

Exploring Chinese Geography Teachers' Views of three Designed Problem-Based Tasks for the Promotion of Student-Centred Learning in Geography Classrooms

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Abstract

Geography Education in China is streamlined as one of the core academic subjects across primary and secondary schools in the nation. Containing elements such as Moral Education, Social Studies, and Spatial Learning, implementing Geography Education is deemed necessary for students to understand the different population and weather distribution in China and the global context. However, due to the overshadowing of STEM subjects, lack of literature of Geography Education implementation, and consistent usage of teacher-centred methods, revising the current methods of teaching geography is crucial. Introducing already-designed geography learning materials is proposed as one of the effective ways to bring change. Drawing real-world contexts, three designed problem-based tasks related to the Chinese Geography Education are produced. Through an exploratory qualitative inquiry, five geography teachers from a Chinese district participated in interview sessions involving understanding their views of the tasks designed. Findings reveal positive views of these three problem-based tasks, and there is consensus that these tasks can be implemented in future geography lessons to improve the quality of Geography Education in China. Relevant suggestions are provided in this paper for practical use of these problem-based tasks.

Keywords: Geography Education, Geography Learning, Geography Education Policies, Problem-Based Tasks, Problem-Based Learning

Introduction

Geography education is a discipline and subject that aims to foster a deep understanding of how people see the world alongside understand the various theoretical and practical components that form the complex interactions on the Earth (Ma et al., 2022; Sun et al., 2019). Fostering geographical literacy through geography education among students is one of the core learning outcomes expected from the Ministry of Education in China (Ma et al., 2022; Xuan et al., 2015; Yang et al., 2024). Given the vast lands available, the Chinese

government aims to instil the necessary knowledge and skills amongst the Chinese population to utilize the lands properly alongside accounting the weather, economy, and population distribution in across different areas. Concerning population and distribution in the nation, there is also a necessity for the Chinese to understand the different political and societal policies implemented that all aim at better nation development (Ma et al., 2022; Xuan et al., 2015; Yang et al., 2024) other than possessing the necessary STEM knowledge to achieve the same ultimate goal. Thus, while studying and pursuing geography education is not just important for nation development but also crucial in this paper wherein it describes the necessity of this discipline in the current state of education in China.

At the same time, amidst nation development is the constant decision making in terms of territorial, resources, and construction aspects (Sun et al., 2019; Xuan et al., 2015; Yang et al., 2024). How these aspects are properly managed requires relevant organisations to be competent in geography knowledge, as these parties must be able to plan the management of different aspects to achieve development (Sun et al., 2019; Xuan et al., 2015; Yang et al., 2024). Simultaneously, studying geography education is significant to the Chinese government, various ministries, society, and the next generation as the vast lands in China offer racial, ethnic, and culture diversity, so achieving the preservation of this treasured diversity is crucial especially in terms of maintaining identity and roots (Sun et al., 2019). For development to occur, it is also pivotal for different parties to acknowledge the existence of identities and roots that form the pillars of the human society in China (Ma et al., 2022; Xuan et al., 2015; Yang et al., 2024). Teachers, then, play a pivotal role to achieve all the objectives as established and discussed above.

This present paper thus draws upon several significances and necessities to research on the state of geography education in China. Geography education is just as crucial as other STEM and related disciplines, but learning the contents of geography education must be aligned with suitable pedagogical methods that promote effective teaching and learning. Concerning effective teaching and learning, the present paper emphasises on bringing novel experiences through the design of new teaching resources, allowing fresh yet meaningful learning experiences when new teaching and learning materials are implemented and realized. This paper also hopes to provide extensive insights of how teaching and learning can occur in geography education through educators' opinions

The Implementation of Geography Education

Geography Education is thus a subject that concerns the instilling of geographical disciplines among students alongside relevant theories and practices, typically driven with spatial-related aspects for the understanding of how geography can be viewed in a given area (Dhakal, 2019; Ma et al., 2022; Sun et al., 2019; Wu et al., 2022). Based on the description of the geography state in China in the earlier section, Geography Education is deemed necessary in achieving all concerns and goals from the Chinese government and Ministry of Education.

Currently, Geography Education is implemented across primary and secondary schools in China, and contents of Geography Education is not limited to learning Social Studies and Moral Education, as humanity values are viewed as the core of achieving a well-developed and civilized society (Ma et al., 2022; Sun et al., 2019). Accordingly, understanding the religion, culture, and ethnics practices is part of the geography learning processes. Other

than incorporating spatial, population, and distribution knowledge, the present Geography Education in China also includes informing the latest trends of using technology to understand the Chinese geography.

Problem Statements

Unfortunately, despite the importance of Geography Education in achieving the Chinese government's concerns and goals, the subject is often overshadowed by STEM subjects. Other core academic subjects like Science and Technology, Mathematics, and Engineering are given more attention, as the global perception is that knowledge from these subjects is key to achieving significant development across countries (Dhakal, 2019; Herman et al., 2020; Ma, 2021; Murphy et al., 2018). Innovation and creation are often seen to be present across STEM subjects rather than Geography Education, and most policies implemented in a nation often revolve around these subjects. Consequently, less attention is given to Geography Education as some view the subject as being dull and boring, and performing better in STEM precedes Geography Education often.

Due to the frequent attention given to STEM subjects, another problem that arises is the lack of literature concerning the teaching of Geography Education in China. Despite the availability of well-established curriculum and syllabus, research focusing on the process of learning geography and how this subject is actually implemented remain largely unknown. To date, the researcher is able to find some global contexts of learning geography but pertaining to the Chinese context is extremely limited.

Even though there is limited literature concerning the teaching and learning of Geography Education, one more problem that arises is the constant utilization of teacher-centred practices across primary and secondary schools in China. Although the literature of Geography Education is scarce, findings from other disciplines, such as Mandarin, English, and Science, reveal that Chinese teachers in contemporary society remain consistent in using teacher-centred practices even in the recent years (Cheng & Chen, 2022; Sun et al., 2020; Tang & Song, 2023; Wei & Chung, 2022; Xuan et al., 2015). Despite the call for more student-centred practices, research in China remains persistent in advocating more student-centred practices to be implemented, as teacher-centred practices are found to be impractical in providing a conducive, meaningful, and effective learning environment (Cheng & Chen, 2022; Tang & Song, 2023; Wei & Chung, 2022; Xuan et al., 2015; Yang et al., 2021). It is also well-established in the literature of student-centred teaching and learning that passive learning and one-directional dissemination of knowledge from teachers to students are ineffective, often leading to learning with less to no interest (Cheng & Chen, 2022; Sun et al., 2020; Tang & Song, 2023; Wei & Chung, 2022; Xuan et al., 2015; Yang et al., 2021). Inferencing from the frequent implementation of teacher-centred learning, the researchers believe such is the same in the context of Geography Education in China.

The Introduction of Problem-Based Learning

For effective Geography Education teaching and learning to occur, introducing problem-based learning is believed to be one of the effective student-centred learning methods by the researchers. While there is already a wide range and significant amount of research available on problem-based learning, given the state of education in China where

teacher-centred learning remains present, constant introduction of such student-centred learning method is necessary.

Problem-Based Learning (PBL) is one such learning method wherein students are presented with real-world problems and incidents that require them to develop suitable solutions for each problem and incident (Barros & Penna, 2022; Borhan, 2014; Kow & Tan, 2024; Lin, 2017; Tawfik et al., 2021). Learning becomes authentic because students have to seek multiple resources, engage in brainstorming, and initiate discussions to identify and develop these solutions (Barros & Penna, 2022; Borhan, 2014; Kow & Tan, 2024; Lin, 2017; Tawfik et al., 2021). At the same time, due to the subjectivity of solutions, students do not receive direct explanations and immediate answers from the teachers (Barros & Penna, 2022; Ge et al., 2022; Kow & Tan, 2024). Rather, they are guided and facilitated in the learning processes by the teachers, and that they need to reflect on every piece of knowledge gained to fully comprehend what is given and resolved (Barros & Penna, 2022; Ge et al., 2022; Han, 2025; Kow & Tan, 2024; Lin, 2017; Tawfik et al., 2021).

Applying to the content of Geography Education, having students to partake in PBL is theorized by the researchers to significantly boost the learning quality and teaching effectiveness. Students can better understand the nation they live in, and they will reflect on existing practices to address the real-world issues the country is currently facing.

Research Aim

This research thus aims to introduce problem-based learning as a form of student-centred learning for meaning Geography Education to be implemented in geography classrooms. Alongside the introduction is the pursuit of views of problem-based learning among Geography Education teachers, as they are the direct participants that are involved in bring change to teaching quality in geography classrooms. Accordingly, two research objectives are established for the purpose of this paper.

1. To explore the Geography Education teachers' views of three designed problem-based tasks for geography lessons.
2. To explore the concerns of implementing problem-based tasks in geography lessons.

Research Methods

To conduct the research, an exploratory qualitative research design is implemented. In its essence, such a design is deemed suitable when a phenomenon of investigation is not known or lacks details (Creswell & Guetterman, 2019; Edmonds & Kennedy, 2017; Taggart & Wheeler, 2023). This design is also recommended when it comes to gathering rich insights, thoughts, and opinions concerning a phenomenon of interest through the use of various qualitative inquiries that are deemed suitable by the researchers (Creswell & Guetterman, 2019; Edmonds & Kennedy, 2017; Taggart & Wheeler, 2023). In this research, the phenomenon of interest is instilling a student-centred teaching and learning method in a teacher-centred focused learning environment in China, specifically pertaining to the context of Geography Education.

Research Site and Samples

This research was conducted in a secondary school located in Hefei, one of the most prominent and urbanized cities in China. Various secondary schools are available across the

cities, and the access to education is relatively easy for the Chinese. The rationale of selecting a secondary school was that the contents of Geography Education are relatively more complex and they offered several real-world knowledge both in China and the global context. For ethical purposes, the name of the secondary school is not revealed. Generally, the research was conducted in January and February 2025, spanning across a total of two months or equivalent to eight weeks.

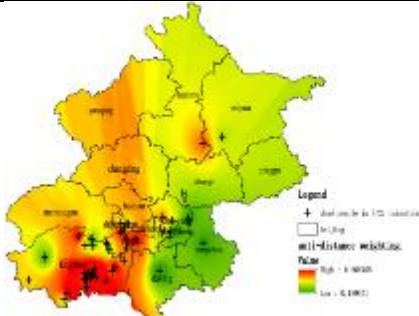
Five Geography Education teachers were purposely recruited, and these teachers had a teaching experience between two to ten years in teaching disciplines but not limited to Geography Education. Among the five teachers, four of them were women and one was a man. Nevertheless, at the point of conducting the research, these five teachers were teaching Geography Education.

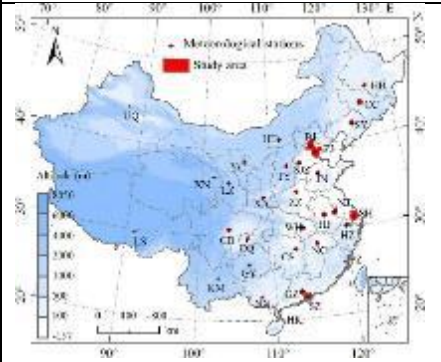
Research Instruments

Two forms of research instruments were involved in this research. Firstly, three problem-based tasks were designed by drawing the contents and topics from the existing Geography Education for secondary schools in China. At the point of writing the research, the students were learning about climate change, natural disasters, and weather distribution. Drawing the concepts of problem-based learning, the three problem-based tasks were designed as shown in Table 1.

Table 1

The Designed Problem-Based Tasks

 Photo: Global Times	Teaching Resources: Images, videos, and clips from various Internet resources of the rainstorm and impact of the Mentougou District, Beijing. Teaching Activities: Teacher introduces the rainstorm incident, acts as the facilitator, and guides the students to perform various activities. Student Activities: • Students share their feelings of the rainstorm based on the images, videos, and clips displayed. • Students identify the possible factors that caused the rainstorm and the destruction. • Students propose the potential solutions to minimize the destruction if such a situation were to happen in the future.
 Photo: Springer	Teaching Resources: Image of a rainstorm distribution across Beijing is displayed. Teaching Activities: Teacher introduces the concept of rainstorm distribution, acts as the facilitator, and guides the students to perform various activities. Student Activities: • Students describe the rainstorm distribution across the different Beijing districts based on the key.

	Students describe the potential effects and impacts of the rainstorm distribution across the different Beijing districts.
 Photo: Nature	Teaching Resources: Image and clips of the Heat Island effect in China are displayed. Teaching Activities: Teacher introduces the concept of the Heat Island effect, acts as the facilitator, and guides the students to perform various activities. Student Activities: - Students explain their understanding of the Heat Island effect. - Students share their thoughts on the causes of the Heat Island effect. - Students propose the solutions to overcome the Heat Island effect in China.

To ensure the feasibility of the three designed problem-based tasks, an education expert from a university was invited to provide evaluation and feedback on these tasks. These tasks were evaluated in terms of the choice of resources, teaching steps, and student activities. Relevant feedback was then sought before the adjustment of the overall problem-based tasks as displayed in Table 1.

Semi-structured interviews were also implemented as the form of qualitative inquiry to achieve the research objectives. The interviews were needed to explore the Geography Education teachers' views of these problem-based tasks designed and their concerns of implementing the tasks in geography lessons. The interview questions were derived from the literature and the interview sessions were conducted on Tencent (腾讯), an online virtual communication platform. Guided by Tay and Phang's (2022) online interview protocol, the researchers sought the necessary consent and recorded the interview session for data analysis. All teachers were assigned with the pseudonym as Teacher X, with X stood as the number given to the Geography Education teachers.

For all responses that contained the Chinese Mandarin language during the interview sessions, the researchers translated them into English and retained the original meaning as close as possible. Member checking concerning the translation was also done with the five geography teachers to ensure the consistency of translation. Then, Braun and Clarke's six steps of thematic analysis were referred to during the data analysis of the semi-structured interviews. As a widely used qualitative data analysis method, Braun and Clarke's thematic analysis involved (1) understanding and familiarizing the data, (2) generating the codes from the data, (3) categorizing the codes, (4) revising the codes to form themes, (5) finalizing the themes, and (6) reporting the confirmed themes. The researchers also cross checked the themes before reaching the consensus of whether the themes were suitable and achieved the research objectives.

Findings

The first theme obtained from the semi-structured interviews concerning the three designed problem-based tasks was that the teachers had positive reactions of the tasks. Specifically, they were interested in the tasks, and they believed the tasks were suitable to be implemented during Geography Education lessons. The following exemplifies the quotes from some of the geography teachers.

Teacher 1: Eh... I think the tasks look great. It's quite interesting too... and I think we can have lots of discussions. The task on Beijing is memorable to some of us... (so) I can let the young ones (students) think about the solutions.

Teacher 2: Did you design these? Oh... Okay, that's nice. Obviously, I like them and may consider putting them in future lessons. I think they are good. The topics... I think they are all related too. The one in Beijing is very relevant... I'm sure they can be a good task for students to experience what had happened.

Teacher 4: All of them look great. I think it's not easy for you to prepare the tasks. Obviously, there is some preparation needed for these tasks. All of them look okay, so I will consider putting them in my lesson in the future.

Another theme that emerged from the semi-structured interviews was that the teachers believed the tasks designed by the researchers require some modification. This is because the teachers believed the tasks were suitable but could be better implemented. The following exemplifies the quotes from some of the geography teachers.

Teacher 2: Eh... Maybe I'll adjust the student activities a little because not all of my students can do that. You know, they have different proficiencies. Eh... Obviously, I mean your work is good, but in real situations I don't think my students can do all. I will have to adjust the questions to make them easier.

Teacher 3: They are good topics for all of us to think. But maybe I'll give some exposure about the topic first on the textbook. Like, eh... this Heat Island effect. (I) can't just have the task and then not giving any ideas first, right? They will be confused.

Teacher 5: Maybe you can adjust the contents a little? It's quite challenging... You don't have to adjust them now, but maybe do consider when you are teaching. Eh... the topics are interesting, but the students may not understand all. If there are some resources, why not include them?

Finally, another theme that was found by the researchers was that there was a mixed reaction concerning the implementation of problem-based tasks. Despite the positive views of the three problem-based tasks displayed to the five geography teachers, they had a blend of positive and negative reactions concerning their implementation. The following shows the quotes from the five geography teachers.

Teacher 1: I don't think there will be any problems... Eh... Yeah, I don't think I won't face any problems but let's see how it goes because actual classroom situations are different.

Teacher 2: I think the problem is getting the students to participate. Yeah, the tasks are interesting, but eh... so far, it's not really easy to get the students to participate in the activities. Not to mention asking them to think.

Teacher 3: It's interesting... but eh... I wouldn't implement the tasks fully because I prefer the students to learn through textbooks first. Otherwise, they won't know what they are learning.

Teacher 4: Eh... It can be conducted... but it may not be feasible in classes where students who are too active or quiet. Some students can't respond well to questions, so putting this task may be a problem.

Teacher 5: I mean... I just need to give the tasks to the students. It may be a little challenging but... I think it's okay.

Discussion

It is evident from the findings that all five geography teachers had plentiful insights to share with the researchers concerning the designed problem-based tasks and other thoughts of implementing such a learning method in geography lessons. The consensus of viewing problem-based learning as a good learning method is similar to the findings from other scholars (Barros & Penna, 2022; Borhan, 2014; Lin, 2017; Tawfik et al., 2021), as many teachers across various disciplines had reported having good impression of using problem-based learning as a new way of making lessons interesting. The reactions of the teachers, such as Teacher 1 and Teacher 2, who were seemingly surprised and impressed, indicated the problem based tasks were interesting and attractive.

At the same time, the mentioning of the rainstorm incident in Beijing as being incorporated into the problem-based tasks directly infers the presence of experiential learning, wherein learning is conducted through experiencing the context or topic itself (Gordon, 2022; McDonald, 2020). This subsequently means that learning occurs in the optimum situation when students can relate to the context or topic, even more so when the student has direct experience with the given situation itself (Gordon, 2022; McDonald, 2020). This also informs the necessity for experiential learning to be incorporated in problem-based tasks for more meaningful learning to occur among the students.

However, it is also evident from the five geography teachers' responses that the problem-based tasks designed may need revision. Despite the researchers' effort in seeking an education expert's feedback during the design of the tasks, the teachers in the interview sessions had different thoughts. From the responses, the teachers believed that implementing the problem-based tasks required them to be flexible in the implementation (Teacher 1), get the students to participate in the tasks (Teacher 2, Teacher 4), and provide context through pre-teaching it first (Teacher 3). The researchers thus believe that despite the involvement of the education expert, it is ultimately dependent on the teachers' actual understanding of their respective students for the execution of these problem-based tasks. In simple terms, it can mean "teachers know best." After all, students come into the classroom with different levels of performances and attitudes, so there is no one-size-fits-all teaching material and it depends on how the teachers intend to implement the teaching method (Gordon, 2022). This also informs the necessity for designers of teaching materials to communicate with teachers who are actually implementing the materials, as there must be consensus of how the materials can be properly and suitably employed in classrooms.

Significantly, this research informs the feasibility of the three problem-based tasks designed by the researchers for the Geography Education teachers. On the surface, these tasks are suitable for implementation to get the students participate in the activities,

especially when the contents are relatable to real world issues. However, the practicality of these problem-based tasks may require adjustments depending on the students' behaviours and proficiencies in classrooms. It also informs the gap between the material designers and teachers, as what the material designers know may not share the common ground with what the teachers know. At the same time, the employment of problem-based tasks is deemed suitable to get the students participate actively in lessons. This also shows that the teachers indirectly agree that they would like to be facilitators of the lesson rather than direct knowledge provider.

Conclusion

This research sets off to introduce problem-based tasks as the form of student-centred learning in Geography Education in China. Suitable tasks drawing from the contents available from the current Geography Education implemented in secondary schools are designed, and that the researchers initially believed that they were feasible for actual implementation. However, despite the initial positive impression of the problem-based tasks, changes and revisions to the contents are necessary based on the geography teachers' views. Nevertheless, all research objectives are successfully achieved.

For future research purposes, the researchers suggest conducting an experimental study by implementing these problem-based tasks in real classroom situations. Having a controlled and intervened group should inform the extent of effectiveness of these tasks. At the same time, as the present research only included five geography teachers, future research can consider expanding the research through quantitative inquiries and recruit more geography teachers across China to provide a better depiction of the views of implementing problem-based learning in Geography Education.

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