are among the most beneficial ways of enhancing student learning (Hodgson, Brack, & Benson, 2014). The peer work in this research methodology class referred to the in service teaching students working in small group format (i.e., 2 or 3 people) with their friends or colleagues who they knew well. It was different from the group discussion, where normally the teachers would arrange the groups randomly, or by sitting area, and may assign different tasks, topics, or position stands to each the groups. The peers worked on specific topics out of their own interest or choice, and the topics might not have direct relationships to those of other peer groups.

Peer work or peer discussion was employed during some of the sessions of this research methodology course. The instructor would normally prepare a worksheet, asking the students to work on the worksheet individually first, and then discuss with their peers in detail, focusing on the questions on the worksheet,

including their own ideas and answers or any thoughts that related to the worksheet. Sometimes the instructor would sit down with one of the peer groups and talk with them for a while, and exchange ideas over the problems or questions the students encountered. It was also a valuable experience for the instructor to have closer interactions with the students, to get to know the students better, and to memorize more easily the names and characteristics of each student of the class. Typically, Chinese names are more complicated than western names, and it is not a common exercise in Hong Kong for instructors to use students' first names as is more common in Western countries. It is especially the case when the class size is as big as 40. However, in this research class, the instructor found that it was a powerful strategy for her to memorize all the students' names in a short period of time, and let the students have more opportunities to learn other students' names. Such a practice led to respect from the students, also closer and better relationships and peer interaction, and a more engaging learning environment within and outside the classroom.

The peer work and discussion can provide students with a great chance to develop and assimilate their ideas with their peers, and builds a deeper understanding of what they are learning (Weber, Maher, Powell, & Lee, 2008). In this Hong Kong class, peer interaction also allowed for more thorough and personal sharing, and students had opportunities to discuss in-depth with a peer their understandings of research methods, including both quantitative and qualitative research, on questions and problems that they had encountered at school or in the class, or on ideas they obtained during their learning process or the teaching practice. Students were also encouraged to reflect with their peers on each step of their learning, clarify what they had learned, and explain areas of continued struggle.

### **Self-Paced E-Learning and Online Collaboration**

E-learning is viewed as a contemporary common type of learning facilitated online through network technologies (Garrison, 2011). As indicated by Garrison (2011), researchers described the growth of e-learning as explosive, unprecedented and amazing, which represented a new era of learning with the capacity to bridge time and space for all purposes. E-learning offers both teachers and learners the delight for self-paced learning, and the flexibility in terms of time and venue to teach or learn. It provides an excellent opportunity to expand their communication and collaboration with each other through online processes (Tudor, Stan, & Paisi-Lazarescu, 2015). In most recent years, the delivery hardware of e-learning can range from computers to tablets or smart phones, with the same instructional purpose to support individual or organizational learning and performing goals (Clark & Mayer, 2016). In Hong Kong, as in countries all over the world, e-learning is more and more popular at all levels, especially higher education.

In this research methodology class, while most of the sessions were taught through face-to-face classroom learning, the e-learning practice was also demonstrated through student self-paced learning delivered in an online, digital format. The instructor and students communicated anytime and anywhere either through emails or, specifically within a popular online learning platform, Blackboard. The instructor uploaded various teaching and learning materials (e.g., handouts, voice-over PowerPoint presentations, ancillary readings, video and audio materials, etc.) on Blackboard. Students could find information for the course anytime and from anywhere, as long as they were able to connect to the Internet. In addition to providing information to students, the instructor encouraged the students to learn how to search literature online, e.g., how to use the university library search engine, or how to use Google Scholar to search academic work related to research methodology. Students may take one hour or ten hours, if they wish, to work on a course project. In addition, Blackboard was also an easy-to-use communication platform where students connected with the professor and with one another to share ideas or questions, and to submit their homework.

There were several computer centres on campus, and there was also a 24-hour, 7-day computer centre for students to use any time. However, since all of the in-service teaching-students had full-time jobs at preschools or kindergartens during the day, they normally only had opportunities to engage in the online platform at home or on campus before the class. Several times among the ten-session course, the instructor gave students opportunities to go to the library in teams, and upload materials they found during non-class hours, or to submit questions and share ideas within their own teams or within the whole class online. Such an interaction and collaboration among students through the e-learning platform was a creative innovation in this class, as these full-time teachers usually attended only face-to-face classes. It was also a good supplement to class discussion, especially to students who might not feel comfortable to ask questions orally in front of the whole class, and who preferred to communicate and collaborate via the e-learning platform.

When teaching quantitative research methods specifically, teaching students how to use software such as SPSS and/or Excel for research analysis, the instructor booked one or two sessions in a computer lab for the whole class. Students worked in small groups, and used the online software to try out and to learn from the instructor and from each other. Such data analysis software was totally novel to the students, and it was not an easy aspect of research for students to learn and master in a very short period of time. However, the basic knowledge of using the software, the interesting data input process, the exciting results and data output with colourful diagrams or tables, and online collaboration among students, were all powerful learning experience to these in-service teaching-students.

One thing that is worthy to pay attention to is that students in this class had learned many brand new ideas through online discussion and internet searching. For instance, they learned that research could be much less difficult than what they had assumed, especially through careful design and planning; not only quantitative research, but qualitative research could also provide scientific results even with small numbers of samples or participants; mixed methods were great in school settings like where they were teaching. It was an eye-opening learning experience to these teaching students to realise how much solid data they could collect, and what valid research they might be able to conduct even through their daily teaching in small classrooms.

## **Discussion and Reflection**

Teaching research methodology can be challenging especially when teaching in-service preschool and kindergarten teachers who have very limited time, energy and resources during the learning process. This paper aimed to explore the benefits of using blended learning strategies in teaching mixed methods research to in service teaching students in Hong Kong. A variety of teaching and learning tools have been discussed, including the traditional whole-class lectures, combined with group discussions and presentations, peer work and interactions, role play, debates, and e-learning experiences.

Reflecting on the teaching and learning process in a college class with preschool and kindergarten teachers in Hong Kong, we have obtained rich experience and have also learned specific lessons. One important implication for better teaching outcomes seems to be based on the effectiveness of employing blended learning pedagogical approaches. As mentioned before, students in Hong Kong worked long hours during the day, coming to the class in the evening after a full day of work. They were typically very tired, and in many cases, hungry and frustrated. Students with such a situation needed to be motivated and encouraged more than any other types of students, in order to engage them in the classroom learning. That required more effort and more “cunning tactics” from the instructors. Blended learning strategies with a variety of activities that involve students better in the teaching and learning process, as well as its most convenient flexibility in terms of time and venues of learning, have evidently been more appropriate for the new era of learning. It was

particularly the case in teaching research methodology, which was not a familiar avenue for most of the preschool and kindergarten teachers in Hong Kong.

Another implication is that practical and hands-on learning exercises were more appealing, and more readily accepted by the in-service teaching students than traditional whole-class lectures. Not only that these teachers were used to learn through fun activities as they were required to be creative themselves at work teaching young children, but also learning theoretical-based research methodology could be more tedious than any other subject areas. Therefore, the more interesting and more “fun” one can make the class, the more efficient the teaching and learning process can be. The authors of this paper have noticed from the students’ feedback and evaluation that, these students’ experiences in learning mixed methods research through blended learning strategies indeed had positive impacts on their daily teaching practice. For example, they learned how to start with certain research problems, how to raise and explore research questions for further investigation, and particularly, what specific methods they could choose to collect data and answer their research questions. In addition, they had indicated in the evaluation that they also learned through their own learning experience how to interact with young children more effectively, and how to observe children properly and conduct authentic research through their daily teaching.

In addition, as mentioned before, the in-service teaching-students were typically not familiar with research methods, and were reluctant to conduct any research project within their school settings. Absorbing new knowledge and practicing new skills through a variety of blended learning strategies, these students learned how to conduct research using suitable and practical tools, e.g., qualitative and quantitative research methods and/or mixed methods within their own school environment and classrooms. As indicated in their reflections, students believed that this course had helped them engage in a critical self-evaluation which consequently led to action, enhanced their professional growth, and empowered them to make pedagogical improvement through their daily teaching practice.

The students also reflected that the new knowledge of mixed method research they had learned through this course provided them with a great opportunity to start planning for research projects, and to understand their own students and environment with more solid skills. Furthermore, owing to blended learning opportunities where they could share and learn from each other, these students had the chance to see their own teaching in new perspectives, and to find out what they could do to improve their current instructional strategies, and to plan how to serve their students better.

It should be noted that, in different cultures or different societies, teaching and learning strategies could be different depending upon certain cultural issues, students’ needs, their learning preferences, instructors’ expertise, and the popularity of certain online tools in the era of information technology. Whole-class lecture is still inevitable and as a matter of fact, important and necessary, while other strategies such as small group activities and the use of information technology and other learning resources are highly recommended. Undoubtedly, the variety of blended learning strategies can turn the teaching and learning process to a much more enjoyable experience to both students and instructors.



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