Iyer, S. et al. (Eds.) (2022). Proceedings of the 30th International Conference on Computers in Education. Asia-Pacific Society for Computers in Education

# Blended Learning Practices among Chinese Secondary School Teachers: The Untold Stories

**Lin WANG[a], Muhd Khaizer OMAR[a*], Noor Syamilah ZAKARIA[a] & Nurul Nadwa ZULKIFLI[b]** [a]*Faculty of Educational Studies, Universiti Putra Malaysia*
[b]*Faculty of Humanities, Management and Science, Universiti Putra Malaysia Bintulu Campus*
*khaizer@upm.edu.my

**Abstract:** The development of intelligent campus construction for primary and secondary schools in Guangdong Province, China has enabled Chinese educators to realize that promoting the transition from primary and secondary school teaching to blended learning (BL) would become the primary goal of future basic education development. However, Chinese educational research scholars have rarely studied the application of BL theory in secondary schools. The implementation of BL in secondary schools continues to face multiple challenges. This study explores the BL model successfully implemented by teachers in the context of secondary schools in Guangdong Province. A total of 13 teachers participated in the interviews, and results are analyzed using thematic analysis techniques. Data analysis results show that teachers acknowledge the positive impact of BL on students, but they lack the motivation to actively implement this method. The negative experience includes eight categories: teaching resources, teacher–student interaction, student self-control, student academic performance, network environment, learning platform, observing students, and workload. Findings will propose new research thinking to propel the implementation of BL in secondary schools.

**Keywords:** Blended learning, secondary school, teacher perception

## 1. Introduction

With the continuous emergence of emerging technologies, educational researchers and practitioners are aware that new changes in learners and the media environment make the old educational system unable to meet the needs of the new generation of learners. Blended learning (BL) is a method formed after people's profound reflection on face-to-face teaching in traditional classrooms and distance online learning. Huang et al. (2022) believed that the education management department could promote the deep integration of information and communication technology (ICT) and education by promoting the development of hybrid education. In BL, teachers can actively adapt to new technologies, such as artificial intelligence, in teaching. Primary and secondary schools expect to change the existing teaching model through BL and solve the problem of students' personalized learning being limited (Cheng & Wu, 2020). However, minimal research has been conducted on application effects in primary and secondary education and understanding of curriculum design-related theories remains relatively weak (Fu et al., 2021). Although the effective implementation of BL brings new learning experience opportunities and good learning outcomes for students, it will also present additional challenges for secondary school teachers. Undeniably, teachers play a vital role in the educational reform process driven by new technologies. However, conducting research on BL implementation and assessment rarely begins with teachers' perceptions (Mozelius, 2017). The current study aimed to investigate the experiences of secondary school teachers in Guangdong Province in effectively implementing BL. The findings revealed the relevant factors that

promote teachers' acceptance of BL based on their perceptions. Therefore, the research question of this study is as follows: How could the BL model be implemented effectively in secondary school courses?

## 2. Methodology

### *2.1 Participant*

This study invited secondary school teachers who had implemented BL. Those who participated in the interviews have previously joined the Information Technology Upgrade Project 2.0 (ITUP 2.0) and had over three years of work experience in implementing BL. These teachers can provide relevant in-depth, extensive information on effectively implementing BL. The researcher conducted the study through semi-structured interviews. Eventually, 13 secondary school teachers were willing to share their experiences and expressed interest in participating in this study.

Table 1 shows the demographics of the teachers interviewed. The participants' work experience was between 3 and 15 years. Six participants' schools were in the modern city, while those of the other seven were in towns or remote areas.

Table 1. *Participant Demographic*s

| Groups | Subgroups | Percent |
|---|---|---|
| Gender | Male | 15.38 |
| | Female | 84.62 |
| | Total | 100.00 |
| Title | Junior title | 46.15 |
| | Middle title Total | 53.85 |
| | | 100.00 |
| Type of school | Public Private | 53.85 |
| | Total | 46.15 |
| | | 100.00 |
| Experience as a teacher | 3–5 years | 53.85 |
| | 6–10 years | 15.38 |
| | 11–15 years | 23.07 |
| | Over 15 years | 7.70 |
| | Total | 100.00 |
| School area | City | 53.85 |
| | Rural /Town Total | 46.15 |
| | | 100.00 |

### *2.2 Data collection*

The researcher considered the actual situation of the respondents with the help of online platforms (e.g., Zoom, Tencent Meeting) and email to achieve data collection. The semi-structured interview outline consists of 5 descriptive and 12 open-ended questions. Interview questions were validated by three experts in BL and qualitative research and modified according to their guidance. The researchers transcribed the raw data from the interviews and subjected them to further analysis.

### *2.3 Data analysis*

The data analysis used in this study was thematic analysis, which follows the six-stage guideline proposed by Braun and Clarke (2006). The researchers also used the qualitative data analysis

software ATLAS.ti 22 for classification and relationship representation. To ensure the reliability of the coding process, the researcher sent the interview data back to the interviewed teachers for confirmation and invited peer experts to check the data coding.

## 3. Results and Discussion

### *3.1 Advantages of BL implementation*

The teachers who participated in the interviews agreed with the advantages of BL from various aspects. However, their recognition of the benefits of BL is not based on their own professional satisfaction or willingness but on the degree to which students benefit from the BL process. This view is shown in the following seven aspects:

(1) Students' learning breaks time and space constraints, and the classroom is no longer bound by geographical location (Participants C01, C02, R01, R05, and R07).

(2) In BL, students learn more "autonomously," and "personalized learning" is easy to achieve (Participants C02, C04, R01, R02, and R05).

(3) Problems students encounter in learning can be solved promptly (Participants C06, R03, and R04). In the classroom, teachers can use tablets to "see students' feedback on problems intuitively" (Participant C06). In homework after class, teachers can track problems encountered by students promptly.

For example, Participant R03 explains this aspect by stating:

"[...], I can use the platform to complete the correction of students' homework and use the platform to track the problems encountered by students." Participant R04 also agreed with this aspect:

"I can find out the problems of the students in time. I can make good use of the teaching platform to monitor the progress of each student's course. I can get timely feedback on the problems encountered by students through online exercises."

(4) Teachers can give individualized instruction to students (Participants C04 and R02).

(5) Multi-faceted learning resources can meet the needs of students (Participants C06 and R06). Participant C06 indicated that in BL, "The resources for pre-class preview and after-class review are much richer than before, [...]." "These rich teaching resources expand student's knowledge" (Participant R06).

(6) Students are markedly interested in learning (Participants C03, C05, C06, R03, R04, and R06). For example, Participant C06 described as follows:

"[...] Not only that, the student's interest in learning is significantly higher. When asking questions in class, because students have tablets in their hands, the feedback on the questions is more intuitive."

However, Participant R03 went a step further and believed that owing to students' strong interest in learning, he did not need to design or think of specific ways to motivate students. The reason is that students are already extremely "active" in blended learning.

(7) The learning platform can give students rewards, which relatively improves students' interest in learning.

For example, Participant C04 described the experience of using the blended learning platform:

"The UMU platform has a reward mechanism. When completing tasks, they will get a certificate, which can motivate students to complete tasks quickly. Teachers can also pay attention to each student's learning situation in the background monitor." Participant C04 has a similar expression:

"[...] Our students have always been very motivated in the blended learning process as they can get rewards with points upon completion, which can exchange for gifts at different levels."

The study results showed that the interviewed teachers did not state that an advantage of BL is improving students' academic performance. They focused on students' positive impact on the learning process compared with traditional teaching models. First, the blended learning model enables students to become considerably flexible and autonomous in their learning styles,

supporting the views of Birbal et al. (2018) and Jonker et al. (2018). Second, the BL model promotes teacher–student interaction. The teacher–student interaction emphasized by the interviewed teachers is that they can actively respond to students' questions and give personalized guidance. Many scholars have agreed on this advantage of the BL model (Mena, 2019; Dakhi et al., 2020; Lozano-Lozano et al., 2020). However, Dakhi et al. (2020) emphasized that the improvement of teacher–student interaction is to compensate for the embarrassment of students when they talk or ask questions in class and is markedly conducive to emotional communication between teachers and students. Other scholars have focused on discussion and collaboration in student learning activities. Teacher–student interaction in the BL model increases students' participation in the learning process (Mena, 2019; Lozano-Lozano et al., 2020). Third, students showed significantly high interest in learning during the BL process. Students' interests positively impact learning and academic performance (Osman & Hamzah, 2020; Wu et al., 2019). From the statements of teachers who participated in the interviews, the researchers believe that a relationship exists between the learning platform and students' learning interests. The learning platform can promote students' participation in the classroom, and the reward function within the platform can stimulate students' interest in learning.

Although only a few teachers interviewed raised the topic of the advantages of BL from the teacher's perspective. Participant R06 proposed that one of the advantages of BL is to enhance the ability of teachers to apply information technology. In addition, BL improves teaching efficiency (Participant C03, C04, R03, and R07).

### *3.2 Negative experience with BL implementation*

The analysis of the interview records shows eight negative experience themes among the interviewed teachers. Table 2 shows the distribution of negative experience themes of the interviewed teachers.

Table 2 *The Distribution of Negative Experience Themes*

| Themes | Percent |
|---|---|
| [insufficient] Teaching resources | 61.53 |
| [difficult] Teacher–student interaction | 38.46 |
| [weak] Students self-control | 76.92 |
| [dissatisfied] Student academic performance | 30.77 |
| [poor] Network environment | 38.46 |
| [not perfect] Online platforms | 53.85 |
| [difficult] Observing students | 23.08 |
| [heavy] Workload | 46.15 |

Through in-depth analysis of the meanings and causes of themes projected in the interview records, the researchers established the relationship between the negative experience themes, as shown in Figure 1. Thereafter, the researchers will analyze the relationship among these themes.

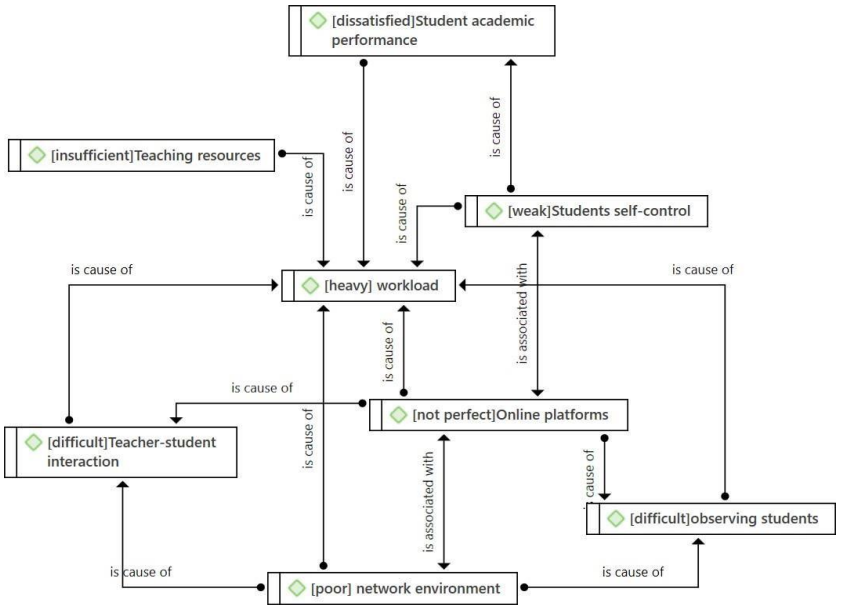


*Figure 1* Relationship among negative experience themes

(1) [weak] Students' self-control. The interviewed teachers believe that BL has high requirements for students' self-control. First, the open network environment (Participant C01 and C03) and novel features in the learning platform (Participant C04) distract students. Therefore, an interrelated relationship exists among "[weak] Students self-control," "[not perfect] Online platforms," and "[poor] network environment." Second, Participant C01 believed the following ideas:

"Students [...] cannot complete online learning entirely independently."

Similarly, Participant R02 stated as follows:

"Students with poor self-control are more likely to be seduced by other resources on the Internet, resulting in low learning efficiency and poor learning effect."

Therefore, "[weak] Student self-control" leads to "[dissatisfied] Student academic performance" results that cannot meet teachers' expectations for students.

Lastly, owing to "[weak] Students self-control," "Additional time for teachers to tutor after class increases the workload" (Participants R01 and R03). Note that "[weak] Student self-control" also causes teachers to "[heavy] workload" is one of the reasons.

(2) "[insufficient] Teaching resources" give teachers a negative experience. The reason is that the resources provided by "online platforms" cannot meet the needs of teachers. Therefore, teachers devote a long time searching and preparing teaching resources, resulting in a "[heavy] workload." For example, Participant R02 said "the time cost of needing suitable teaching resources is high in the massive teaching resources."

Participant C02 also stated the negative experience of teaching resources:

"Mainly refers to the teacher did not prepare class resources before class. There is also the content of the online part, and we must enter and debug the equipment in advance. The teaching resources on the platform also need to be repeatedly confirmed."

Therefore, the researchers express the causal relationship among "[insufficient] Teaching resources," "[heavy] workload," and "[not perfect] online platforms."

(3) "[not perfect] Online platforms" are the essential hardware support for realizing the BL model. Therefore, online learning platform and network are inseparable, and the relationship presented between them is also interconnected. "[not perfect] Online platforms" and "[poor] network environment" affect teachers' observation of students' learning behavior (Participant C02, R01, and R02") and also affect the interaction between teachers and students (Participant C02, C03, C05, and R01).

From the intensity of the theme, the researcher found that students' ability is among the important reasons for the negative experience of teachers. This conclusion is consistent with previous research results (Chen & Cao, 2020; Liu & Wang, 2021). Many scholars have

acknowledged that implementing a BL model will increase the workload of teachers (Brown, 2016; An et al., 2021). The analysis of the relationship among the negative experience themes can help the interviewed teachers find the workload and underlying reason for the increase.

### *3.3 Teaching resource support status*

Differences are also observed in the support status of teaching resources in different regions. Developed cities, such as Shenzhen and Guangzhou, can meet the needs of teachers in terms of teaching platforms and teaching resource support. Teachers are minimally satisfied with the teaching platform in ordinary cities and remote areas. Owing to the differences in the teaching materials used in various regions, the effect of applying the teaching resource platform provided by the government is also affected (Participants R02 and R03). Lacking appropriate teaching resources led teachers to call for schools to build their teaching resource plate (Participants R05 and R06).

## 4. Conclusion

The result of teachers' perceptions of the effective implementation of BL models in secondary schools can be concluded in two categories: teachers' perceptions of the advantages of BL and negative experiences. Teachers' recognition of the advantages of BL is not based on their professional satisfaction or willingness but on the extent of benefit of students in the BL process. That is, teachers lack intrinsic motivation to implement BL. Seven types of negative experiences affect teachers' implementation of BL. Students' self-control, online platforms, teaching resources, and workload are the factors with high impact strength. In summary, ITUP 2.0 has realized the transformation of secondary school teachers adapting to the application of new technology in teaching. Teachers can actively and effectively implement BL in the current environment. However, given that challenges continue for secondary school teachers in BL practice, some contents close to the actual operation should be added in future trainings. Moreover, project lecturers can consider combining excellent learning platforms and digital resource application cases for promotion. While improving teachers' information technology competencies, sharing of practical BL experiences should be ensured. In the future, we will further expand the sample from teachers' perspective to investigate the optimization mechanism to promote BL development in secondary schools.

## References


An, J., Yang, C., Yu, W., Zhang F., Liu, B., Zhang S., Zhang, S., Wang, H., Pei, W. Liu H. Men, S. Zhang D., Chen Z., Wang, Y. & Yan, Z.-F. (2021). Evaluation and analysis of the quality of surgical multi-method linkage and blended teaching in the context of Internet +. *Chinese Medicine Education, 40*(3), 76-81.

Birbal, R., Ramdass, M., & Harripaul, M. C. (2018). Student teachers' attitudes towards blended learning. *Journal of Education and Human Development, 7*(2), 9-26.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101.

Brown, M. G. (2016). Blended instructional practice: A review of the empirical literature on instructors‟ adoption and use of online tools in face-to-face teaching. *The Internet and Higher Education, 31*, 1–10.

Chen, W., & Cao, H. (2020). The implementation status and thinking of online teaching in "Double First-Class" colleges and universities. *Educational Science, 36*(2), 24.

Cheng, C., & Wu, Y-L. (2020). Research on the online and offline blended teaching mode based on personalized learning-Taking the teaching of operating system courses as an example. *Computer Knowledge and Technology: Academic Edition, 16*(9), 3.

Dakhi, O., Jama, J., & Irfan, D. (2020). Blended learning: a 21st century learning model at college. *International Journal of Multi Science, 1*(08), 50-65.

Fu, D.-M., Zhu, L., & Mai, Z.-H. (2021). From Technology Application to Knowledge Creation: Online Teaching Status and Ability Improvement Strategies of Primary and Secondary School Teachers in Guangdong Province. *Chinese Journal of ICT in Education, 22*(2021):54-58+63.

Huang, R.H., Yao, Ydo, Liu, J., Wang, H.H., Yang, D., Wang, S.F., Li, J.H., Renato Opertti, Ahmed Tlili, Yang, J.F., Zhang, D.W., Kang, C.Y., Yang, Y., et al. (2022). *Hybrid Education, Learning, Assessment*. Beijing: National Engineering Research Center for Internet Education Intelligent Technology and Application.

Jonker, H., März, V., & Voogt, J. (2018). Teacher educators' professional identity under construction: The transition from teaching face-to-face to a blended curriculum. *Teaching and Teacher Education, 71*, 120133.

Liu, L., & Wang, Q. (2021). Research on the characteristics and influencing factors of students' learning engagement in blended teaching model. *Modern Educational Technology, 31*(11), 80-86.

Lozano-Lozano, M., Fernández-Lao C, Cantarero-Villanueva, I., Noguerol, I., Álvarez-Salvago F, CruzFernández M, & Galiano-Castillo, N. (2020). A blended learning system to improve motivation, mood state, and satisfaction in undergraduate students: Randomized controlled trial. *Journal of Medical Internet Research, 22*(5), 1-13.

Mena, J. (2019). Teachers' Beliefs Towards Blended Learning in Higher Education: A Mixed-Methods Study. In *Learning Technology for Education Challenges: 8th International Workshop, LTEC 2019, Zamora, Spain, July 15–18, 2019, Proceedings* (Vol. 1011, p. 177). Springer.

Mozelius, P. (2017). Problems affecting successful implementation of blended learning in higher education: The teacher perspective. *International Journal of Information and Communication Technologies in Education, 6*(1), 4-13.

Osman, N., & Hamzah, M. I. (2020). Impact of Implementing Blended Learning on Students' Interest and Motivation. *Universal Journal of Educational Research, 8*(4), 1483–1490.

Wu, H., Zheng, J., Li, S., & Guo, J. (2019). Does academic interest play a more important role in medical sciences than in other disciplines? A nationwide cross-sectional study in China. *BMC Medical Education, 19*(1), 1-8.