Chen *ICEP (2023) 17:15*
https://doi.org/10.1186/s40723-023-00118-3

International Journal of Child Care and Education Policy

RESEARCH Open Access

# Non-indigenous preschool teachers' culturally relevant pedagogy in the indigenous areas of Taiwan

Bi-Ching Chen[1*]

*Correspondence:
bcchen@mail.cgust.edu.tw

[1] Department of Child Care and Education of Chang Gung, University of Science and Technology, Guishan District, Taoyüan, Taiwan

**Abstract**

This study used the Ladson-Billings culturally relevant pedagogical approach to understanding non-indigenous preschool teachers' multicultural literacy and practices in indigenous areas. Through purposive sampling, we selected six teachers with three years of teaching experience each in Eastern Taiwan as study participants. Interviews with them, classroom observation records, teaching files, students' diaries, and researchers' inspiring diaries were all used as data sources. The analyses were based on the Ladson-Billings culturally relevant pedagogical approach. There were three major results. First, non-indigenous teachers used indigenous language and culture and invited indigenous parents to cooperate with the tribe to increase their students' academic achievement. Second, the teachers connected their indigenous students' families' backgrounds and experiences with their curriculums, maintained certain indigenous cultural norms in the classroom, and communicated with indigenous students' parents in languages that were familiar to them. Third, the teachers devised strategies to overcome the gap between their teaching goals and beliefs about their students' childcare centers and cultural backgrounds. The factor that most contributed to the success of non-indigenous preschool teachers teaching in indigenous was communicating with indigenous parents and encouraging them to join in school activities.

**Keywords:** Ladson-Billings culturally relevant pedagogy, Multicultural literacy and practices, Non-indigenous preschool teacher, Indigenous areas of Taiwan

## Introduction

Preschool education teaching methods, curriculum designs, and activities are suitable for analysis by the culturally relevant pedagogy method (Bennett et al. 2018; Starker & Fitchett, 2013), which is consistent with the fact that preschool teaching is unified and non-disciplined (Villegas & Lucas, 2002). Prospective preschool teachers are encouraged to discuss and think about inequalities caused by social structures and how they can be reduced. By thinking about these issues, prospective teachers can understand that cultures have unique learning methods (Kidd et al. 2008) and that culturally relevant pedagogy is an essential part of preschool education. For example, teachers might need to examine the relationship between the materials they are currently using and their

students' cultural backgrounds to develop learning materials that are consistent with their students' cultural backgrounds.

Students come from multiple backgrounds (Minkos et al. 2017), which reflects the need for a multicultural education policy to strengthen teachers' culturally sensitive pedagogical skills, but few such policies were enacted for preschool teachers in Taiwan. Teachers should be multiculturally literate to achieve equal educational opportunities for all learners (Banks & Banks, 2020). Teachers' teaching practices affect learners' attitudes toward learning and their academic achievements (Hu et al. 2018).

Teachers are unable to design appropriate multicultural teaching plans that address all learners in the classroom due to a lack of multicultural literacy, experience, and awareness (Civitillo et al. 2018; Jackson et al. 2016). Teachers without such multicultural perspectives and skills are not fair and impartial in their curriculum designs, teaching strategies, teacher-student relationships and interactions, and student evaluations (Clayton, 2011; Ukpokodu, 2011). This lack of fairness and impartiality can result in prejudice and discrimination, such as teachers of mainstream social cultures not empathizing with the needs of children from other cultures and not being aware of students' learning scaffolding issues arising from their ethnic identities. When teachers think about the similarities and differences between them and their students' viewpoints, preferred interaction methods, and cultures, they better understand how to implement culturally sensitive teaching methods, improving students' learning outcomes (Chen, 2003a, 2003b). To develop better multicultural literacy, teachers should try to understand other cultures; change their ideas about theories and concepts that are wrong, stereotypes, and attitudes that are unhelpful; and review their cultural knowledge (Allen et al. 2017; Pang et al. 2011).

Teachers who are more multiculturally literate are more confident in their teaching (Devereaux et al. 2010; Mahatmya et al. 2016; Mena & Rogers, 2017). Preschool teachers need to understand children from different cultural backgrounds (Han & Thomas, 2010). Teachers should also constantly maintain cultural awareness, think critically about their words and actions, the students' cultural backgrounds, and try to make their classrooms more culturally inclusive by understanding students' families' cultures.

Multicultural literacy can improve preschool teachers' teaching ideas and concepts, course designs, curriculum arrangements, and students' cultural status, sense of belonging, identity, and empowerment (Hambacher & Bondy, 2016; Leung, 2020; Rychly & Graves, 2012). Pekoz (2020) found that Turkish preschool teachers effectively maintained their cultural competence by understanding the languages of their students' cultures. Teachers' cultural intelligence is strongly correlated with their level of multicultural literacy. To be multiculturally literate, preschool teachers need to understand students' cultural contexts and practice literacy skills, such as vocabulary memorization and reading aloud, academic environments, technology, classroom community, order, family participation, social justice, and care (Gunn et al. 2020). This study was conducted assuming that preschool teachers need to be familiar not only with their students' cultures, languages, and family values and engage in social justice but also that they should integrate these concepts into their students' education.

In this study, we used the concept of culturally relevant pedagogy to analyze the multicultural literacy and practices of non-indigenous preschool teachers teaching in

indigenous areas of Taiwan. In Taiwan, most preschools might teach mainstream cultural ideas, such as about high-speed rail, MRT stations, airports, and the ocean, but this content would not be relevant to the lives of students in indigenous areas because, for example, such areas do not have any high-speed rail or MRT stations. Thus, these types of teaching topics reflect mainstream cultural biases. Therefore, teachers in indigenous areas should consider their students' cultural backgrounds when planning teaching content, methods, and materials to better integrate themselves in their surrounding cultural community, similar to providing hunting toys for dramatic areas.

We used Ladson-Billings' culturally relevant pedagogy approach for two reasons. The first reason we used this approach was that it is about teaching practice in that it shows in practical ways how teachers should implement culturally responsive teaching without being overly theoretical. It encourages teachers to think freely about the teaching process, such as the possible reasons for poor learning outcomes and the relationship between the teacher's own background and their teaching environment. The second reason we used this approach is that it was developed based on research on different ethnic groups, social classes, family structures, and other cultural characteristics and it addresses interactions between mainstream and non-mainstream cultures. These concepts were strongly related to our research on non-indigenous teachers in indigenous areas.

The concepts of academic achievements, maintaining cultural competence, and critical thinking about child-centered education have to be define in this study. Improving indigenous students' academic achievements is defined as non-indigenous teachers better reflecting the students' life experiences in their learning areas and curriculum themes. Maintaining indigenous students' cultural competence means understanding their unique learning methods and using non-indigenous materials, such as Lego blocks and tabletop games in ways that connect with their culture. Critical thinking about child-centered education means that teachers should examine whether learning areas, materials, curriculums, and teaching styles are appropriate for their indigenous students. What kind of challenge did child-center education beliefs in indigenous areas?

Given the above context, this study was conducted to answer three questions:

1. How can non-indigenous preschool teachers design their curriculums and teach to improve indigenous students' academic achievements?
2. How can non-indigenous preschool teachers design their curriculums and teach to maintain indigenous students' cultural competence?
3. How can non-indigenous preschool teachers in indigenous areas think critically about their beliefs about child-centered education?

## Literature review

Ladson-Billing's (1995a) culturally relevant pedagogy approach holds teachers should understand all of their students' cultural backgrounds and structure social interactions accordingly to increase students' academic achievements, maintain their cultural competence, and strengthen their own critical thinking. This process is executed by maintaining smooth teacher-student relationships, treating students' presentation processes

as communication links, developing students' learning community, and encouraging students to help each other learn. It also assumes that knowledge and content are not static. This process is also a cyclical process of constructing, sharing, and critically examining ideas. There are no absolute criteria, so teachers need to maintain their enthusiasm for learning and build scaffolding that helps students learn. In other words, the knowledge that children need in one cultural context might be different from what they would need in another. For example, the concept of saving in indigenous cultures might be something like tribe members sharing food during harvest festivals to build personal networks while in mainstream culture it might be something like saving money in a bank. Teachers need to teach by integrating students' cultural backgrounds into the curriculum because they are not primary knowledge transmitters and their roles could change at any time (Ladson-Billings, 1995a, 1995b).

#### Teachers increase students' academic achievements

Although ethnicity and social class affect learners' academic achievements (Buckingham et al. 2013; Gandara & Contreras, 2020), they are not the only factors that do. Teachers are still the primary transmitters of classroom knowledge and so influence learners' academic achievements (Byrd, 2015; Milner, 2020). Teachers' cultural understanding, intelligence, and acceptance can make up for learners' learning difficulties arising from cultural differences (Dahlan, 2017). Teachers' career development (Efeoglu & Ulum, 2017), performance, and job satisfaction (Gohar, 2014) change with their understanding of the local culture in which they teach. Thus, culturally relevant pedagogy requires critical thinking skills. Teachers in cultural environments different from their own who do not reflect on their teaching might not see the needs of students from other cultures. In addition, teachers who pursue performance and job satisfaction too much are more likely to fall into adult-centered educational beliefs, violating child-centered education principles. Teachers who taught based on students' cultures improved students' academic achievements more than teachers who did not (Baker, 2019; Hambacher, 2018; Kidwell & Penton Herrera, 2019; Torres-Harding et al. 2018). In addition, designing lessons using demonstrative and scaffolding strategies with learners' abilities and advantages in mind creates an environment in which students can develop their creativity, respect, empathy, care, and trust (Gunn & King, 2015; Ladson-Billings, 2013). Thus, teachers need to design child-centered educational activities based on their students' cultures to avoid marginalizing students due to cultural differences. This approach will help teachers conform their teaching to the cultures in which they teach, increasing students' willingness to participate in the classroom, engage in desirable behaviors, and ability to solve deep-seated problems (Mar, 2018) and increasing their academic achievement (Nelson, 2016). For example, teachers could design problems connected to students' cultural backgrounds.

#### Teachers maintain students' cultural competence

Ladson-Billing's (1995a) culturally relevant pedagogical approach defines cultural competence in terms of experiences, knowledge, skills, and strategies related to the ethnic group, community, and family. Thus, students can practice their cultural competence through their learning curriculum and materials. Students who do not learn in

connection with their cultures will know less about it. For example, it might be beneficial for indigenous students to have a lesson where they go outside to observe the direction of the sunrise and sunset or their tribe's wolf smoke blowing in the wind. Indigenous students have different cultural competencies from non-indigenous students, so they also have different learning styles, behavioral expressions, and emphases on knowledge and intellectual capacities, such as valuing expression and experimentation, not memorizing information, and learning survival skills unique to their culture. Students' families and communities can help teachers better understand students (Belle, 2019). Reading multicultural books also enables teachers and students to understand each other's cultures (Gunn et al. 2014; Nieto, 2018), reducing teachers' prejudice, discrimination, and biased behaviors toward students' cultures. However, many teachers inadvertently let their preconceived ideas about what should be learned affect students (Bales & Saffold, 2011; Kohli & Solorzano, 2012), reducing their learning achievements and, in some cases, causing them to give up learning altogether (Villegas & Lucas, 2007). Therefore, teachers must promote healthy relationships between the school, community, and students' families to solve these problems effectively. Teachers' should consult parents about their cultural experiences and local resources or learn from oral communication. Teachers who use formal and informal activities to design curriculums that match students' cultural contexts help students to maintain their cultures (Dixson, 2014). For example, teachers could use the time off from school to chat with indigenous parents to incorporate indigenous cultural concepts with course content, such as showing how the concept of sharing differs between the students' indigenous culture and mainstream culture or inviting indigenous parents to class to explain the characteristics of a local celebration ceremony. For teachers to maintain their students' cultural competence, they must first understand their students' cultural context and life experiences and accept and respect their learning styles and attitudes (Ladson-Billings, 2006; Lemon & Edwards, 2017). For example, teachers should not only clarify the relationships between students, their families, their ethnic groups, their community cultures, and their caregivers but also communicate with indigenous parents in their native languages. Course content should be linked to students' cultures to make learning more meaningful. Teachers should teach students to recognize and value their cultures (Aronson & Laughter, 2016) and help them to become valuable in their cultural contexts (Borrero et al. 2016; Howard & Rodriguez-Minkoff, 2017).

#### Teachers should maintain child-centered thinking

Culturally relevant pedagogy emphasizes that teachers should transcend their current beliefs and clarify their concept of knowledge (Gay, 2018; Milner, 2011). For example, teachers should understand and evaluate their beliefs and values about their students' backgrounds (Barnes & McCallops, 2019; Evans, 2018). Students might not perceive whether they are learning valuable information for their futures and teachers may also sometimes not know what skills and information will be valuable to their students (Ladson-Billings, 1995a, 1995b). Teaching is often dynamic and fluid (Gunn, 2016; Ladson-Billings, 2014), so teachers can revise their plans and think critically about what they are doing, such as whether they should try to better understand learners' cultural contexts, values, and behaviors and review their teaching methods (Aceves & Orosco, 2014;

Bradshaw et al. 2018; Tuncel, 2017). Such revisions and critical thinking can improve students' cultural competence and increase their academic achievements (Cho, 2018; Howard, 2020). When thinking critically about their teaching, teachers should try to identify inequalities and injustices, think from different angles, and observe and understand how things work (Banks & Banks, 2020; Diemer et al. 2016). By discussing their feelings and prejudices with others, they may be able to uncover unconscious values and change their knowledge and attitudes (Gay & Kirkland, 2003).

Most studies of culturally relevant pedagogy were conducted using elementary school students. However, dynamic learning begins in preschool, so culturally relevant pedagogy should as well because its central concept and spirit are connected to learners' cultural backgrounds, not age. Teachers should design their curriculums and teaching materials based on students' cultural backgrounds. Culturally responsive pedagogy has no age limit, so preschool courses should also be designed based on these concepts so that students can be exposed to their own culture and learn their own cultural knowledge and skills from an early age. Teachers should develop knowledge, understanding, and acceptance of and respect for their own and others' cultures (Wood et al. 2018). The culturally relevant pedagogy approach reminds teachers to be aware of differences between the classroom and learners' cultures (Alaca & Pyle, 2018). It treats learners' cultural context as the basis of learning and emphasizes the importance of connecting the school, families, and the community (Ladson-Billings, 2013). It is important to cultivate, such as developing teachers' professional skills and supporting them in learning about their students' cultures to develop relevant knowledge and skills (Christ & Sharma, 2018), which ultimately produces increased learning achievements.

## Methods

### Research area and participants

The participants were selected from three preschools in indigenous areas of Eastern Taiwan. These schools were selected because more than two-thirds of the students were indigenous, all of the teachers were non-indigenous, and their curriculums included indigenous language education. The teachers at these preschools were five women and one man and all had professional backgrounds related to early childhood education. Four of them had bachelor's degrees and two had master's degrees. They had at least three years of teaching experience (inclusive) and they were an average of 43 years old.

### Data source

The teachers were subject to semi-structured interviews that were structured using Ladson-Billings' (1995a, 1995b) culturally relevant pedagogical approach. We wanted to know how the teachers encouraged their students' academic achievement, how they maintained their cultural competence, and how they maintained child-centered education beliefs. We asked three rounds of questions. In the first round, we asked, "How do you plan your curriculum?" and "What do you think about these curriculums and students' relationships?" In the second round, we asked, "Why did you choose the resources, tools, and media that you use in teaching?" and "What do you think about these materials in indigenous areas?" In the third round, we asked, "Why did you choose to teach in an indigenous area?" and "What of your child-centered education beliefs

changed since you began teaching here?" We also collected teachers' notes on students' assignments as corroborating information.

### Data collection and analysis

Interview files were transcribed verbatim and categorized by symbol. The transcripts were analyzed by repeated reading with a focus on the three key concepts of Ladson-Billings' (1995a, 1995b) culturally relevant pedagogy, namely increasing academic achievement, maintaining cultural competence, and thinking critically about teaching beliefs. Three non-indigenous teachers with master's degrees and teaching experience in indigenous areas jointly reviewed and coded the transcripts. Indigenous teachers with experience in culturally relevant pedagogy in indigenous areas who were not participants co-reviewed the transcripts. The reliability of the codes was 0.85.

### Research ethics

We would ensure and implement research ethics before conducting research. We explained the research purpose, methods, and expectations to participants. We also asked them to sign a consent form each time there was an interview or other meeting. Participants were allowed to ask any questions at the moment that consent was sought to clarify both parties' responsibilities, rights, and obligations.

## Results

These results were based on participant interviews and the researchers' observations. They discuss the characteristics, difficulties, and challenges of non-indigenous teachers teaching indigenous students along the three dimensions of culturally relevant pedagogy.

### Increasing students' academic achievement

The first step was improving our multicultural literacy and understanding students' basic cultural practices. Before conducting the interviews, we studied the indigenous students' cultures, such as a performance by indigenous students of a harvest festival. By learning students' languages and cultures, teachers can establish better relationships with students and increase their learning achievements. The participants' students had different languages and cultures. Therefore, to increase their learning achievements, we had to increase our linguistic and cultural skills and knowledge. The students trusted us more when we could speak their tribal language. The teachers stated that their teaching improved when they focused on designing their curriculums and improving their teaching activities. They tried to make life experiences, knowledge, and skills the basis of lesson designs, such as tribal hunts, to increase their students' engagement with the material being taught. The teachers had to understand their students' cultures. In doing so, they increased their students' academic achievements. We invited parents to join the class to share their experiences and encouraged children to read to build their interest in reading and combine themes. The curriculum had valuable content, such as how to make leaf rubbings and paint stones. Using materials from their students' communities, the teachers cultivated their students' creativity and cultural competence. Their notes indicated that they changed their curriculums to align with their students' life experiences. We went to their homes for a few days to learn about them. We found that the

most lacking part of our curriculums was localizing their themes. We wondered whether the indigenous students would be interested in our materials if they were unrelated to their life experiences. We had to think carefully about what we were doing. For example, we had some themes that weren't related to their cultural context, such as castles or treasure chests. Teachers should design curriculums with themes that fit students' cultural contexts, such as family and school, the fun of planting, and discovering nature. In addition, we initially used highly structured materials from the mainstream culture, such as tabletop games, but these were unfamiliar to the students' cultural context. Thus, we should use materials like stones, bamboo, rattan, and other natural materials that would better help them play and stimulate their imagination and creativity.

#### Maintaining students' cultural competence

To maintain students' cultural competence, teachers should integrate their family, school, and cultural experiences, such as discussing traditional customs and activities that happen at home or in the tribe. Some indigenous students were very good at expressing themselves. The teachers had to communicate with their students' parents, which helped them connect with and understand their students' family cultures and backgrounds. However, the teachers had to take the initiative to start communicating with parents because they had different focuses and concerns from the teachers. We understood the local culture by visiting their homes and tribes and integrating with their everyday lives. The students' cultural competence was related to their family connections, so the teachers used class and parent–child activity time to communicate with parents. Teachers had to change their thinking about starting communication with students' parents and communicate with them in their native languages, such as Mandarin, Hakka, or an indigenous language. The teachers seized opportunities to speak with indigenous parents, asking about cultural festivals and customs. They used the information they learned to design their curriculums to help their students learn about their own cultures. This cultural information, such as about festivals, customs, and students' activities and relationships, was used as a scaffold for students' learning experiences. The teachers reflected on how to use the students' communities' harvest festivals to build cultural competence. Sometimes, we talked too much and limited our students' ideas. We should give them more opportunities to explore their cultures themselves. For example, from the students' cultures' perspective, designating certain students to do certain tasks would not be appropriate, just like giving indigenous students the opportunity to share their ancestral beliefs.

#### Thinking critically about teaching

When teachers engaged in child-centered critical thinking about their teaching, they reviewed their teaching goals and beliefs and revised their curriculums and teaching methods based on what they learned. The teachers had to reflect on their curriculums' content. We have many indigenous students, so we have to be careful when designing our curriculums. We put as much indigenous-related content as possible in our lessons. After communicating with the indigenous parents, we reflected on the gap between our indigenous students' cultural backgrounds and our assumptions. We asked the indigenous parents for examples of indigenous culture because sometimes the indigenous

students didn't participate in lessons, didn't perform well, or didn't react to our lessons. Can indigenous students apply what they have learned? When they return to their tribe or community, can they help them solve problems? Their poor performance and lack of reaction might mean that they feel bored because the themes did not fit with their life experiences. The teachers mainly taught knowledge and skills from mainstream culture, so the content did not apply to the indigenous students' lives. For example, teaching about rice planting was not relevant because they did not grow rice in the indigenous areas and teaching about taking the MRT and high-speed rail also was not relevant because they did not have those forms of transportation in those areas. Not only would these themes be unrelated to their cultural contexts but they also would not help them solve real-life problems. Our teaching team should discuss these issues and come to a consensus. The teachers reflected on their teaching methods and curriculums' structures to understand how indigenous students' activities at home and in their tribes affect their participation in school activities. Our school themes should be linked to students' cultures, so we should constantly be aware of biases in our curriculums. When students learn within their cultural contexts, they share what they learn with their families at home. For example, one discussed the characteristics of stone slab houses of her students' tribe. These houses were part of her students' daily lives and they went in and out of them every day. When discussing hunters' clothing and activities, the indigenous students participated enthusiastically, raising their hands to share their hunting experiences. It was very gratifying. We took care of these indigenous students and started with their needs. Importantly, non-indigenous teachers need to understand indigenous culture to predict how their students will respond to their lessons. Did we use scaffolding of unfamiliar knowledge and skills when teaching indigenous students? We have to ask ourselves this question every day.

## Discussion

We explain how teachers can increase students' academic achievement according to Ladson-Billings' (1995a, 1995b) culturally relevant pedagogical approach. The teachers in this study used indigenous students' cultural knowledge to increase their academic achievement and cultivate their abilities. They used internet resources to understand the meaning of indigenous children's pretend harvest festival that they put on in a dramatic center and culturally relevant themes, such as my family and school, planting is fun, and discovering nature. The teachers realized that they should include material related to their students' cultural background in their lessons to increase their students' academic achievements. Our findings indicate that indigenous students' learning should be connected to their cultures (Brown, 2004; Druggish, 2003; Gay, 2002; Ladson-Billings, 1995a, 1995b). The cultural differences between non-indigenous teachers teaching in indigenous areas and their indigenous students affect students' academic achievements (Chen, 2001). Should non-indigenous teachers use their cultural knowledge to limit indigenous students' learning or learn with them? It challenges the multicultural literacy of non-indigenous teachers.

Second, Ladson-Billings' (1995a, 1995b) culturally relevant pedagogical approach states that education should incorporate relevant cultural knowledge and skills. We found that teachers used multiple skills to maintain their indigenous students' cultural

competence, such as communicating with indigenous parents in a familiar language, understanding their family backgrounds and life experiences, and meeting with families during class meetings, parent–child activities, and school time. All of the teachers stated that their indigenous students' learning relevant cultural skills would make them a useful part of their ethnic groups, families, and communities. One way that teachers incorporated local culture and readily available materials into lessons was using bamboo baskets, glass beads, and bamboo jaw harps. Using these materials during lessons integrates students' cultures with lessons; immerses them more in the cultural contexts of their ethnic groups, families, and communities; and develops their physical coordination, health, cognition, language skills, and social, emotional, and aesthetic senses. Similar to previous studies, our results indicate that teachers who integrate students' cultural contexts with their curriculums improve students' academic achievements (Jackson, 1994), increase their cultural knowledge, and strengthen their cultural competence (Weinstein et al. 2003). In this process, teachers serve as encouragers, creators, planners, and problem solvers (Ladson-Billings, 1995a, 1995b). Teachers must have a deep understanding of their student's cultures to have high cultural sensitivity (Chen, 2004; Chueh, 2012; Xu & Wu, 2008). Non-indigenous teachers should learn more about their indigenous students' cultures to avoid prejudice and ignorance (Lu, 2019).

Third, the Ladson-Billings' (1995a, 1995b) culturally relevant pedagogical approach holds that teachers must think critically about their teaching. Our results showed that the teachers' child-centered educational beliefs changed to interest indigenous students and encourage them to react to lessons. Apple These findings indicate that the teachers engaged in critical thinking about their child-centered education, such as the relationship between their students' cultural backgrounds and learning areas, materials, curriculums, teaching styles, and learning environment. Through critical thinking, the teachers identified how to close the gap between adult-centered and child-centered education in indigenous areas and between the cultural backgrounds of indigenous students' families? The teachers not only re-centered their teaching on indigenous students but also clarified their child-centered teaching goals and beliefs in general. As a result of their critical thinking, the teachers changed their curriculums, the design of their activities, the materials they used, and how they perceived their students' cultural contexts. Our findings and those of other culturally relevant pedagogy research have implications for teachers' beliefs, teaching materials, methods, strategies, solving self-prejudice through introspection, and resonant significance (Ladson-Billings, 1995a, 1995b; Oregon Department of Education Office of Student Learning & Partnerships, 2015; Wu, 2007).

## Conclusion and suggestions for future research

Curriculums and teaching methods should be focused on students' experiences and how they acquire knowledge and skills. Teachers should reflect on their teaching strategies and adjust them while maintaining a focus on their students (Dewey, 1997). Learning environments in indigenous areas are different from those in non-indigenous areas. However, many preschools in indigenous areas still design their curriculums, teaching activities, and materials around mainstream culture. For example, the themes of curriculums of many preschools in indigenous areas did not conform with their students' cultural backgrounds because they were mainly based on the mainstream culture, such as

featuring department stores, MRT stations, and amusement parks. They did not incorporate different cultural contexts, so some students lost the opportunity to dialogue with their own cultures, making learning and development more difficult (Gay, 2018). Human development is a cultural process and participating in cultural processes is a community activity, so the indigenous children learned how to socialize, make music, and dance and about the lunar calendar by participating in traditional cultural rituals (Rogoff, 2003). Indigenous children develop problem-solving skills that are suited to their own cultures that may be unlike mainstream culture.

Connecting community activities to preschool education helps students learn knowledge and skills from both their families and schools, increasing their academic achievements. For example, Yami children learn principles of distribution and equality through traditions involving ritual meat that emphasize sharing and imperfect competition (Chien, 1998). These concepts are different from those in mainstream teaching materials. Preschool teachers must identify their own level of cultural knowledge to maintain their indigenous students' cultural competence (Australian Government-Productivity Commission, 2016; Ho & Lin, 2006) and then try to learn about their students' cultures with a humble and respectful attitude and avoid bias in their teaching. Cultural transmissions, such as of language, and language retention are indicators of cultural competence (Brown, 1990). Thus, preschool teachers must improve their professional knowledge and skills about how to teach indigenous students their languages to maintain their cultural competence, such as using their languages to scaffold learning. Preschool teachers should try to continuously grow professionally (Strike, 1993) through critical thinking (Zeichner & Tabachnick, 1991).

Second, developing students' learning potential may be a feasible goal of differentiated teaching (Santangelo & Tomlinson, 2012). Insiders' knowledge and skills should not be taught from outsiders' perspectives, so preschool teachers should use culturally relevant pedagogy. Teachers should reflect on the cultural knowledge in their curriculums and adapt them to match their students' cultures. Teachers should always try to make their curriculums child-centered (Liu et al. 2016), such as incorporating indigenous students' cultural backgrounds and life experiences into curriculums. To engage in culturally relevant pedagogy, teachers must have a high degree of cultural sensitivity and literacy (Chen, 2003a, 2003b; Villegas & Lucas, 2002; Wu, 2007) and be able to engage in self-reflection, especially when they are teaching in indigenous areas. Without these skills, teachers are more likely to use mainstream culture to teach students not from that culture, thereby misunderstanding their students' backgrounds, cultural prejudices, and behaviors. As a result, teachers' impatience and poor communication can cause students to miss out on learning opportunities (Alaca & Pyle, 2018; Baker, 2019; Bonner et al. 2018; Gay, 2002; Howard, 2020; Song, 2018; Weinstein et al. 2003). Teachers must always be ready to reflect on whether their teaching non-indigenous cultural knowledge and skills to indigenous students is appropriate.

This study was limited in that the participants were six non-indigenous teachers, so future research should enlist more participants. However, it can serve as the foundation for future research on indigenous children's development. We hope that teaching in preschools in indigenous areas leaves students more room for exploration, such as in language, reading, and play. Future research in this area could examine how non-indigenous

teachers scaffold indigenous students' learning. We hope that non-indigenous teachers teaching in indigenous areas will view their unique teaching situation as a challenge to be embraced, not a situation to be rejected or feared. Teachers of indigenous students should have an attitude of openness, acceptance, respect, and reflection. They should use their students' cultures to increase their academic achievement and maintain their cultural competence to ultimately help them develop and learn through their schools, families, tribes, and communities. For example, non-indigenous teachers could teach indigenous students cultural concepts, such as plants and animals relevant to the tribe or hunting by going outside the classroom and teaching using natural surroundings.

**Acknowledgements**
Do not need acknowledgments.

**Author contributions**
The contributions 100% of BCC. The author read and approved the final manuscript.

**Funding**
In this research, no funds, grants, and no competing interests or other support were received. We had no financial or proprietary interests in any material discussed in this article. We would ensure and implement research ethics before conducting research. We explained the research purpose, methods, and expectations for participants. At the same time, we also invited them to sign a research agreement paper on the spot. If there were any questions, they could clarify on the site to protect both parties' responsibilities, rights, and obligations.

**Availability of data and materials**
In this research, data and material are all from the preschool field in Taiwan.

## Declarations

**Ethics approval and consent to participate**
In our research, no funds, grants, or other support was received. We had no financial or proprietary interests in any material discussed in this article. The research participants signed agreements to participate in this research.

**Consent for publication**
The author of Chen, Bi-Ching agree for publication.

**Competing interests**
The authors declare that they have no competing interests.

Received: 10 March 2022 Accepted: 9 May 2023
Published: 19 May 2023

**References**

Aceves, T. C., & Orosco, M. J. (2014). *Culturally responsive teaching (Document No. IC-2)*. Retrieved May 1, 2021, from http://ceedar.education.ufl.edu/wp-content/uploads/2014/08/culturally-responsive.pdf

Alaca, B., & Pyle, A. (2018). Kindergarten teachers' perspectives on culturally responsive education. *Canadian Journal of Education, 41*(3), 753–782.

Allen, A., Hancock, S. D., Lewis, C. W., & Starker-Glass, T. (2017). Mapping culturally relevant pedagogy into teacher education programs: A critical framework. *Teachers College Record, 119*, 1–26.

Aronson, B., & Laughter, J. (2016). The theory and practice of culturally relevant education: A synthesis of research across content areas. *Review of Educational Research, 86*(1), 163–206.

Australian Government-Productivity Commission. (2016). *Indigenous primary school achievement*. Commission Research Paper.

Baker, M. (2019). Playing, talking, co-constructing: Exemplary teaching for young dual language learners across program types. *Early Childhood Education Journal, 47*(1), 115–130.

Bales, B. L., & Saffold, F. (2011). A new era in the preparation of teachers for urban schools: Linking multiculturalism, disciplinary-based content, and pedagogy. *Urban Education, 46*(5), 953–974.

Banks, J. A., & Banks, C. A. M. (2020). *Multicultural education: Issues and perspectives*. Wiley.

Barnes, T. N., & McCallops, K. (2019). Perceptions of culturally responsive pedagogy in teaching SEL. *Journal for Multicultural Education, 13*(1), 70–81.

Belle, C. (2019). What is social justice education anyway? *Education Week, 38*(19), 18–19.

Bennett, S. V., Gunn, A. A., Gayle-Evans, G., Barrera, E. S., & Leung, C. B. (2018). Culturally responsive literacy practices in an early childhood community. *Early Childhood Education Journal, 46*(2), 241–248.

Bonner, P. J., Warren, S. R., & Jiang, Y. H. (2018). Voices from urban classrooms: Teachers' perceptions on instructing diverse students and using culturally responsive teaching. *Education and Urban Society, 50*(8), 697–726.

Borrero, N. E., Flores, E., & De la Cruz, G. (2016). Developing and enacting culturally relevant pedagogy: Voices of new teachers of color. *Equity & Excellence in Education, 49*(1), 27–40.
Bradshaw, C. P., Pas, E. T., Bottiani, J. H., Debnam, K. J., Reinke, W. M., Herman, K. C., & Rosenberg, M. S. (2018). Promoting cultural responsivity and student engagement through double-check coaching of classroom teachers: An efficacy study. *School Psychology Review, 47*(2), 118–134.
Brown, C. S. (1990). *Ready from within: A first person narrative*. Africa World Press.
Brown, D. F. (2004). Urban teachers' professed classroom management strategies: Reflections of culturally responsive teaching. *Urban Education, 39*(3), 266–289.
Buckingham, J., Wheldall, K., & Beaman-Wheldall, R. (2013). Why poor children are more likely to become poor readers: The school years. *Australian Journal of Education, 57*(3), 190–213.
Byrd, C. M. (2015). The associations of intergroup interactions and school racial socialization with academic motivation. *The Journal of Educational Research, 108*(1), 10–21.
Chen, J. Z. (2001). Reflections on aboriginal education. *The Educator Monthly, 408*, 25–29.
Chen, M. R. (2004). Profile a teacher's encounter with a different culture: From understanding, action to discovery? *Journal of Education Research, 117*, 22–33.
Chen, S. X. (2003a). From the perspective of the multicultural education paradigm, it discusses the research on cultural factors that are disadvantageous to aboriginal education. *Student Affairs: Theories and Practice, 412*(4), 62–66.
Chen, Y. F. (2003b). *Research on multicultural education in teacher training*. Showwe Information Press.
Chien, S. C. (1998). Cultural features and math learning: A case of Yami people in the orchid island. *Journal of National Taitung Teachers College, 9*, 283–306.
Cho, H. (2018). Professional judgment and cultural critical consciousness: The dynamics of teachers' decision-making for teaching controversial cultural issues. *Multicultural Education Review, 10*(4), 253–273.
Christ, T., & Sharma, S. A. (2018). Searching for mirrors: Preservice teachers' journey toward more culturally relevant pedagogy. *Reading Horizons: A Journal of Literacy and Language Arts, 57*(1), 55–73.
Chueh, C. M. (2012). *An inquiry to preschool teachers' culturally responsive teaching in indigenous townships of Kaoshiung and Pingtung*. Tainan, Taiwan: Department of Early Childhood Care and Education. (NSC99–2410-H168–004).
Civitillo, S., Juang, L. P., & Schachner, M. K. (2018). Challenging beliefs about cultural diversity in education: A synthesis and critical review of trainings with preservice teachers. *Educational Research Review, 24*, 67–83.
Clayton, J. K. (2011). Changing diversity in US schools: The impact on elementary student performance and achievement. *Education and Urban Society, 43*(6), 671–695.
Dahdah, E. G. (2017). *Culturally Intelligent (CQ) Teaching Capabilities: CQ Capabilities of Neighborhood Bridges Teaching Artists in Urban Classrooms*. (Unpublished doctoral dissertation). State University of Minnesota.
Devereaux, T. H., Prater, M. A., Jackson, A., Heath, M. A., & Carter, N. J. (2010). Special education faculty perceptions of participating in a culturally responsive professional development program. *Teacher Education and Special Education, 33*(4), 263–278.
Dewey, J. (1997). *Experience and education*. Free Press.
Diemer, M. A., Rapa, L. J., Voight, A. M., & McWhirter, E. H. (2016). Critical consciousness: A developmental approach to addressing marginalization and oppression. *Child Development Perspectives, 10*(4), 216–221.
Dixson, A. (2014). *Researching race in education: Policy, practice and qualitative research (Education policy in practice: Critical cultural studies)*. Information Age.
Druggish, R. S. (2003). *Nourishing roots and inspiring wings: Building a culturally responsive pedagogy for southern Appalachia.* Unpublished doctoral dissertation, State University of Virginia
Efeoglu, I. E., & Ulum, O. G. (2017). The relationship between Turkish EFL state school teachers' cultural intelligence and their professional well-being. *Journal of Education Culture and Society, 2*, 228–239.
Evans, L. M. (2018). A case study examination of exemplary literacy teaching in a cross-linguistic, cross-cultural learning environment. *Literacy Research and Instruction, 57*(4), 330–350.
Gandara, P., & Contreras, F. (2020). *The Latino education crisis*. Harvard University Press.
Gay, G. (2002). Culturally responsive teaching in special education for ethnically diverse students: Setting the stage. *International Journal of Qualitative Studies in Education, 15*(6), 613–629.
Gay, G. (2018). *Culturally responsive teaching: Theory, research and practice*. Teachers College Press.
Gay, G., & Kirkland, K. (2003). Developing cultural critical consciousness and self-reflection in preservice teacher education. *Theory into Practice, 42*(3), 181–187.
Gohar, Y. (2014). *Cultural intelligence of expatriate teachers in a multicultural education setting (Unpublished master dissertation)*. The American University in Cairo.
Gunn, A. A. (2016). Teachers moving forward on a cultural self-awareness spectrum: Diverse children, museums, and young adult literature. *Multicultural Perspectives, 18*(4), 214–220.
Gunn, A. A., Bennett, S. V., Alley, K. M., Barrera, E. S., IV., Cantrell, S. C., Moore, L., & Welsh, J. L. (2020). Revisiting culturally responsive teaching practices for early childhood preservice teachers. *Journal of Early Childhood Teacher Education, 1*, 1–16.
Gunn, A. A., Brice, A. E., & Peterson, B. J. (2014). Ideas for the classroom-culturally responsive teaching: Exploring children's names and cultural identities. *Childhood Education, 90*(2), 174–176.
Gunn, A. A., & King, J. (2015). Using empathetic identification as a literacy tool for building culturally responsive teaching with preservice teachers. *Teacher Development, 19*(2), 1–15.
Hambacher, E. (2018). Resisting punitive school discipline: Perspectives and practices of exemplary urban elementary teachers. *International Journal of Qualitative Studies in Education, 31*(2), 102–118.
Hambacher, E., & Bondy, L. (2016). Creating communities of culturally relevant critical teacher care. *Action in Teacher Education, 38*(4), 327–343.
Han, H. S., & Thomas, M. S. (2010). No child misunderstood: Enhancing early childhood teachers' multicultural responsiveness to the social competence of diverse children. *Early Childhood Education Journal, 37*(6), 469–476.
Ho, J. C., & Lin, H. T. (2006). Practice and reflection of culturally responsive teaching: Action research of a multi-ethnic classroom. *Tzu-Chi University Journal of the Educational Research, 2*, 39–40.

Howard, T. C. (2020). *Why race and culture matter in schools: Closing the achievement gap in America's classrooms*. Teachers College Press.
Howard, T. C., & Rodriguez-Minkoff, A. C. (2017). Culturally relevant pedagogy 20 years later: Progress or pontificating? what have we learned, and where do we go? *Teachers College Record, 119*(1), 1–32.
Hu, B. Y., Wu, H., Curby, T. W., Wu, Z., & Zhang, X. (2018). Teacher-child interaction quality, attitudes toward reading, and literacy achievement of Chinese preschool children: Mediation and moderation analysis. *Learning and Individual Differences, 68*, 1–11.
Jackson, F. R. (1994). Seven strategies to support a culturally responsive pedagogy. *Journal of Reading, 37*(4), 298–303.
Jackson, T. O., Bryan, M. L., & Larkin, M. L. (2016). An analysis of a white preservice teacher's reflections on race and young children within an urban school context. *Urban Education, 51*(1), 60–81.
Kidd, J. K., Sanchez, S. Y., & Thorp, E. K. (2008). Defining moments: Developing culturally responsive dispositions and teaching practices in early childhood preservice teachers. *Teaching and Teacher Education, 24*(2), 316–329.
Kidwell, T., & Penton Herrera, L. J. (2019). Culturally sustaining pedagogy in action: Views from Indonesia and the United States. *Kappa Delta Pi Record, 55*(2), 60–65.
Kohli, R., & Solorzano, D. (2012). Teachers, please learn our names!: Racial microaggressions and the K-12 classroom. *Race, Ethnicity & Education, 15*(4), 441–462.
Ladson-billings, G. (1995a). But that's just good teaching! The case for culturally relevant pedagogy. *Theory into Practice, 34*(3), 159–165.
Ladson-billings, G. (1995b). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal, 32*(3), 465–491.
Ladson-Billings, G. (2006). "Yes, but how do we do it?" Practicing culturally relevant pedagogy. In J. G. Landsman & C. W. Lewis (Eds.), *White teachers diverse classrooms: Creating inclusive schools, building on students' diversity, and providing true educational equity* (pp. 29–42). Stylus Publishers.
Ladson-Billings, G. (2013). *Dreamkeepers: Successful teachers of African American children*. Wiley.
Ladson-Billings, G. (2014). Culturally relevant pedagogy 2.0: Aka the remix. *Harvard Educational Review., 84*(1), 74–84.
Lemon, K. S., & Edwards, F. (2017). "We wanted to see if you were the real deal": Teaching as a cultural practice in a challenging environment. *Teachers and Curriculum, 17*, 39–44.
Leung, C. H. (2020). *Teachers' multicultural sensitivity predicts developmentally appropriate beliefs and practices in the classroom*. Advance Online Publication. https://doi.org/10.1108/AEDS-09-2020-0201
Liu, M. H., You, M. H., & Li, S. J. (2016). *Multicultural education*. Higher Education Press.
Lu, M. K. (2019). Culturally responsive teaching: The construction of a Bunun school's school-based curriculum. Taichung, Taiwan: Department of Early Childhood Education. (MOST107–2410-H468–010).
Mahatmya, D., Lohman, B. J., Brown, E. L., & Conway-Turner, J. (2016). The role of race and teachers' cultural awareness in predicting low-income, Black and Hispanic students' perceptions of educational attainment. *Social Psychology of Education, 19*(2), 427–449.
Mar, D. (2018). Racial diversity and academic test scores in public elementary schools. *Applied Economics Letters, 25*(11), 768–771.
Mena, J. A., & Rogers, M. R. (2017). Factors associated with multicultural teaching competence: Social justice orientation and multicultural environment. *Training and Education in Professional Psychology, 11*(2), 61–68.
Milner, H. R. (2011). Culturally relevant pedagogy in a diverse urban classroom. *The Urban Review, 43*(1), 66–89.
Milner, H. R. (2020). *Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms*. Harvard Education Press.
Minkos, M. L., Sassu, K. A., Gregory, J. L., Patwa, S. S., Theodore, L. A., & Femc-Bagwell, M. (2017). Culturally responsive practice and the role of school administrators. *Psychology in the Schools, 54*(10), 1260–1266.
Nelson, J. (2016). Relational teaching with Black boys: Strategies for learning at a single-sex middle school for boys of color. *Teachers College Record, 118*(6), 1–30.
Nieto, S. (2018). *Language, culture, and teaching: Critical perspectives*. Routledge.
Oregon Department of Education Office of Student Learning & Partnerships. (2015). *Special education assessment process for culturally and linguistically diverse (CLD) students*. Western Oregon University.
Pang, V. O., Stein, R., Gomez, M., Matas, A., & Shimogori, Y. (2011). Cultural competencies: Essential elements of caring-centered multicultural education. *Action in Teacher Education, 33*(5–6), 560–574.
Pekoz, C. (2020). Multicultural attitudes and cultural intelligence of preschool teachers. *Education, 14*(1), 45–60.
Rogoff, B. (2003). *The cultural nature of human development*. Oxford University Press.
Rychly, L., & Graves, E. (2012). Teacher characteristics for culturally responsive pedagogy. *Multicultural Perspectives, 14*(1), 44–49.
Santangelo, T., & Tomlinson, C. A. (2012). Teacher educator's perceptions and use of differentiated practices: An exploratory investigation. *Action in Teacher Education, 34*(4), 309–327.
Song, Y. (2018). Fostering culturally responsive schools: Student identity development in cross-cultural classrooms. *International Journal of Education and the Arts, 19*(3), 1–23.
Starker, T. V., & Fitchett, P. G. (2013). Assisting preservice teachers toward becoming culturally responsive. *Multicultural Learning and Teaching, 8*(1), 27–46.
Strike, K. A. (1993). Professionalism, democracy, and discursive communities: Normative reflections on restructuring. *American Education Research Journal, 30*(2), 255–275.
Tomlinson, C. A., & Murphy, M. (2020). *Leading for differentiation: Growing teachers who grow kids*. Psychology Press.
Torres-Harding, S., Baber, A., Hilvers, J., Hobbs, N., & Maly, M. (2018). Children as agents of community and social change: Enhancing youth empowerment through participation in a school-based project. *Education, Citizenship, and Social Justice, 13*(1), 3–18.
Tuncel, G. (2017). Improving the cultural responsiveness of prospective social studies teachers: An action research. *Educational Sciences: Theory and Practice, 17*(4), 1317–1344.
Ukpokodu, O. M. (2011). Developing teachers' cultural competence: One teacher educator's practice of unpacking student culturelessness. *Action in Teacher Education, 33*(5–6), 432–454.

Villegas, A. M., & Lucas, T. (2002). Preparing culturally responsive teachers: Rethinking the curriculum. *Journal of Teacher Education, 53*(1), 20–32.
Villegas, A. M., & Lucas, T. (2007). The culturally responsive teacher. *Educational Leadership, 64*(6), 28–33.
Weinstein, C., Curran, M., & Tomlinson-Clarke, S. (2003). Culturally responsive classroom management: Awareness into action. *Theory into Practice, 42*(4), 269–276.
Wood, C., Wofford, M. C., & Hassinger, A. (2018). Acknowledging challenges and embracing innovative instructional practices in response to cultural and linguistic diversity. *SAGE Open, 8*(2), 1–13.
Wu, Y. L. (2007). The exploration of multicultural teacher education theories and practices. *Chung Cheng Educational Studies, 61*(1), 61–93.
Xu, Z. L., & Wu, R. F. (2008). *Teaching methodologies of Chinese as a second language*. New Sharing Press.
Zeichner, K. M., & Tabachnick, B. R. (1991). Reflections on reflective teaching. In B. R. Tabachnick & K. M. Zeichner (Eds.), *Inquiry-oriented practices in teacher education* (pp. 1–21). Falmer Press.

## Publisher's Note