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## Investigating the impact of student-teacher ethnic congruence on school attainment outcomes: an international review

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### ABSTRACT

Concern is growing internationally over the disproportionality of the ethnicity of teachers compared to the ethnicity of the students they teach. Generally, ethnic minorities are under-represented in the teacher workforce. This is not merely an oddity. It could influence the outcomes for ethnic minority students. Here we present a structured review of the worldwide prior evidence on ethnic disproportionality and student attainment. Our search located 31 reports to describe and synthesise. There are few studies designed to assess a causal relationship between student:teacher ethnic matching and outcomes. Most of the best studies are large-scale but only correlational, mostly from the US than elsewhere, and the context may not always be relevant to countries with different ethnic mixes and histories of diversity. Overall, there is no clear relationship between ethnic congruence and differential attainment. Some studies suggest an advantage for ethnic minority students from having ethnically matched teachers, but most studies also do not. Overall, our study suggests that a system with an ethnic diversity of students could benefit in a variety of ways from also having a more proportional diversity of teaching staff – whether students and their teachers are specifically matched or not.

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Racial congruence; ethnic minority teacher; attainment outcomes; racial bias; teacher supply

### SUBJECTS



Teachers & Teacher Education; Secondary Education; Sociology of Education

## Introduction

There is a disproportion in many countries between minority ethnic students and teachers, including in the US (Chapman & Brown, 2020), and England (Gorard et al., 2023). This disproportion, or lack of role models for ethnic minority students, could influence school processes and attainment outcomes (Goldhaber et al., 2019). This new paper synthesises research on the effects of having a teacher of the same race or ethnicity, for students' academic outcomes. It starts by presenting the issue of student-teacher ethnic congruence and how this could relate to outcomes, using some of the prior literature. It then describes the methods used in our structured review of international evidence, and summarises the results in terms of the underlying quality of the research available. The paper concludes with a discussion of the results, and some possible implications, and next steps.

## Evidence on student:teacher matching and school processes/outcomes

Previous studies have suggested that whether a student is taught by, or has access to, a teacher of the same ethnic origin could be linked to a number of school processes, such as decision-making about student discipline referrals in the US (Scott et al., 2019, Lorenzetti & Johnson, 2022, Woods, 2023). This could be partly due to staff:student ethnic congruence affecting teacher:student relationships (Brooms, 2017, Castro & Calzada, 2021 Rudasill et al., 2023). However, as long as there is diversity in school

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staffing there tends to be less racial/ethnic bias in relationships (Chan et al., 2023). And this could be partly due to differential expectations by teachers (Cooc, 2017, Redding, 2019, Papageorge et al., 2020).

Our previous review of wider outcomes, linked to this one about attainment, shows that the overall body of evidence on teacher:student ethnic congruence demonstrates a clear link to outcomes such as school attendance, relationships, and disciplinary judgements for ethnic minority students (Gorard et al., 2025b). All of these factors could influence eventual attainment scores at school. But do they?

Studies in the US have also identified some teachers' bias in assessing the academic performance of ethnic minority students. Teachers' perceptions may be sensitive to the lowest-performing Black students, but less responsive to the highest-performing Black students (Rangel & Shi, 2020, Blazar, 2021). Research indicates that teachers in general may be more inclined to assess the writing of Black students as being below expected levels compared to that of White students. However, teachers who are themselves people of colour appear not to exhibit this same bias in their evaluations (Quinn, 2020).

Several studies have further suggested that ethnic minority students, especially Black students in the US, have higher attainment at school when taught by teachers of the same ethnicity (e.g. Clotfelter et al., 2010, Daniels, 2022). But there are other studies finding no link between student:teacher ethnic match and improved attainment (Pollard, 2022), and some suggesting a link to improved attainment in some respects and not others (Redding, 2019).

In summary, there is *prime facie* evidence that an ethnic disproportion between students and teachers in schools might affect student treatment and outcomes. To investigate this phenomenon further, we conducted a much fuller and systematic review of the available evidence. Because we are concerned with the impact (or not) of teacher:student ethnic congruence on attainment we looked for studies that provided appropriate causal evidence – such as experiments, quasi-experiments, or regression discontinuity designs. These are also the kinds of study that permit clearer policy and practices implications. Their claims have been tested. However, other robust studies with weaker designs for causal questions could also be relevant (Gorard, 2013). For example, although the mantra that correlation does not demonstrate causation is true, a clear lack of correlation demonstrates that there cannot be a causal link.

## Methods

This paper is based on a structured review of prior evidence. The overarching research question is:

- What are the effects of teacher:student ethnic (or racial) matching (and teacher ethnic representation) on student academic outcomes?

### *Databases and search terms*

The searches took place from February to March 2023, and included Proquest, EBSCO host, Web of Science, Scopus, and the Australian Education Index. The search included a range of terms for academic and non-cognitive school outcomes, and processes, as well as synonyms for the ethnic congruence of students and teachers (and diversity of the teaching staff). This paper is only concerned with the results based on academic attainment outcomes. The remainder of the studies are reported in Gorard, (2024). The precise terms were adjusted for each database (and appear in full in the Appendix). In addition, we have included research reports already known to us, recommended, or found in the bibliography of prior reviews discovered in the search.

The terminology describing ethnic and racial groupings tends to vary between countries and over time. In this paper, we have generally used the terminology as it is used in the papers being described.

### *Inclusion criteria*

We searched for any relevant evidence from any country worldwide, involving any combination of ethnic groups. We included studies from 2000 onwards, on the basis that earlier studies might describe very different circumstances.

We included any empirical study that could help respond to our causal question, including comparative, correlational, longitudinal, and experimental designs (see above). The study had to include the relative ethnic prevalence of students and teachers, or measures of student:teacher ethnic matching. It also had to assess attainment outcomes. Anecdotal, opinions and other non-empirical pieces are excluded.

The research concerns students in any grade or year, excluding studies solely about pre-school or post-compulsory education, and informal learning or tutoring.

## Screening

Studies located by the search (2,419 reports) were screened for relevance to the research question, using the criteria above. If there was any doubt, the piece was retained at this stage. In most cases, both the title and the abstract were reviewed. Each item was sorted into a folder based on whether it should be included for screening the full text, or excluded with the main reason noted for any exclusion. This process was conducted by five researchers, who initially looked at 20+ pieces together to assist consistency. Every piece was assessed by at least two researchers. There was a high level of agreement on include/exclude decisions (Figure 1). We ended up with 351 reports after initial screening and removal of duplicated reports.

Following this, the remaining items were screened via full text. We excluded 259 of these after reading full texts, retaining 92. Of these, 31 concerned attainment outcomes, and these are the focus of this paper. The 31 studies are listed in the Appendix.

Those studies that were retained were data extracted and assessed for quality. Quality was judged from a rating of 0 (not adding any trustworthy evidence) to 4 (the best that could be expected in relation to the research question), using the Gorard Sieve (Gorard, 2021, 2024). The Sieve is based on the fit between the study design and our causal research question, the scale of the study, the level and skewness of missing data, and the quality of the data.

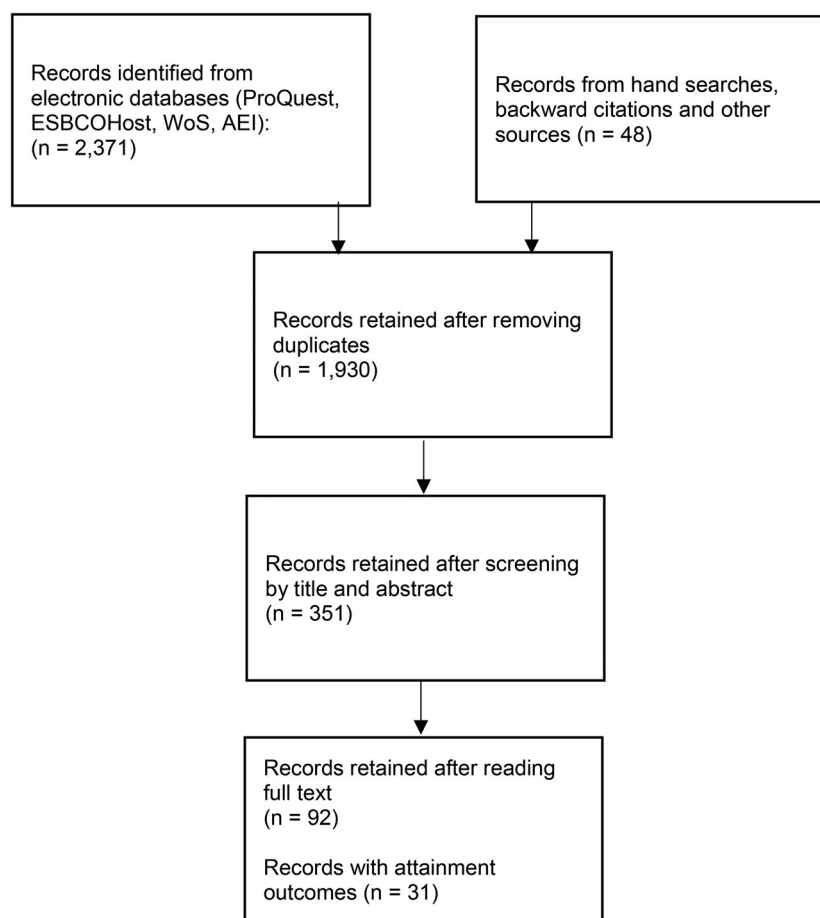
The causal research question for the review would best suit causal designs like experiments and quasi-experiments, with correlational and longitudinal studies rated lower. A majority of the studies were limited to 2 ratings – these were mostly large-scale correlational studies, sometimes with substantial missing data, based on administrative and similar datasets.

## Attainment outcomes

Much of the prior evidence, on whether students having teachers of the same ethnicity makes a difference in school processes and outcomes, is from the US. Much of it also appears quite weak, based on personal accounts, and research designs that are not able to demonstrate the kind of causal relationship we are interested in. We consider some of the stronger and most relevant studies in the review that follows.





This section collates the evidence from studies found in the review that suggest a relationship to attainment, or not, where the ethnicity of teachers and students match. The studies are further classified by the judgement made about their quality or the trustworthiness of their evidence, for the purposes of the review question. Table 1 shows the number of studies arranged in terms of the quality of the research, and whether the outcomes for ethnic congruence were positive, mixed, or negative/neutral. Throughout the paper 'positive' means that there is a link. There were no 4 studies, which would have had a causal design such as an experimental manipulation of matching, at large-scale, with little attrition and independent measures of attainment. Studies rated 0, of no value, are ignored. The overall picture at this stage suggests that the link to attainment is not clear.

Where the studies described below randomise a large number of cases, and attrition is low, then any comparison can be said to be unbiased (Gorard, 2013). This is not a common situation. More commonly studies do not randomise, and/or have high attrition. Many are based on census data. In these studies it is more important to consider whether available background variables and context have been taken into account in any comparison. Where this has been done, we state it when describing the study. As will be



**Figure 1.** Flowchart tracking the flow of studies from identification to inclusion.


**Table 1.** Quality of studies and outcomes for attainment.

	Positive	Mixed or unclear	Negative or neutral
4 	–	–	–
3 	1	3	1
2 	6	5	6
1 	4	2	3

noted, more of the studies finding no difference from ethnic congruence have taken background into account. Those that find the largest apparent differences have generally not taken background into account. This is an important finding returned to in the discussion.


### **Studies supporting the link**

#### **3 Studies**

There was only one report of research based on a causal design, such as a randomised trial, that showed clear benefits from matched students and teachers. None were judged 4 , either because the purpose of the study was not to assess student:teacher matching by ethnicity (that was a by-product), or because of attrition or another threat to its validity. For each study in the review we summarise, where feasible, the main elements that relate to the quality judgement.

Dee (2004) reanalysed data from the Tennessee Project STAR class-size experiment, which randomly matched over 23,000 students and teachers within schools. Attrition was around 30%. Assignment to a same race teacher was linked to increased maths and reading achievement for both Black and White students, even once other teacher characteristics were accounted for. The link was stronger for lower SES students.

## 2 Studies

There were six reports judged to be of 2  research, in relation to this topic, and supporting a link. These were generally large-scale correlational studies, using administrative data, sometimes with linked surveys. Many are from the US and focus on matching of Black students and teachers. Where there are benefits of student:teacher matching these are usually reported as small.

Data on 165,410 students and 23,710 teachers (attrition unknown) from the NAEP Grade 4 Reading Assessment, showed that having a Black teacher was associated with higher levels of achievement for Black students (Yarnell & Bohrnstedt, 2018).

Based on the NCES Early Childhood Longitudinal Study, Kindergarten Class of 2010–2011, students with a racial match to their teachers had slightly higher maths and reading scores, even after controlling for other factors (Gottfried et al., 2023).



Lindsay et al. (2021) used administrative data from state education agencies 1995–2018, accessed via the Texas Education Research Center. These contained records regarding school enrolment, student and staff demographics, student performance in standardised exams, discipline rates, high school graduation, college enrolment and completion, and labour market earnings. There were around 340,000 students in each of grades 3 to 6 in 5,613 schools. The Hispanic faculty share was linked to a 0.043 and 0.064 standard-deviation increase in reading and maths scores for Hispanic students. Black teacher share is only linked to maths scores for Black students.

Over 96% of 10 million students in a Florida Department of Education dataset were matched to teachers, in grades 3 to 10. There were small gains in maths and reading for students with race congruent teachers, including Black, White and particularly Asian (East Asian). Gains were generally greater at elementary school level, and for lower performing students (Egalite et al., 2015).

Using data from Tennessee's Project STAR class size experiment (see above), focusing on a cohort that participated in the experiment from kindergarten to the end of third grade, Penney (2017) found that early exposure to same-race teachers was linked to higher attainment scores. These benefits persisted in the medium term.

Data from the Early Childhood Longitudinal Study, covering kindergarten through fifth grade, included 1,207 African American students taught by either African American or European American teachers in the public school system (attrition not known). African American students with at least one African American teacher scored higher on reading at the end of kindergarten compared to students with no exposure to an African American teacher (Easton-Brooks et al., 2009, Eddy & Easton-Brooks, 2011).

## 1 Studies

There were four reports judged to be of 1  research, supporting a link between congruence and higher attainment. Like the 2  studies these usually were only correlational, not causal, did not consider other factors such as prior attainment, or tended to be smaller or have high attrition.

Using data on racial/ethnic teacher and student demographics and assessment results for 2,510 schools in New Jersey, 2018/19, Minus-Vincent (2022) reported that Black students taught by Black teachers achieved better scores than peers not taught by teachers of the same ethnicity.

Analysis of ELCS assessing the relationship between teacher perceptions of student ability and their actual outcomes suggested that teachers' perceptions of students have a long-term impact on student attainment (Ouazad, 2014). This relationship can be linked to racial congruence between Black students and teachers.

NELS data shows an association between teacher student race match and attainment outcomes (Oates, 2003). Kamau (2011) included 308 students and 23 of their teachers in a multi-ethnic public high school within a large, urban, school district in southwest USA in 2007/08. Students whose race/ethnicity matched their teachers' race/ethnicity achieved higher mean scores in English and maths.

There is, therefore, a considerable overall body of evidence that the racial congruence of students and teachers is linked to higher attainment, especially for US Black students.

### **Studies reporting unclear or mixed benefits**

However, there are also several studies reporting mixed or unclear results.

### 3 Studies

In research by Kurylo (2021) teachers were randomly assigned to classes in 2010, within the US Measures of Effective Teaching project, involving 5,579 grade 4 to 8 students. Attrition figures are not reported. Administrative data was used for student behavioural outcomes and test scores. Overall 41% of students had a same race teacher. Exposure to a same-race teacher was linked positively to the performance of Black students in maths but not English test scores, and this is true after accounting for gender, experience within school district, prior value-added, prior observed teaching practices, and prior average student perceptions of teaching practices. Effects were larger in English for students with low prior performance.

Delhomme (2022) used a difference-in-difference design, comparing same race matched pairs and non-matched pairs, in Texas. Matching was associated with higher Black and Asian students' standardised test scores, making them more likely to enrol in a two- or four-year college course with a same-race grade 9 teacher. However, there were no difference for White or Hispanic students.


Gershenson et al. (2022) used data from the Tennessee STAR project which randomised students to classes combined with data from the National Student Clearinghouse (NSC) which included information on postsecondary educational enrolment and attainment. The treatment is whether a student ever had a Black teacher in grades K-3. As students were randomly assigned to classes within schools and not across schools, all analyses controlled for unobserved differences between schools and between the cohorts within schools. More than 12% of cases were missing or unmatched. Black, but not White students, who had a congruent teacher were more likely to take a college entrance exam, and attend college than peers who did not.

### 2 Studies

Based on administrative data from North Carolina for 1.8 million from all public schools, grades 3 to 5, 2006–2013, there was a positive link between teacher-student race match for maths, but not for English (Gershenson, 2019). Joshi et al. (2018) found the opposite, based on 13,920 teachers in 1,607 Tennessee schools. There was no relationship between student test scores and racial matching in reading, but there was a small benefit for maths. However, a sample of 447 children from kindergarten and grade 1 in North Carolina had higher achievement in English but not maths when assigned to a same race teacher (Bratsch-Hines et al., 2023). This is confusing.

Edmonds (2022) used data on 994,900 students and 34,115 teachers (attrition unknown) from North Carolina elementary schools, after 'Historically Black Colleges and Universities' training. Black students with Black teachers did not generally score higher in maths, but Black students with HBCU teachers did (effect size around 0.04).

The reason findings are mixed or volatile may be found in the study by Howsen and Trawick (2007), using 25,871 grade 3 students from Kentucky, 1990. Students taught by an own-race teacher had higher maths and reading scores. But controlling for student innate ability and teacher sex, the own-race teacher coefficients are much lower.

In this review, many of the studies showing correlations between congruence and attainment are not contextualised at all. And apart from in the 3  studies, teachers have not been randomised to students or vice versa, and so there may be many reasons why a student has a same-race teacher or not. Once some of the ensuing differences are taken into account, the correlation, if there is one, seems to drop.


Data from the National Education Longitudinal Study of 1988 (NELS) was used to match students to teachers with the same race and native language (Seah, 2021a, Seah, 2021b). Hispanic students received significantly more favourable evaluations from Hispanic teachers who shared the same native language, than Hispanic teachers who speak a different native language or from non-Hispanic teachers. But assignment to a native Spanish-speaking teacher is associated with worse achievement for native Spanish-speaking students in certain subjects. For native English-speaking students, assignment to a language-congruent teacher has no impact on achievement. Native language affinity could therefore be an important mechanism through which student-teacher ethnic interactions could work. Consideration of language may be part of the explanation for what sometimes appears as a racial congruence impact.

## 1 Studies

Two longitudinal studies tracked a sample of children ( $N = 322$ ) from kindergarten to 3<sup>rd</sup> Grade elementary school (Partika, 2023). Children from Hispanic/Latinx background taught by teachers speaking Spanish showed positive outcomes in learning English compared to those whose teachers did not have the ability to speak Spanish. No difference was found in quantitative reasoning.

Data on over 2,900 pre-K children in 11 US states was taken from the National Center for Early Development and Learning Multi-State Study of Pre-Kindergarten and the State-Wide Early Education Programs study (Downer et al., 2016). One classroom and four children from each class was selected randomly for participation. The sample was 2,982 children and 701 teachers, but only 1,116 children were included in the analysis and only 340 had all child, family and classroom characteristics recorded. At the start, African American children taught by African American teachers received higher scores on early language/literacy test than those taught by Caucasian teachers. The same was not true for Latinx matched pairs. However, later in the year African American teachers rated African American children as making less progress in language/literacy.

### Studies reporting no benefits

There were also reports suggesting no advantage of matching for attainment, including one 3  study.

## 3 Studies

Using data from an RCT on social-emotional learning, literacy, and a systematic teacher coaching intervention, in New York City public elementary schools, from 2015 to 2017, Jeffrey (2020) looked at student:teacher matching. Out of 65 schools randomised, two dropped out, 66% of students agreed to participate (5,081 cases), and 55 of 330 teachers were dropped as their ethnicity was not known. Around 40% of the remaining sample matched the ethnicity of their teacher. No differences were found between children who did and did not match their teachers' race/ethnicity in attainment in standardised tests (English and maths).

## 2 Studies

A longitudinal analysis of student teacher administrative data in North Carolina high schools suggests that matching of student and teacher by race is not linked to performance in Algebra and English, once prior attainment is accounted for (Rauschenberg, 2014).

Jang (2020) found no evidence of a link between racial matching and maths outcomes, using the NCES High School Longitudinal Study of 2009, with 18,864 students in 827 schools (12% missing). Again, the background of teachers and students was controlled for.

Using data from the Indiana Department of Education for 947,558 students, grades 3 to 8, Hwang et al. (2023) found that most Black and Latinx students were never matched with a teacher of the same race. Where there was a match, there was no improvement in maths or English even after controlling for teacher quality.

A study by Banerjee (2013) suggested that there could actually be benefits from racial mismatch. Tracking 6,350 students in the Early Childhood Longitudinal Study (response rate unknown), and their progress in maths and reading from kindergarten to grade 3, Black students showed marginal improvements in both maths and reading achievement growth when placed with non-Black teachers. Similarly, Hispanic students exhibited marginal gains in reading achievement growth when placed with non-Hispanic teachers. These results completely contradict the racial congruence idea. However, White students showed no difference in outcomes, in terms of placement with White or non-White teachers.

This was confirmed by Stephens (2019), using a sample of 1,851 fourth-grade students from data provided by the National Center for Teacher Effectiveness, 2010–2013. Ethnic congruence between a student and their teacher was negatively related to maths test scores. And Morgan and Hu (2023) found that racial congruence was related to lower achievement in science. using a sample of 18,170 elementary students (attrition not known but relatively high) from kindergarten to grade 5.

## 1 Studies

Using the School Workforce Census for England, with teachers from 3,255 mainstream secondary schools with KS4 (age 16) outcomes and 14,993 mainstream primary schools with KS2 (age 11) outcomes, Gorard (2023) found no link between attainment and the proportion of ethnic minority teachers to ethnic minority students at each school, once other factors had been accounted for. The ethnicity of students and teachers was only a binary variable (White British or non-White British).

Gottfried et al. (2019) used the NCES Early Childhood Longitudinal Study – Kindergarten Class of 2010/11). The sample was limited to students who were assessed by the same teacher in fall and spring to ensure consistency between assessment waves. These criteria resulted in 7,980 student-level observations in the final sample. Students of colour with same-race teachers did not make any bigger gains in math or reading scores compared to White students matched with White teachers. This was true for students with and without disabilities.


In another analysis of ECLS, Nguyen and Le (2023) found no impact on test scores of matched ethnicity between student and teacher.

### Summary

The findings on attainment are mixed, with no clear patterns overall. There is some evidence of a link between ethnic matching of students and teachers and slightly higher attainment, perhaps more so in maths. However, as many studies find no link, and a few of reasonable quality found a negative impact. The negative studies tended to be slightly higher quality overall, with better designs or more contextualised analyses, taking other background factors into account. Where applicable, the benefit only matters for ethnic minority students, not White students in the US or England. Matching may be more important early on in schooling, and for more disadvantaged students. Overall though, ethnic congruence need not be a priority in England, if judged solely for attainment reasons.

### Discussion

Following a structured search of a range of databases, we found 31 distinct reports available in English that considered attainment outcomes at school, related to the ethnic match of staff and students. These reports were dominated by work based in the US. This result is not solely due to limitation in the choice of language, because no studies were retained from Australia or New Zealand, for example. There was only one study from England (Gorard, 2023). The remainder were from the US. This prevalence is more likely due to the availability of suitable datasets, and particular concern over ethnic disproportionality and segregation in the US school system. This dominance could distort the review results because the range, history and economic position of ethnic groups in the US differs from England. For example, England has no recent sub-population considered ‘indigenous’, and most of the Black (and other ethnic) sub-populations are the result of voluntary immigration (or flight) at some earlier stage rather than the prior and racially segregated existence of slavery.

Using school attainment or test scores as an outcome, the overall body of evidence is not positive – there is no clear link between staff:student ethnic congruence and improved attainment. It is mostly negative or unclear, including for four of the five studies rated as 3  in quality. The studies reporting a positive link anyway had small ‘effect’ sizes, and those which used context, teacher quality or prior attainment in their analyses, found even smaller ‘effect’ sizes. A reasonable number of studies reported negative outcomes from having matched student:teacher ethnicity. If there is an effect, it seems more likely to involve poorer or lower attaining US Black students, particularly in maths attainment.

There are a number of possible reasons for the relatively volatile findings here. First, given the impact of home background, talent, motivation, and teacher quality, we would not expect student:teacher ethnic congruence to make a very large difference. Second, much of the variation between study results is, as ever, related to study quality. Weak designs, and/or small samples tend to yield much larger apparent effect sizes than actively designed large studies (Slavin, 2018). When the progress made at school is contextualised by other student background characteristics (such as poverty) then the effect sizes clearly diminish. It is, of course, possible that the student:teacher congruence is making a difference to student learning – as it does with how teachers treat students according to our other review – but that this is somehow not reflected in the complexity of statutory assessment.

## Possible implications

Two of the implications concern research. There are very few trials or similar causal designs on the value or otherwise of racial congruence between staff and students in schools. The few trials that exist looked at ethnic matching as a side issue rather than as the main intervention (like randomising teachers to classes to assess the impact of class size). Most of the best studies in this area were re-analyses of existing large-scale often official datasets. If the issues involved are considered important, then it should be possible to conduct a brief series of studies with experimental designs to get a clearer picture.

Secondly, it would be useful to have more, and higher quality, studies from countries other than the US. It may be that other countries do not promote such work because there are actually fewer problems with the ethnic mix in schools, or because concerns have not been raised to the same extent. It would be useful to know which, if either, of these explanations is true.

In terms of attainment by itself there is little urgency to improve the ethnic congruence of students and staff, and there are more fruitful approaches to reducing differential attainment. However, there is also no reason not to improve ethnic congruence. In a developed education system, it makes sense for schools to admit an ethnic mix of students, representing the population in the wider area around the school. Rather than ethnic incongruence, segregation of students between schools, in terms of ethnicity or otherwise, is known to create a range of damage to education, life chances and society (Gorard et al., 2022). The ethnic diversity of the student body is an attractor when recruiting and retaining ethnic minority staff (Gorard et al., 2025a). If schools have suitably diverse intakes then it makes sense that they should also employ a suitably diverse staff. And the evidence from our linked review (Gorard et al., 2025b) suggests promise from this matching or role modelling for making expectations of students less racially biased, and perhaps for increasing attendance of ethnic minority students.

One of the lessons of the review is that diversity of teaching staff is at least as relevant to any improvement in school outcomes for ethnic minority students as exact ethnic matching between staff and students is. Put another way, for an ethnic minority student to benefit it may be enough for there to be teachers in the school from the same ethnic group, rather than necessarily teaching them directly. So, our next review concerns the most promising approaches to recruiting and retaining more ethnic minority teachers. We are also looking at the reasons why disproportionality occurs, and what the barriers and facilitators are to recruiting more diverse teaching staff in England.

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No potential conflict of interest was reported by the authors.

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**Professor Stephen Gorard** is Director of the Evidence Centre for Education, hosted by Durham University, and a Fellow of the Academy of Social Sciences. His work concerns the robust evaluation of education, focused on issues of effectiveness, equity and improvement. He is also concerned with improving the quality of education research, and helping to get robust evidence into use for policy and practice. He is the most published/cited UK education author in the Web of Science over the past 50 years.

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## References

- Banerjee, N. (2013). Effects of teacher diversity and student-teacher racial/ethnic matching in elementary schools on educational outcomes [Doctoral dissertation, The University of North Carolina at Charlotte].
- Blazar, D. (2021). Teachers of color, culturally responsive teaching, and student outcomes: Experimental evidence from the random assignment of teachers to classes. EdWorkingPaper No. 21-501. Annenberg Institute for School Reform at Brown University.
- Bratsch-Hines, M., Cohen-Vogel, L., Little, M., Lindsay, C and., & Carr, R. (2023). Teacher-child racial/ethnic match from prekindergarten through first grade: Understanding early exposure and outcomes. *Early Childhood Research Quarterly*, 63, 145–155. <https://doi.org/10.1016/j.ecresq.2022.12.004>
- Brooms, D. (2017). Black otherfathering in the educational experiences of Black males in a single-sex urban high school. *Teachers College Record: The Voice of Scholarship in Education*, 119(11), 1–46. <https://doi.org/10.1177/016146811711901102>
- Castro, A., & Calzada, E. (2021). Teaching Latinx students: Do teacher ethnicity and bilingualism matter? *Contemporary Educational Psychology*, 66, 101994. <https://doi.org/10.1016/j.cedpsych.2021.101994>
- Chan, M., Sharkey, J., Nylund-Gibson, K., & Dowdy, E. (2023). Associations of school diversity with students' race-based victimization and school connectedness: A combined influence of student and teacher racial/ethnic diversity and socioeconomic diversity. *Journal of Youth and Adolescence*, 52(1), 44–60. <https://doi.org/10.1007/s10964-022-01715-0>
- Chapman, A., & Brown, A. (2020). *A teacher who looks like me: Examining racial diversity in Wisconsin's teacher workforce and the student-to-teacher pipeline*. Wisconsin Policy Forum.
- Clotfelter, C., Ladd, H., & Vigdor, J. (2010). Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. *Journal of Human Resources*, 45(3), 655–681. <https://doi.org/10.1353/jhr.2010.0023>
- Cooc, N. (2017). Examining racial disparities in teacher perceptions of student disabilities. *Teachers College Record: The Voice of Scholarship in Education*, 119(7), 1–32. <https://doi.org/10.1177/016146811711900703>
- Daniels, K. (2022). *Teacher workforce diversity: Why it matters for student outcomes*. Hunt Institute.
- Dee, T. (2004). Teachers, race, and student achievement in a randomized experiment. *Review of Economics and Statistics*, 86(1), 195–210. <https://doi.org/10.1162/003465304323023750>
- Delhomme, S. (2022). High school role models and minority college achievement. *Economics of Education Review*, 87, 102222. <https://doi.org/10.1016/j.econedurev.2021.102222>
- Downer, J., Goble, P., Myers, S., & Pianta, R. (2016). Teacher-child racial/ethnic match within pre-kindergarten classrooms and children's early school adjustment. *Early Childhood Research Quarterly*, 37, 26–38. <https://doi.org/10.1016/j.ecresq.2016.02.007>
- Easton-Brooks, D., Lewis, C., & Zhang, Y. (2009). Ethnic-matching: The influence of African American teachers on the reading scores of African American students. *National Journal of Urban Education and Practice*, 3(1), 230–243.
- Eddy, C., & Easton-Brooks, D. (2011). Ethnic matching, school placement, and mathematics achievement of African American students from kindergarten through fifth grade. *Urban Education*, 46(6), 1280–1299. <https://doi.org/10.1177/0042085911413149>
- Edmonds, L. (2022). Role models revisited: HBCUs, same-race teacher effects, and Black student achievement. [https://lavaredmonds.com/uploads/1/4/2/8/142800166/hbcus\\_and\\_teacher\\_effects\\_draft\\_20220815.pdf](https://lavaredmonds.com/uploads/1/4/2/8/142800166/hbcus_and_teacher_effects_draft_20220815.pdf)
- Egalite, A., Kisida, B., & Winters, M. (2015). Representation in the classroom: The effect of own- race/ethnicity teacher assignment on student achievement. *Economics of Education Review*, 45, 44–52. <https://doi.org/10.1016/j.econedurev.2015.01.007>
- Gershenson, S. (2019). *Student-teacher race match in charter and traditional public schools*. Thomas B. Fordham Institute.
- Gershenson, S., Hart, C., Hyman, J., Lindsay, C and., & Papageorge, N. (2022). The long-run impacts of same-race teachers. *American Economic Journal: Economic Policy*, 14(4), 300–342. <https://doi.org/10.1257/pol.20190573>
- Goldhaber, D., Theobald, R., & Tien, C. (2019). Why we need a diverse teacher workforce. *Phi Delta Kappan*, 100(5), 25–30. <https://doi.org/10.1177/0031721719827540>
- Gorard, S. (2013). *Research design*. Sage.
- Gorard, S. (2021). *How to make sense of statistics*. SAGE.
- Gorard, S. (2023). The ethnic proportionality of teachers and students and the link to school-level outcomes. *Education Sciences*, 13(8), 838. <https://doi.org/10.3390/educsci13080838>
- Gorard, S. (2024). Judging the relative trustworthiness of research results: How to do it and why it matters, *Review of Education*, 12, 1, Judging the relative trustworthiness of research results: How to do it and why it matters. *Review of Education*, 12(1). <https://doi.org/10.1002/rev3.3448>


















- Gorard, S., Chen, W., Tan, Y., See, B. H., Gazmuri, C., Tereshchenko, A., Demie, F., & Siddiqui, N. (2023). The disproportionality of ethnic minority teachers in England: Trends, patterns, and problems, Routledge. *Routledge Open Research*, 2, 13. <https://doi.org/10.12688/routledgeopenres.17798.2>
- Gorard, S., Gao, Y., See, B. H., Tereshchenko, A., Siddiqui, N., & Demie, F. (2025a). What helps to attract minority ethnic teachers in England?: Results from a national survey. RES-V5N1-p50.pdf. *Review of Education Studies*, 5, 1.
- Gorard, S., See, B. H., & Siddiqui, N. (2022). *Making schools better for disadvantaged students*. Routledge.
- Gorard, S., Tereshchenko, A., Gao, Y., See, B. H., Siddiqui, N., & Demie, F. (2025b). The impact of student: Teacher ethnic congruence on student treatment and relationships at school: An international review of evidence. *Review of Education Studies*, 5, 1. <https://doi.org/10.71002/res.v5n1p9>
- Gottfried, M., Kirksey, J., & Wright, A. (2019). Same-race student–teacher: Comparing outcomes for kindergartners with and without disabilities. *Remedial and Special Education*, 40(4), 225–235. <https://doi.org/10.1177/0741932518810870>
- Gottfried, M., Little, M., & Ansari, A. (2023). Student-teacher ethn racial matching in the earliest grades: benefits for executive function skills? *Early Education and Development*, 34(8), 1799–1815. <https://doi.org/10.1080/10409289.2023.2172674>
- Howsen, R., & Trawick, M. (2007). Teachers, race and student achievement revisited. *Applied Economics Letters*, 14(14), 1023–1027.
- Hwang, N., Graff, P., & Berends, M. (2023). Timing and frequency matter: Same race/ethnicity teacher and student achievement by school level and classroom organization. *Educational Policy*, 37(5), 1349–1379. <https://doi.org/10.1177/08959048221087212>
- Jang, S. (2020). Contextualized effects of racial/ethnic matching between students and teachers in urban, suburban, and rural high schools. *Teachers College Record: The Voice of Scholarship in Education*, 122(11), 1–34. <https://doi.org/10.1177/016146812012201110>
- Jeffrey, S. (2020). *Direct and moderated effects of teacher-child race/ethnic match and children's social-emotional and academic development* [Master's Thesis]. Fordham University.
- Joshi, E., Doan, S., & Springer, M. (2018). Student-teacher race congruence: New evidence and insight from Tennessee. *AERA Open*, 4(4), 2332858418817528. <https://doi.org/10.1177/2332858418817528>
- Kamau, N. (2011). *Race, culture, and academic achievement: An historical overview and an exploratory analysis in a multi-ethnic, urban high school*. Temple University.
- Kurylo, B. (2021). *The impact of same-race teachers on student behavioral outcomes*. CERGE-EI Working Paper Series. (695).
- Lindsay, C., Monarez, T., & Luetmer, G. (2021). The effects of teacher diversity on hispanic student achievement in Texas. Policy Brief.
- Lorenzetti, N., & Johnson, H. (2022). It starts in the classroom: The relationship between teacher education students' implicit racial biases and classroom disciplinary decisions. *Journal of Research in Education*, 31(1), 69–91.
- Minus-Vincent, D. (2022). *The impact of teacher and student racial and ethnic matching on student outcomes: A quantitative study* [Doctoral dissertation].
- Morgan, P., & Hu, E. (2023). Fixed effect estimates of student-teacher racial or ethnic matching in US elementary schools. *Early Childhood Research Quarterly*, 63, 98–112. <https://doi.org/10.1016/j.ecresq.2022.11.003>
- Nguyen, M., & Le, K. (2023). Racial/ethnic match and student–teacher relationships. *Bulletin of Economic Research*, 75(2), 393–412. <https://doi.org/10.1111/boer.12362>
- Oates, G. (2003). Teacher-student racial congruence, teacher perceptions, and test performance. *Social Science Quarterly*, 84(3), 508–525. <https://doi.org/10.1111/1540-6237.8403002>
- Ouazad, A. (2014). Assessed by a teacher like me: Race and teacher assessments. *Education Finance and Policy*, 9(3), 334–372. [https://doi.org/10.1162/EDFP\\_a\\_00136](https://doi.org/10.1162/EDFP_a_00136)
- Papageorge, N., Gershenson, S., & Kang, K. (2020). Teacher expectations matter. *The Review of Economics and Statistics*, 102(2), 234–251. [https://doi.org/10.1162/rest\\_a\\_00838](https://doi.org/10.1162/rest_a_00838)
- Partika, A. (2023). The intersection of teacher-child language & ethnic match for Hispanic/Latine dual language learners in early elementary school. *Early Childhood Research Quarterly*, 62, 347–359. <https://doi.org/10.1016/j.ecresq.2022.10.001>
- Penney, J. (2017). Racial interaction effects and student achievement. *Education Finance and Policy*, 12(4), 447–467. [https://doi.org/10.1162/edfp\\_a\\_00202](https://doi.org/10.1162/edfp_a_00202)
- Pollard, C. (2022). *Teaching, learning, and race: Toward the identification of mechanisms underlying own-and other-race teacher effects* [Doctoral dissertation].
- Quinn, D. (2020). How to reduce racial bias in grading. *Education Next*, 21(1).
- Rangel, M., & Shi, Y. (2020). First impressions: The case of teacher racial bias. IZA Discussion Paper No. 13347.
- Rauschenberg, S. (2014). How consistent are course grades? An examination of differential grading. *Education Policy Analysis Archives*, 22, 92. <https://doi.org/10.14507/epaa.v22n92.2014>
- Redding, C. (2019). A teacher like me: A review of the effect of student–teacher racial/ethnic matching on teacher perceptions of students and student academic and behavioral outcomes. *Review of Educational Research*, 89(4), 499–535. <https://doi.org/10.3102/0034654319853545>
- Rudasill, K., McGinnis, C., Cheng, S., Cormier, D., & Koziol, N. (2023). White privilege and teacher perceptions of teacher-child relationship quality. *Journal of School Psychology*, 98, 224–239. <https://doi.org/10.1016/j.jsp.2023.04.002>

- Scott, T., Gage, N., Hirn, R., & Han, H. (2019). Teacher and student race as a predictor for negative feedback during instruction. *School Psychology Quarterly*, 34(1), 22–31. <https://doi.org/10.1037/spq0000251>
- Seah, K. (2021a). Do ethnically-congruent teachers really matter little for Hispanic students? A re-examination of the data. *Economics Letters*, 206, 109976. <https://doi.org/10.1016/j.econlet.2021.109976>
- Seah, K. (2021b). Do you speak my language? The effect of sharing a teacher's native language on student achievement. *Southern Economic Journal*, 88(1), 245–273. <https://doi.org/10.1002/soej.12510>
- Slavin, R. (2018). Effect sizes: how big is big?, Blog, effect sizes: how big is big? – Robert Slavin's Blog.
- Stephens, C. (2019). *The role of ethnic/racial classroom dynamics in the learning environment and mathematics achievement*. University of Rhode Island.
- Woods, I. (2023). Teachers' racial bias: Can teachers rate an African American boy similarly to his racial counterparts on problem behaviors for a broad rating scale? *School Psychology Review*, 52(3), 264–278. <https://doi.org/10.1080/2372966X.2022.2041212>
- Yarnell, L., & Bohrnstedt, G. (2018). *Student-teacher racial match and its association with Black student achievement: An exploration using multilevel structural equation modeling*. American.

## Appendix



































Search terms used for this review. Note that these search terms were for attainment outcomes, and also for wider issues like discipline which are not covered in this paper.

The search terms used for each database

Outlet	Databases	Search string	Resulting items
Proquest (Durham Library) Search Results - ProQuest	Social Sciences Premium Collection; Education Collection; ProQuest Dissertations & Theses Global; Education Database; ERIC; Sociology Collection; ProQuest One Literature; Sociological Abstracts; International Bibliography of the Social Sciences (IBSS); Social Science Database; Sociology Database; Literature Online; Education Magazine Archive	abstract(same race teacher OR own race teacher OR teacher like me OR student- teacher matching OR teacher-child ethnic match OR teacher-child racial match OR teacher ethnic disproportionality OR teacher racial disproportionality OR teacher ethnicity mismatch OR teacher race mismatch OR student-teacher race congruence OR student-teacher ethnic congruence) AND abstract(Attainment OR achievement OR performance OR attain  OR score  OR Academic OR literacy OR read  OR numeracy OR math  OR cognitive OR cognition OR learn  OR SAT OR Standardi  test OR KS OR key stage assess  OR GCSE OR GCE A-level OR Progress 8 OR National exam  OR test OR assessment OR Grade retent  OR GPA OR Grade point average OR Graduate  rate OR Pass OR fail OR Result  OR Selection OR streaming OR Progress OR Report card) AND abstract(non-cognitive OR attitude OR behavior OR emotional  OR emotive OR social emotional OR Wider outcome OR extracurricular OR Character OR value  OR trait OR disposition OR Ability OR skill  OR Feeling  OR perception OR perceive  OR experience OR dropout OR exclusion OR mental health OR emotional health OR mental 	2,158 results; 1,777 after merging duplication items
EBSCOho st (Durham Library) Result List: AB (same race teacher OR own race teacher OR teacher like me ... : EBSCOhost	OpenDissertations; British Education Index (BEI); Child Development and Adolescent Studies; eBook Collection; Education Abstracts (H.W. Wilson); Educational Administration Abstracts; ERIC;	same race teacher OR own race teacher OR teacher like me OR student-teacher matching OR teacher-child ethnic match OR teacher-child racial match OR teacher ethnic disproportionality OR teacher racial disproportionality OR teacher ethnicity mismatch OR teacher race mismatch OR student-teacher race congruence OR student-teacher ethnic congruence AB Abstract AND Attainment OR achievement OR	152 results; 92 after removing duplication items

(continued)

Continued.

Outlet	Databases	Search string	Resulting items
	MLA International Bibliography; APA PsycArticles; APA PsycInfo.	performance OR attain  OR score  OR Academic OR literacy OR read  numeracy OR math  OR cognitive OR cognition OR learn  OR SAT OR Standardi  test OR KS OR key stage assess  OR GCSE OR GCE A-level OR Progress 8 OR National exam  OR test OR assessment OR Grade retent  OR GPA OR Grade point average OR Graduate  rate OR Pass OR fail OR Result  OR Selection OR streaming OR Progress OR Report card AB Abstract AND non-cognitive OR attitude OR behavior OR emotional  OR emotive OR social emotional OR Wider outcome OR extracurricular OR Character OR value  OR trait OR disposition OR Ability OR skill  OR Feeling  OR perception OR perceive  OR experience OR dropout OR exclusion OR mental health OR emotional health OR mental 	
Web of Science (Durham library)	Web of Science Core Collection	(AB="same race teacher" OR "own race teacher" OR "teacher like me" OR "student-teacher matching" OR "teacher-child ethnic match" OR "teacher-child racial match" OR "teacher ethnic disproportionality" OR "teacher racial disproportionality" OR "teacher ethnicity mismatch" OR "teacher race mismatch" OR "student-teacher race congruence" OR "student-teacher ethnic congruence") AND (AB="Attainment" OR "achievement" OR "performance" OR "attain  OR "score  OR "Academic" OR "literacy" OR "read  OR "numeracy" OR "math  OR "cognitive" OR "cognition" OR "learn  OR "SAT" OR "Standardi  test" OR "KS" OR "key stage assess  OR "GCSE" OR "GCE A-level" OR "Progress 8" OR "National exam  OR "test" OR "assessment" OR "Grade retent  OR "GPA" OR "Grade point average" OR "Graduate  rate" OR "Pass" OR "fail" OR "Result  OR "Selection" OR "streaming" OR "Progress" OR "Report card") AND (AB=("non-cognitive" OR "attitude" OR "behavior" OR "emotional  OR "emotive" OR "social emotional" OR "Wider outcome" OR "extracurricular" OR "Character" OR "value  OR "trait" OR "disposition" OR "Ability" OR "skill  OR "Feeling  OR "perception" OR "perceive  OR "experience" OR "dropout" OR "exclusion" OR "mental health" OR "emotional health" OR "mental  "))	8 results
Scopus		(ABS("same race teacher" OR "own race teacher" OR "teacher like me" OR "student-teacher matching" OR "teacher-child ethnic match" OR "teacher-child racial match" OR "teacher ethnic	13 results

(continued)

Continued.

Outlet	Databases	Search string	Resulting items
		<p>disproportionality" OR "teacher racial disproportionality" OR "teacher ethnicity mismatch" OR "teacher race mismatch" OR "student-teacher race congruence" OR "student-teacher ethnic congruence") AND (ABS("Attainment" OR "achievement" OR "performance" OR "attain" OR "score" OR "Academic" OR "literacy" OR "read" OR "numeracy" OR "math" OR "cognitive" OR "cognition" OR "learn" OR "SAT" OR "Standardi test" OR "KS" OR "key stage assess" OR "GCSE" OR "GCE A-level" OR "Progress 8" OR "National exam" OR "test" OR "assessment" OR "Grade retention" OR "GPA" OR "Grade point average" OR "Graduate rate" OR "Pass" OR "fail" OR "Result" OR "Selection" OR "streaming" OR "Progress" OR "Report card") AND (ABS("non-cognitive" OR "attitude" OR "behavior" OR "emotional" OR "emotive" OR "social emotional" OR "Wider outcome" OR "extracurricular" OR "Character" OR "value" OR "trait" OR "disposition" OR "Ability" OR "skill" OR "Feeling" OR "perception" OR "perceive" OR "experience" OR "dropout" OR "exclusion" OR "mental health" OR "emotional health" OR "mental"))</p>	
	Australian Education Index	<p>abstract(same race teacher OR own race teacher OR teacher like me OR student-teacher matching OR teacher-child ethnic match OR teacher-child racial match OR teacher ethnic disproportionality OR teacher racial disproportionality OR teacher ethnicity mismatch OR teacher race mismatch OR student-teacher race congruence OR student-teacher ethnic congruence) AND abstract(Attainment OR achievement OR performance OR attain OR score OR Academic OR literacy OR read OR numeracy OR math OR cognitive OR cognition OR learn OR SAT OR Standardi test OR KS OR key stage assess OR GCSE OR GCE A-level OR Progress 8 OR National exam OR test OR assessment OR Grade retent OR GPA OR Grade point average OR Graduate rate OR Pass OR fail OR Result OR Selection OR streaming OR Progress OR Report card) AND abstract(non-cognitive OR attitude OR behavior OR emotional OR emotive OR social emotional OR Wider outcome OR extracurricular OR Character OR value OR trait OR disposition OR Ability OR skill OR Feeling OR perception OR perceive OR experience OR dropout OR exclusion OR mental health OR emotional health OR mental)</p>	40 results

The following table lists the 31 studies that are summarised in this review.

Authors	Year	Country	Design
Banerjee	2013	US	Longitudinal
Bratsch-Hines et al.	2023	US	Correlational
Dee	2004	US	Experiment
Delhommer	2022	US	Difference in difference
Downer et al.	2016	US	Longitudinal
Easton-Brooks et al.	2009	US	Longitudinal
Easton-Brooks et al.	2011	US	Longitudinal
Edmonds	2022	US	Correlational
Egalite et al.	2015	US	Correlational
Gershenson	2019	US	Correlational
Gershenson et al.	2022	US	Experiment
Gorard	2023	England	Correlational
Gottfried et al.	2023	US	Correlational
Gottfried et al.	2019	US	Correlational
Howsen and Trawick	2007	US	Correlational
Hwang et al.	2023	US	Correlational
Jang	2020	US	Correlational
Jeffrey	2020	US	Experiment
Joshi et al.	2018	US	Correlational
Kamau	2011	US	Correlational
Kurylo	2021	US	Experiment
Lindsay et al.	2021	US	Correlational
Minus-Vincent	2022	US	Correlational
Morgan and Hu	2023	US	Correlational
Nguyen and Le	2023	US	Correlational
Oates	2003	US	Correlational
Ouazad	2014	US	Longitudinal
Partika	2003	US	Longitudinal
Penney	2017	US	Correlational
Rauschenberg	2014	US	Longitudinal
Seah	2021a	US	Correlational
Seah	2021b	US	Correlational
Stephens	2019	US	Correlational
Yarnell and Bohrnstedt	2018	US	Correlational