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Towards a school culture of pedagogical fairness: revisiting the academic performance of immigrant children in East Asia

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ABSTRACT

Educational scholars have argued for fair pedagogical practices in response to the learning needs of diverse students. While pedagogical fairness has been widely advocated, few studies have systematically assessed its impact on student learning, and even fewer have examined pedagogical fairness from a school organisational perspective. To narrow this gap in research, the current study develops an expansive conceptualisation of pedagogical fairness as an integral part of organisational culture, which varies by school. Our data, gathered from 7,746 immigrantbackground students attending 563 schools in six East Asian societies, were analysed based on a hierarchical linear model explaining their academic performance as a function of pedagogical fairness in terms of both teacher practice and school culture. The results suggest that fair pedagogy can effectively help immigrant children succeed in school. It is particularly notable that pedagogical unfairness embedded in school culture is negatively associated with the academic performance of immigrant children, even after controlling for unfair pedagogical practices exercised by individual teachers. These findings suggest that implementing fair pedagogy is not simply the responsibility of individual teachers; it is also the responsibility of school leaders, as they are in the position to substantially influence the school as an organisational whole.

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Pedagogical fairness; immigrant pupils; educational equity; school culture; school leadership

Introduction

School reform in pursuit of educational equity is rooted in the axiomatic credo that education should empower all learners fairly. John Amos Comenius was one of the earliest advocates of universal education in this regard. He initiated the quest for a 'great didactic', which he described as 'the whole art of teaching all things to all [children] ... with the greatest enjoyment' for each child (Comenius, 1657/1896, 157).¹ Today, the notion of universal education, coupled with the ideal of educational equity, has evolved into an ethic of fairness and inclusion. This urges educators to use varied approaches to teaching in response to each child's unique strengths and needs (Grant and Sleeter 2011; Paine, Blömeke, and Aydarova 2016). Some educational scholars even consider teaching a moral act to achieve the 'goal of fairness' (Paley 1990, xii).

A key element of fair teaching is ensuring all students feel as welcomed and included as possible, without being pressured to alter their authentic selves (Banks and Banks 1995; González, Moll, and Amanti 2005). However, the extant literature suggests that fair teaching cannot be implemented successfully at a school unless a culture of fairness becomes an integral element in all aspects of the school (Capper 2019; Lopez 2016). The development of fair teaching as a sustainable practice depends on the school's capacity to develop a school culture that valorises the full learning potential of every student. In other words, the school must be conceived of as an inclusive space in terms of not only educational practices, but also administrative processes. In this light, achieving pedagogical fairness is not simply the responsibility of individual teachers; pedagogical fairness can only grow within an inclusive and anti-oppressive school culture.

Fair pedagogy—or 'equity pedagogy', a term more commonly used in multicultural education literature—has usually been viewed as a teaching practice or competency that individual teachers demonstrate in their classrooms. Such a perspective reflects the crucial nature of fair pedagogy as a repertoire of pedagogical beliefs, knowledge, and strategies that needs to be effectively implemented by individual teachers (Gay 2010; González, Moll, and Amanti 2005; Ladson-Billings 1995). Viewing fair pedagogy as an indicator of individual teacher quality is helpful because it draws our attention to the importance of teachers' readiness to work with diverse students, revealing the complex ways in which an individual teacher's classroom practices influence students' learning experiences.

However, an alternative perspective highlighting the organisational nature of teaching quality has been emerging in recent decades of research. In particular, several organisational attributes of teaching quality, such as shared values, relational trust, and professional interactions in a school, have been found to be consequential to school effectiveness and improvement (Bryk and Schneider 2003; Ham, Kim, and Kim 2019; Youngs and King 2002). In this respect, we posit that fair pedagogy may be viewed alternatively as an organisational attribute that encompasses the collective beliefs, knowledge, and efforts shared by teachers in a school. In other words, while fair pedagogy concerns multiple aspects of teaching and learning, the current study focuses on the cultural 'ecosystem of relations that make up classroom life' (Cooper 2009, 94), especially in terms of the collective ethos about the relationship between teachers and students.

Specifically, this study asks: how does fair pedagogy influence the academic performance of immigrant-background students? In other words, does fair pedagogy result in a better chance for immigrant-background children to succeed in school? We chose to focus on immigrant-background children for two reasons. First, it has been well documented that 'in most countries, immigrant students lag behind native students in performance; in many countries, the difference is considerable' (Jakubowski 2011, 1). This performance gap is not entirely due to socioeconomic differences. Even after accounting for socioeconomic status, immigrant-background students often still underperform in many countries (Ham, Song, and Yang 2020; Schnepf 2007). Second, increased human flow across national borders has become an integral feature of the world today due to the consolidation of globalisation. The consequent reconfiguration of the socioeconomic landscape has altered our school life profoundly. East Asian societies are no exception. In recent decades, East Asian societies have developed a range of policies for the socioeconomic integration of immigrants and their children. Recent policy developments have increasingly emphasised helping immigrant-background children succeed in school.

In response to the learning needs of diverse students, educational scholars have argued for fair pedagogy, whereby teachers are encouraged to use a range of instructional strategies that cater to the learning needs and cultural assets of diverse groups of students (González, Moll, and Amanti 2005; Ladson-Billings 1995). While fair pedagogy has been widely advocated and practiced in many classrooms worldwide, few studies have systematically examined its impact on student performance, and even fewer have deconstructed fair pedagogy into multi-layered attributes that encompass both instructional practice and organisational culture. In an effort to narrow this research gap, the current study examines the relationship between the practices of fair pedagogy—not only as an individual teacher competency, but also as a school organisational quality and the educational performance of immigrant students.

East Asian multicultural context of fair pedagogy

Ensuring educational equity for all students regardless of ethno-cultural identities has recently become an important policy priority in a range of East Asian countries (Cha, Ham, and Lee 2018). Such policy development is a response to changing demographic landscapes. As noted in a report by the International Organisation for Migration (IOM 2018), 'Eastern Asia is in the midst of unprecedented demographic change. ... Countries such as Japan are already undergoing negative population growth, while the Republic of Korea has the lowest birth rate and the fastest-ageing population profile among OECD countries. ... These realities [raising concerns about increasing health care costs and decreasing labour productivity] are promoting policymakers to reassess historically restrictive approaches towards immigration' (59). The traditional notion of cultural homogeneity, which was once actively used as an ideological tool for social integration in some East Asian countries, is now often considered a burden to overcome in order to embrace diversity in society.

The renewed importance of educational diversity and equity in East Asia is, however, not entirely due to demographic changes. It is also due to the global circulation of policy discourse emphasising educational equity for all children. An array of global agendas for education proposed by internationally networked agencies and experts serve as normative guidelines and recipes for policy development in many countries, resulting in a high level of isomorphism in policy institutionalisation across countries (Cha, Ham, and Yang 2017; Ramirez, Bromley, and Russell 2009). All children, viewed as equal future citizens possessing unique individual personhoods, are understood to be equally entitled to educational opportunities. Today, any form of educational exclusion of immigrant-back-ground children would attract criticism both domestically and internationally.

Further, the special—often excessive—value placed on education in many East Asian societies, which is embedded deeply within the cultural and economic contexts of those countries, is partly a manifestation of the societal expectation that all students should engage in learning in a fair manner, with chances of upward social mobility distributed equally in education (Seth 2002; Teng, Manzon, and Poon 2019). In this respect, promoting fair pedagogy is accordant with a broader reform effort to achieve a heightened level

of educational equity. Educators and researchers have emphasised the importance of educational policies and practices involving a range of intervention programme packages for not only immigrant-background children, but also their teachers, parents, and neighbourhoods in helping these children obtain integrated support from a larger social ecology.

We hope that the current study, intended primarily as an effort towards an expansive reconceptualisation of fair pedagogy, may contribute to a better understanding of East Asia as a newly emerging context of educational reform movements that are progressing towards a greater level of inclusivity and embracement of cultural diversity. Specifically, we emphasise that the concept of fair pedagogy deserves close attention in the context of East Asian multicultural developments for two interrelated reasons. First, fair pedagogy must be re-tested to check if it can serve as a useful concept in non-Western contexts. Since the concept of fair pedagogy was first proposed and subsequently developed mostly in North American contexts, it is important to examine whether the usefulness of the concept holds in East Asia despite contextual differences. Second, the predominantly North American concept of fair pedagogy has evolved primarily as a normative notion rather than a measurable construct, which has deterred researchers from systematically examining its impact. The present study is a pioneering attempt towards systematically assessing the impact of fair pedagogy by operationalising this concept into measurable variables.

Conceptual perspectives and hypotheses

Fair pedagogy as a teacher competency: the dominant perspective

Few would disagree that 'establishing caring [and fair] relationships with every student may be the most important thing a teacher can do to [help all students attain] high achievement' (Grant and Sleeter 2011, 95). It has been well documented that children's academic performance is affected by various factors related to teachers, including their expectations of their students (van den Bergh et al. 2010; Weinstein 2002). Research has shown that teachers' expectations often differ depending on students' social identity markers, which reflect their cultural and economic backgrounds (Janssen et al. 2012; McCombs and Gay 2001). According to widely circulated stereotypical presumptions, teachers often—whether consciously or unconsciously—attribute the poor performance of some children to their group characteristics, which have been essentialised through simplistic categorisations. Teachers' differential expectations towards students can structure their learning opportunities, thereby influencing their academic outcomes in an inequitable manner.

Such differential treatment may well be considered discrimination against those students who shoulder the burden of lower expectations, and consequently receive less attention from teachers. Teachers' differential treatment is not merely idiosyncratic individual behaviour; it often represents forms of social exclusion that have permeated broader layers of society. It has been documented that teachers' lower expectations are more likely to manifest when a lesser degree of home-school congruence or greater degree of sociocultural mismatch exists (Benner and Mistry 2007; Janssen et al. 2012). This partly accounts for why minority students often report being treated unfairly by teachers because of their backgrounds. Students' perception of discrimination by teachers may have various detrimental effects. A sense of being discriminated against by teachers may result in 'lower self-esteem, decreased academic motivation, increased racial mistrust, problem behaviours, and greater levels of anger and depressive symptoms' (Harlin, Sirota, and Bailey 2009, 256), which may contribute to poor academic performance.

In an effort to make classrooms more equitable for all students, educational scholars have argued for fair pedagogy, which is widely understood as 'teaching strategies and classroom environments that help students from diverse racial, ethnic, and cultural groups attain the knowledge, skills, and attitudes needed to function effectively within, and help create and sustain, a just, humane, and democratic society' (Banks and Banks 1995, 152). The first and most important step towards such fair pedagogy is to eliminate unfair teaching practices. Unfair practices are likely to occur when teachers have either differential expectations or discriminatory attitudes towards students based on their socioeconomic, cultural, or demographic backgrounds (Gay 2013; Ladson-Billings 1995). Teachers should be self-critical and avoid conferring any advantages or disadvantages to particular students to provide equitable learning opportunities for all students (Nieto 2000; Sleeter 2013).

Culturally responsive teaching is a form of fair pedagogy used 'to improve the performance of underachieving students from various ethnic groups—one that teaches to and through their personal and cultural strengths, their intellectual capabilities, and their prior accomplishments' (Gay 2010, 26). Culturally responsive teachers are able to help students 'accept and affirm their cultural identity while developing critical perspectives that challenge inequities that schools (and other institutions) perpetuate' (Ladson-Billings 1995, 469). Culturally responsive teachers thus reject 'pathological and deficient perceptions of students and communities of colour' (Gay 2013, 54) and instead capitalise on diversity to enrich student learning. Teachers who are skilled in culturally responsive teaching understand the importance of 'using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them' (Gay 2010, 31).

Based on the perspective that views fair pedagogy as a teacher competency—or an aspect of teacher quality—that should be demonstrated by individual teachers, the following hypothesis has been implicitly assumed and extensively employed in prior literature: *Among immigrant-background children, those who are treated more fairly by teachers will perform better* (Hypothesis 1). This popular hypothesis explains why teacher education interventions—i.e. pre-service teacher preparation and in-service professional development—are often emphasised as instrumental for nurturing teachers' awareness of fair pedagogy and their capacity to implement it.

Fair pedagogy as a school characteristic: an alternative conceptualisation

As many educators would agree, 'where the curriculum falls short in addressing the needs of all students, teachers must provide a bridge; where the system reflects cultural and linguistic insensitivity, teachers must demonstrate understanding and support... By so doing, teachers fulfil their responsibility to all their students' (Richards, Brown, and Forde 2004, 8). Considering the marked impact that teachers can have on students,

fair pedagogy is a pressing notion that urges teachers to revisit their own pedagogical assumptions critically in order to make the task of teaching a more inclusive and just endeavour. We agree that teachers' competence in fair pedagogy is an important aspect of teaching quality. Certainly, teacher education reforms worldwide emphasising teachers' professional expertise in instructing diverse students epitomise a growing degree of global discursive legitimacy of equity-based pedagogy (Darling-Hammond 2021; Paine, Blömeke, and Aydarova 2016).

We, however, argue that along with the teacher competency perspective, fair pedagogy needs to be understood from a school organisational perspective. If we understand fair pedagogy exclusively as a modality of teaching, we either implicitly or explicitly assume that teachers are ultimately responsible for ensuring equity in student learning. This assumption carries the risk of attributing educational inequity to individual teachers, thereby diverting our attention from other causes of inequity (Berliner 2009; Kennedy 2010). In the current study, we posit that fair pedagogy is not simply an instructional practice. Rather, we postulate that fair pedagogy can be understood more comprehensively if it is considered both an attribute of individual teachers and a school-wide ethos. Equity-based instructional practices cannot be implemented successfully within a school unless inclusive and fair practices become an integral part of all aspects of the school, which combine to constitute the school's culture.

The capacity of a school to build a welcoming environment for all students might very well be the crucial component for the effective implementation of fair pedagogy. Educators 'nowadays shoulder responsibility for shaping their organisations in ways that value and integrate heterogeneous groups into successful learning communities for all' (Dimmock and Walker 2005, 4). The development of equitable and inclusive teaching into a sustainable practice at a school depends significantly on the organisational capacity of the school to build a fair school culture for all students (Ham, Kim, and Lee 2020; Riehl 2000). In this respect, we posit that attaining cultural responsiveness in teaching is not simply the responsibility of individual teachers; insofar as cultural responsiveness deserves to be understood as an integral and sustainable feature of good teaching, a high level of cultural responsiveness can only germinate within a culturally inclusive and anti-oppressive school culture that supports such good teaching.

Such an inclusive school culture can be effectively built and sustained only when a collective effort is made, given that school culture is a set of shared norms and values that translates into certain patterns of educational practices. To develop a 'culturally responsive school culture' (Khalifa 2018, 139), educators 'need to act agentically ... to achieve socially just learning environments for all children ... [by] replac[ing] deficit thinking with deep and meaningful relationships' (Shields 2004, 127–128). To this end, both policy and practice should be non-exclusionary for all members of the school community. The school must be conceived of as an inclusive space in terms of educational goals and practices. In order 'to create spaces in which children may feel comfortable bringing the totality of their lived experiences into the learning situation' (Shields 2004, 118), an organisational approach that integrates fair pedagogy as an important feature in all aspects of the school is needed.

Based on the organisational perspective discussed above, the following hypothesis is proposed: Among immigrant-background children, those who attend schools that are characterised by a school-wide culture of pedagogical fairness will perform better, with the culture of fairness being defined as children's collective perception of non-discriminatory school practices for all students (Hypothesis 2). Unlike the conventional hypothesis (Hypothesis 1), this alternative hypothesis considers the possibility that fair pedagogy can be better conceptualised if it is understood as a school-level/organisational quality as well as a teacher-level/individual competency.

Data and method

Data

The data source for this study was the Programme for International Student Assessment (PISA) 2015.² The PISA 2015 project compiled student performance data across a wide range of countries. Further, extensive information was also collected about individual students' school life and their home and school environments. Administered by the Organisation for Economic Co-operation and Development (OECD), the PISA 2015 project gathered data from all OECD member states as well as a range of other countries/economies. The sampling strategy was designed to provide accurate estimates of the nationally representative 15-year-old student population of each country. The school enrolment of children of this age was nearly universal in almost all participating countries, which enabled us to analyse the data on a cross-nationally comparable basis.

We used a subset of the PISA 2015 data that included 7,746 immigrant-background students from 563 schools. Each student in our dataset had at least one foreign-born parent. Each student was living in one of the following East Asian societies: China ML (mainland China), Hong Kong, Japan, Macao, South Korea, and Taiwan, listed in alphabetical order.³ These six societies were all participating economies from East Asia in PISA 2015, and each participated as a separate territorial/regional unit. For the maximum utilisation of the data as well as for analytic convenience, we treated all these societies as individual countries, regardless of sovereignty or issues related to political relations.

Variables

All variables used in this study are defined in Table 1. First, the dependent variable in this study was the *student performance* (Perform) of immigrant-background children. Both mathematics and reading performance measures were used separately. In other words, the same set of analyses was repeated using these two different performance measures. This analytic strategy was used to check the robustness of the result patterns regardless of performance measures.

Two main independent variables were used to explain student performance: *unfair treatment by teachers* (UnfairTchr) and *unfair school culture* (UnfairSchl). The former was a measure of student-perceived unfair treatment by teachers for each student, while the latter was students' collective perception of unfair treatment by teachers at each school. These two measures were based on responses to four student survey items (e.g. 'Teachers gave me the impression that they think I am less smart than I really am.'), as presented in Table 2. Those items captured 'the extent to which students perceive[d] their teachers as [unfair and un]caring persons' (Banks and Banks 1995, 154). The central difference between these two measures lay in the levels of

Table 1. Definitions of variables

Variable	Definition			
Dependent variables				
Student performance (Perform)	PISA scores in math and reading, each on a scale with an international mean of 500 score points and a standard deviation of 100 score points.			
Main independent variables				
Unfair treatment by teachers (UnfairTchr)	Student-perceived unfair treatment by teachers based on responses to four student survey items (student mean).			
Unfair school culture (UnfairSchl)	Collective perception of unfair treatment by teachers at a school, based on four student survey items responded to by all students, irrespective of background (school-level aggregate mean).			
Control variables				
Parent education level (ParentEd)	Highest education level of parents in the International Standard Classification of Education (ISCED).			
Foreign-born father (Img_Fa)	The student has a foreign-born father and a native-born mother (=1 vs 0), with the reference group being students whose parents are both foreign-born (Img_Both = 1).			
Foreign-born mother (Img_Mo)	The student has a foreign-born mother and a native-born father (=1 vs 0), with the reference group being students whose parents are both foreign-born (Img_Both = 1).			
Home language different (DifLang)	The main language used at home is different from the language of assessment at school (=1 vs 0).			
Immigration at an early age (ImgEarly)	The student has lived in this country for ten years or more (=1 vs 0), irrespective of whether he/she is native-born or foreign-born.			
Female student (Female)	Female student (=1 vs 0).			

analysis. While the former measure was the student-level mean of the six items based on the responses of immigrant-background children, the latter was the school-level aggregate mean based on all students' responses, irrespective of background. Both variables appeared to be acceptably valid and reliable measures in all six countries observed, as suggested by the factor loadings and McDonald's (1999) omega coefficients reported in Table 3.

As informed by previous studies on the relationships between student background and educational performance (e.g. Zhou et al. 2017), an array of control variables was used. These variables included parents' characteristics, such as their highest education level (ParentEd) and their immigrant background in terms of whether the father (Img_Fa), mother (Img_Mo), or both (Img_Both) were foreign-born. In addition, whether the main language used at home differed from the main official language used at school (DifLang) was considered to control for language environment differences among children. Further, children's length of stay in the current country of residence (ImgEarly) and their gender (Female) were also taken into account. Descriptive statistics of all these variables—i.e. dependent, main independent, and control variables—are presented in Table 4.

Table 2. Items measuring student-perceived unfairness in teaching.

Item 1. Teachers said something insulting to me in front of others.

Item 4. Teachers ridiculed me in front of others.

Item 2. Teachers gave me the impression that they think I am less smart than I really am.

Item 3. Teachers disciplined me more harshly than other students.

Note: For each item, response options ranged from 'never or almost never' (= 1) to 'once a week or more' (= 4).

	China ML	Hong Kong	Japan	Macao	South Korea	Taiwan
Factor loading						
Item 1	0.80	0.80	0.77	0.80	0.87	0.83
	(0.81)	(0.80)	(0.88)	(0.78)	(0.99)	(0.86)
ltem 2	0.43	0.45	0.66	0.50	0.46	0.44
	(0.47)	(0.47)	(0.72)	(0.49)	(0.19)	(0.35)
Item 3	0.47	0.72	0.75	0.53	0.69	0.57
	(0.52)	(0.71)	(0.83)	(0.49)	(0.86)	(0.49)
ltem 4	0.89	0.83	0.72	0.83	0.89	0.84
	(0.93)	(0.82)	(0.93)	(0.83)	(0.92)	(0.82)
McDonald's ω						
	0.69	0.78	0.81	0.73	0.78	0.72
	(0.78)	(0.78)	(0.90)	(0.72)	(0.81)	(0.69)

Table 3. Factor I	oadings and McDonald	d's omegas for stud	lent-perceived	unfair treatment b	y teachers
	5	<u> </u>			/

Note: Maximum-likelihood factor loadings are reported. The results are based on the all-students sample of each country; additional results are reported in parentheses, which are based on the sub-sample of immigrant-background students only. The CFI fit index was 0.93 or higher in all factor analyses, except for the case of China ML's immigrant sub-sample, for which the CFI fit index was 0.83. McDonald's omega coefficients were obtained according to the method elaborated by Hayes and Coutts (2020).

Model

We employed hierarchical linear modelling (HLM) analysis (Raudenbush and Bryk 2002). Specifically, using the software HLM 7 (Raudenbush et al. 2016), we performed a three-level random intercept model to explain the academic performance of the *i*th student attending the *j*th school in the *k*th education system in our dataset. First, the level-1 model was specified as follows:

$$\begin{aligned} \text{Perform}_{ijk} &= \pi_{0jk} + \pi_{1jk} \text{UnfairTchr}_{ijk} \\ &+ \pi_{2jk} \text{ParentEd}_{ijk} + \pi_{3jk} \text{Img}_{\text{Fa}ijk} + \pi_{4jk} \text{Img}_{\text{Mo}ijk} \\ &+ \pi_{5jk} \text{DifLang}_{ijk} + \pi_{6jk} \text{ImgEarly}_{ijk} + \pi_{7jk} \text{Female}_{ijk} + e_{ijk} \sim N(0, \sigma^2), \end{aligned}$$

where π_{0jk} is the level-1 intercept; π_{1jk} through π_{7jk} are slopes for student-level predictor variables; and e_{ijk} is a random error. At level 2, the level-1 intercept and slopes are further

	Mean	SD	Min.	Max.
Student performance (Perform_Math)	541.83	86.22	115.36	858.95
Student performance (Perform_Read)	515.33	84.98	113.25	807.13
Unfair treatment by teachers (UnfairTchr)	1.51	0.66	1.00	4.00
Unfair school culture (UnfairSchl)	1.39	0.20	1.02	2.75
Parent education level (ParentEd)	3.45	1.60	0.00	6.00
Foreign-born father (Img_Fa)	0.09		0.00	1.00
Foreign-born mother (Img_Mo)	0.31		0.00	1.00
Foreign-born parents (Img_Both)	0.60		0.00	1.00
Home language different (DifLang)	0.10		0.00	1.00
Immigration at an early age (ImgEarly)	0.85		0.00	1.00
Female student (Female)	0.51		0.00	1.00

Table 4. Unweighted descriptive statistics of variables.

Note: The number of cases is 7,746 students at 563 schools in six countries. UnfairSchl is a school-level variable; all other variables are student-level variables. Variables listed without standard deviations are dummy variables; therefore, the means should be interpreted as proportions. In the analyses that follow, the group of Img_Both = 1 is the reference group compared with the groups of Img_Fa = 1 and Img_Mo = 1. Descriptive statistics by country are available on request.

specified:

$$\pi_{0jk} = \beta_{00k} + \beta_{01k} \text{UnfairSchl}_{jk} + r_{0jk} \sim N(0, \tau_{\pi})$$

$$\pi_{ajk} = \beta_{a0k} \text{for } 1 \le a \le 7,$$

where β_{00k} is the level-2 intercept; β_{01k} is the slope for the school-level predictor UnfairSchl_{jk}; and r_{0jk} is a random error capturing the remaining variance between schools. The level-1 slopes π_{ajk} are treated as fixed as β_{a0k} at level 2. At level 3, these level-2 specifications are further elaborated:

$$egin{aligned} eta_{00k} &= \gamma_{000} + u_{00k} \sim N(0, \, au_eta) \ eta_{01k} &= \gamma_{010} \ eta_{a0k} &= \gamma_{a00}, \end{aligned}$$

where γ_{000} is the grand constant, and u_{00k} is a random error capturing unexplained between-country variance. β_{01k} and β_{a0k} are both treated as fixed at level 3.

Since all predictor variables have been grand-mean centred, the grand constant γ_{000} may be interpreted as the expected value of the outcome variable Perform_{*ijk*} when all predictor variables are set equal to their grand means. In other words, the estimate for γ_{000} indicates the academic performance level of a typical student attending an ordinary school in an average country in our dataset.

Our data were appropriately weighted to ensure that each country contributed equally to the results, as suggested by the PISA data analysis manual (OECD 2009). In the dataset we used for the three-level HLM analysis, the six countries differed considerably in terms of sample size, primarily due to varying proportions of immigrant-background children across the countries.⁴ To avoid bias towards countries with larger sample sizes, we counterweighted the data by sample size.

Results

The results from our HLM analysis are presented in Table 5. First, with all independent variables set equal to their grand means, the expected student performance values of immigrant-background children were 481.0 for mathematics and 466.9 for reading, as

	Mathematics				Reading	
	Coeff.	95%	6 CI		95%	5 CI
		Lower	Upper	Coeff.	Lower	Upper
Intercept, y ₀₀₀	481.0***	446.7	515.4	466.9***	429.0	504.8
UnfairTchr, y ₁₀₀	-14.1***	-20.0	-8.2	-16.7***	-22.3	-11.1
UnfairSchl, γ_{010}	-136.9***	-219.8	-54.0	-144.5***	-230.7	-58.3
ParentEd, γ_{200}	1.4	-0.9	3.7	1.6	-0.6	3.8
Img_Fa, γ ₃₀₀	-10.3	-22.6	2.1	-15.2**	-27.0	-3.3
Img_Mo, γ ₄₀₀	-4.6	-11.7	2.6	-1.1	-8.0	5.7
DifLang, Y500	-24.6**	-41.1	-8.1	-32.7***	-48.5	-16.8
ImgEarly, Y600	9.5	-0.5	19.5	14.7**	5.2	24.3
Female, y700	-20.6***	-27.5	-13.7	7.6*	1.1	14.2

Table 5. HLM results explaining the academic performance of immigrant-background children

Note: Coeff. = unstandardised estimates of effects. Cl = confidence interval.

*p≤0.05; **p≤0.01; ***p≤0.001.

the intercept coefficients indicate. Considering that both mathematics and reading scores are on a standardised scale that has an OECD mean of 500 with its standard deviation of 100, immigrant-background students in our East Asian sample tend to perform less well compared with typical students in average OECD countries. This performance gap seems slightly greater in reading than in mathematics, echoing the importance of the sociolinguistic adaptation of immigrant-background children for a fuller integration into the educational system.

Given that immigrant-background children may experience educational disadvantages in terms of academic performance, our central question is which variables explain the variance in their performance. Both main independent variables—corresponding to our two hypotheses—significantly predict performance. Both *unfair treatment by teachers* and *unfair school culture* are significantly negatively associated with the performance of immigrant-background children, with an array of other variables held constant. This finding is quite suggestive because even after considering the effect of student-level experience of unfair treatment, the perception of school-level (un)fairness still offers an account of why performance varies among immigrant-background children. This result lends credence to our alternative hypothesis (Hypothesis 2), in which fair pedagogy is understood as a school-level characteristic, even after accounting for the conventional hypothesis (Hypothesis 1), in which fair pedagogy is considered an individual-level variable.

This pattern is visualised in Figures 1 and 2 for mathematics and reading, respectively. As clearly illustrated in these figures, the academic performance of immigrant-background children tends to decrease as the degree of student-perceived unfair treatment by teachers becomes greater. This negative association (as assumed in Hypothesis 1), however, appears to have different intercepts (or baseline scores) depending on the



Figure 1. Relationship between unfair treatment by teachers (UnfairTchr) and the mathematics performance of immigrant-background children, by level of unfair school culture (UnfairSchl). Note: The simulation is based on the HLM results reported in Table 5.



Figure 2. Relationship between unfair treatment by teachers (UnfairTchr) and the reading performance of immigrant-background children, by level of unfair school culture (UnfairSchl). Note: The simulation is based on the HLM results reported in Table 5.

level of unfair school culture. In other words, even if student-perceived unfair treatment by teachers is at a certain fixed level, student performance still varies noticeably depending on the level of unfair school culture (as expected in Hypothesis 2). The interquartile range of the intercept differences is approximately 36 and 38 score points for mathematics and reading, respectively, as shown in the figures. One can reasonably interpret this pattern as indicating that a group of immigrant-background children attending schools characterised by a rather unfair school culture (i.e. *unfair school culture* high at the 75th percentile) are likely to face an educational disadvantage quantified as approximately 36~38 score points, when compared with a different group attending other schools that have established a fair school culture (i.e. *unfair school culture* low at the 25th percentile).

In addition to the three-level HLM analysis, we also ran a within-country model for each participating education system. In other words, the level-3 model within the three-level HLM, which was used primarily to control for between-country random variance, was removed. Instead, a two-level random intercept HLM model was employed for each system using the level-1 and level-2 models specified earlier. This additional analysis was conducted to check the extent to which the patterns observed in the combined sixsystem data were replicated within each system. The results are summarised in Figures 3 and 4 for mathematics and reading, respectively. These figures compare standardised HLM coefficients for individual-level *unfair treatment by teachers* and organisationlevel *unfair school culture* in each of the six examined education systems. The results indicate that the effect of *unfair school culture* is substantial in each system in comparison with the effect of *unfair treatment by teachers*. This pattern further supports our alternative hypothesis (Hypothesis 2).

INTERNATIONAL JOURNAL OF INCLUSIVE EDUCATION (13



Figure 3. Effects of unfair treatment by teachers (UnfairTchr) and unfair school culture (UnfairSchl) on the mathematics performance of immigrant-background children in each education system. Note: Standardised estimates of effects are reported, after controlling for the same set of variables as in Table 5.



Figure 4. Effects of unfair treatment by teachers (UnfairTchr) and unfair school culture (UnfairSchl) on the reading performance of immigrant-background children in each education system. Note: Standardised estimates of effects are reported, after controlling for the same set of variables as in Table 5.

Discussion and conclusion

The overall findings from the current study clearly support the notion that fair pedagogy can effectively help immigrant-background children succeed academically in school. Evidence supporting the positive effect of fair pedagogy appears quite consistent across all six East Asian societies examined, adding credence to the importance of fair pedagogy in contexts beyond the Western world. Particularly notable is that pedagogical unfairness embedded in school culture is negatively associated with the academic performance of immigrant children, even after controlling for unfair pedagogical practices exercised by individual teachers. These findings make several important contributions to the existing literature, both empirically and conceptually.

To begin with, the findings regarding our first hypothesis add new empirical evidence from East Asian contexts to the globally emerging consensus that individual teachers' practice of fair pedagogy affects student performance. Our first hypothesis, following the traditional view of fair pedagogy, postulated that students who are treated fairly by their teachers would perform better. Unlike other contexts, East Asian contexts of education have been portrayed as highly competition-driven education systems that impose great pressure on all stakeholders (Dawson 2010; Seth 2002). The present study shows that equity pedagogy may work in such contexts as well; it appears that if immigrantbackground children are treated fairly by teachers, their academic performance—in both mathematics and reading—is likely to improve, with an array of other variables taken into account.

This pattern suggests the positive effect of teachers' practice of fair pedagogy on students' performance in East Asia, similar to the patterns expected and/or observed in Western contexts. This similarity may partly be a manifestation of the globally circulated discourse about diversity and equity in education, which has enhanced students' and other stakeholders' awareness of equity-related issues in schools. The impact of such global discourse may be even greater in East Asia in particular, because many societies in this region—including the Asian Tigers—have been susceptible to the criticism that they have achieved excellence in education at the expense of equity and diversity (for a related discussion, see Hannum et al. 2019). A recent challenge in this region has been to create an education system that is more inclusive of all children in alignment with the global discourse stressing equity as a high-priority goal to pursue.

In addition, the current study's findings in support of our second hypothesis enrich the knowledge base regarding the impact of school culture on student performance. Guided by an alternative perspective that considers fair pedagogy a school organisational quality, our second hypothesis expected the school-level culture of pedagogical fairness to correlate with the academic performance of immigrant-background children. Notable in the findings was that this school-level measure of fair pedagogy accounted for considerable variance in student performance, even after controlling for the fair pedagogy implemented by individual teachers. This pattern corroborates a growing body of literature that highlights the crucial role of school-level organisational factors in shaping teaching and learning, such as a culture of shared commitment to educational equity and a collective ethic of care to accept all students (Capper 2019; Lopez 2016).

Further, the overall results from the current study call for a more expansive conceptualisation of fair pedagogy. Our findings suggest that fair pedagogy should not be understood narrowly as an instructional strategy, but should also be conceptualised as a school quality. In fact, this is not a novel idea in the literature. Educational researchers have discussed the need for creating school environments in which all students feel safe and included, irrespective of their backgrounds (Khalifa 2018; Shields 2004). However, the instructional aspects of fair pedagogy have received more attention than its school contextual aspects. While fair pedagogy does necessitate a set of knowledge and skills on the part of individual teachers, it also requires an array of school-contextual conditions such as a shared school vision for educational equity, a school-wide ethic of inclusion, and a democratic school climate in which all children are included and treated fairly.

All these implications suggest that implementing fair pedagogy is not simply the responsibility of individual teachers; it is also the responsibility of school leaders, as they are in the position to exert substantial influence on the school as an organised whole (Ham, Kim, and Lee 2020; Riehl 2000). It has been increasingly expected over recent decades that school 'leaders nowadays shoulder responsibility for shaping their organisations in ways that value and integrate heterogeneous groups into successful learning communities for all' (Dimmock and Walker 2005, 4). In this respect, Capper (2019) stressed that school leaders must ensure that all aspects of the school both challenge and eliminate discriminatory assumptions, echoing Lopez's (2016) 'notion of school as a space for challenging oppression' (37). Considering that 'leadership is a culturally and contextually bounded process' (Dimmock and Walker 2005, 3), it is important to develop an understanding of educational leadership in the service of an increasingly pluralistic society with diverse constituencies. We hope for greater analytic attention to be paid to 'an active and collaborative form of leadership in which principals work effectively with teachers' (Ham, Duyar, and Gumus 2015, 239) towards building a school culture in which fair pedagogy is promoted and implemented successfully.

We believe that the present study can stimulate further inquiry towards developing a more comprehensive understanding of the increasingly important yet complex notion of fair pedagogy. However, this study is not without limitations. Due to the nature of our data, the measures of fair pedagogy were constructed based on student-reported perceptions of teachers' classroom practices. The extent to which student perceptions match reality is subject to more debate. Furthermore, we acknowledge that the manifestations of fair school culture are not limited to student-teacher interactions; they include other important aspects, such as how a school's missions, core values, and identities are expressed, shared, and enacted. Therefore, a promising line of inquiry for future research is to unravel further the meanings of fair pedagogy as a school quality from multiple theoretical angles, capitalising on various sources/ forms of evidence, including qualitative data. In addition, the differing magnitude of the school culture effect on student performance-as revealed in our withincountry analyses-cautions not to overlook the variations between societies. Cultural and linguistic contextual factors might have caused some cross-country differences in survey response patterns. Future studies would benefit from varied research methods, such as multi-site ethnographic studies, to examine how the notion of fair pedagogy is understood and implemented in different societies under the influence of their sociocultural contexts.

Notes

- 1. This idea has been echoed repeatedly by many influential educational theorists, including John Dewey, as evidenced by his emphasis on the experiential growth of every student, calling for educators' attentiveness to individual learners' unique situations and experiences (Dewey, 1938/1997).
- 2. At the time this study was conducted, the latest PISA dataset available was from the 2018 cycle. We used the 2015 version (i.e., one cycle earlier) instead because this version collected data related to pedagogical (un)fairness, unlike the 2018 version. See Table 2 for the PISA 2015 questionnaire items measuring student-perceived unfairness in teaching.

- 16 😉 S.-H. HAM ET AL.
 - 3. Only four mainland Chinese cities/provinces participated in the PISA 2015 project: Beijing, Shanghai, Jiangsu, and Guangdong. Therefore, the analysis of the mainland Chinese data herein should be interpreted with caution.
 - 4. The total sample of 7,746 immigrant-background children was comprised of the following sub-samples: China ML (83). Hong Kong (3,220), Japan (130), Macao (3,674), South Korea (56), and Taiwan (583). For detailed information about each country's data, see OECD (2016).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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18 👄 S.-H. HAM ET AL.

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