

The Suggestion of a New Framework of Asian Identities With the Critical Perspective on AsianCrit in Postsecondary Mathematics/STEM Education

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This study proposes the critical perspective on AsianCrit (Asian [American] Critical Race Theory) and suggests a new framework for potential research and practices in mathematics/STEM education regarding Asian identities. This study reviews and critiques the traditional views on AsianCrit for postsecondary mathematics/STEM education. Particularly considering Asians' diverse immigrant and citizenship status in STEM, gender identity, ethnicity, and more social identities, this study addresses the complicated relationships between Asian stereotypes, the Model Minority Myth, the intersectional identities of Asians, and the possible ways of empowerment.

Keywords: Critical Race Theory, AsianCrit, Racism, Equity

Throughout Asian discrimination during the COVID-19 crisis from 2019 to the March 2021 murders of eight Asian women in Atlanta and #StopAsianHate—a slogan from 2021 to alert people of Asian hate crimes, scholars have called the need for research on Asian racism in the context of equity and social justice. Then, did those movements bring anything to mathematics and STEM education? It could or could not.

Generally, people perceive that there are many Asians in STEM. How many Asians are in STEM in the United States (U.S.)? There are 17.3 million Asian Americans who make up approximately 5.6 percent of the U.S. population, and around 10 percent of the undocumented population in the U.S. is Asian American (Curammeng et al., 2017). Compared to this information, it could be true that there are many Asians in STEM. National Center for Science and Engineering Statistics (NCSES, n.d.) states that regardless of fields in STEM, the most significant racial group of color in every field of major is non-Hispanic Asians. There are nearly but less than 40% of non-Hispanic Asian graduates in computer and mathematical sciences and nearly but less than 30% of them in engineering. Overall, the historically minoritized racial/ethnic groups—Hispanic or Latin* ethnicity, non-Hispanic American Indian or Alaska Native, non-Hispanic Black or African American, non-Hispanic Native Hawaiian or Other Pacific Islander—are underrepresented in STEM fields except for social and related sciences, compared to non-Hispanic Asian.

Then, does the Asian representation in STEM mean no racism or discriminatory issues toward Asians? Shortly, this study says “No” to this question. Research in Asian [American] Critical Race Theory (AsianCrit) described discrimination associated with Western perspectives, such as Orientalism and the generalization of exoticism, that Asian populations experience. These experiences include being perpetuated foreigners, treated monolithically, perceived as intelligent but socially excluded, and sometimes threatening American society as “yellow peril.” Despite these compelling arguments of AsianCrit, there is still little research exploring or employing AsianCrit that fits racial/ethnic issues in mathematics/STEM education regarding Asian identities. So, this study aims to suggest a new framework for future mathematics/STEM education research and practices geared toward diversity and inclusion, consisting of Asian identities. The research question is “How is AsianCrit dismantled, revised, and incorporated to examine Asian identities in postsecondary mathematics/STEM education?”

What and Why AsianCrit?

AsianCrit is one kind of “spin-off” Critical Race Theory (CRT) that aims to aid in addressing and analyzing Asian racial issues, especially in terms of systemic discrimination and inequities in the U.S. (Curammeng et al., 2017; Iftikar & Museus, 2018). According to the assertion of CRT, race is a social construct and a significant factor in deciding inequity, and that intersects with property rights, giving rise to social, systemic, and educational inequalities among people of color (Ladson-Billing & Tate, 1995). CRT is overviewed by the main tenets (Mensah & Jackson, 2018, See Figure 1), and the various “spin-off” CRTs primarily follow themes of CRT.

Table 1. Overview of Critical Race Theory Themes (Mensah & Jackson, 2018, p. 6)

	Solórzano (1997)	Zamudio, Russell, Rios, and Bridgeman (2010)	Delgado and Stefancic (2012)
Theme 1	The centrality and intersectionality of race and racism	Critique of colorblindness	Colorblindness
Theme 2	The challenge to the dominant ideology	Critique of liberalism	Interest convergence or material determinism
Theme 3	The commitment to social justice	Whiteness as property	The social construction of differential racialization
Theme 4	The centrality of experiential knowledge	Interest convergence	Intersectionality and anti-essentialism
Theme 5	The interdisciplinary perspective	Intersectionality	Unique voice of color or counter-stories

According to CRT principles, “Asian” is a collective identity organized around broad commonalities rooted in various ethnicities traceable to points in Asia (Patton et al., 2016). Throughout the ways Asians are racialized in the U.S., the racial/ethnic identity of Asians has been treated monolithically; nevertheless, the populations as racialized as Asians consist of more than 48 ethnic groups (Curammeng et al., 2017; Iftikar & Museus, 2018). Also, the definitions of Asians, Asian migrants, Asian immigrants, and Asian Americans are complicated and often difficult to differentiate, even though those words are not interchangeable (Chen & Buell, 2018).

Given these complicated identities of Asians and racialized issues treated monolithically, why does this study deal with AsianCrit? First, the focus on AsianCrit addresses the limitations of the general CRT. The most significant limitation of the CRT is the Black and White binary in the early stage of the theories (Alcoff, 2003) and the lack of a nuanced and more profound reality of Asians. Second, the investigation of AsianCrit will allow us to challenge stereotypes and discriminatory perceptions of Asians. The stereotypes toward Asians are unique because they sound like “compliments” for Asians. For instance, one of the most common stereotypes is that “Asians are good at math, and they are smart.” This does not seem harmful but a compliment; even Asians believe that. However, these stereotypes are not only inaccurate but also harm Asian identities in various ways. (See “Model Minority Myth” below) Therefore, investigating Asian stereotypes with critical perspectives should be pursued more through AsianCrit. Ultimately, the

advance of AsianCrit will debunk White supremacy and systemic racism toward people of color (e.g., anti-Blackness) and let Asians be included as the constitutes of people of color.

Literature Review on the Traditional View of AsianCrit

Summary of the Traditional Asian [American]Crit

In the context of Asian American jurisprudence, Asian Americans' experiences and perspectives became invisible (Curramment et al., 2017). Also, historically, Western perspectives such as Orientalism and the generalization of exoticism have patronized and dehumanized Asian people in the U.S. (Iftikar & Museus, 2018). This racialization of Asian Americans is little salient in the early development of CRT, but the early stage of the conceptualization of CRT was focused on the Black-White binary (Iftikar & Museus, 2018). Thus, scholars have called more attention to the shift from the Black-White binary to the racial-specific CRT with a more nuanced and deeper inquiry-based reality, and this study focuses on Asians. The significant point is that the argument of the limitation on the Black-White binary does not indicate Anti-Blackness. Instead, the way to challenge the Black-White binary is eventually to debunk White Supremacy because the rationale of the Black-White binary in the early stage of CRT blocks the view on genuine racial issues not just about Asians but also the constitution of people of color.

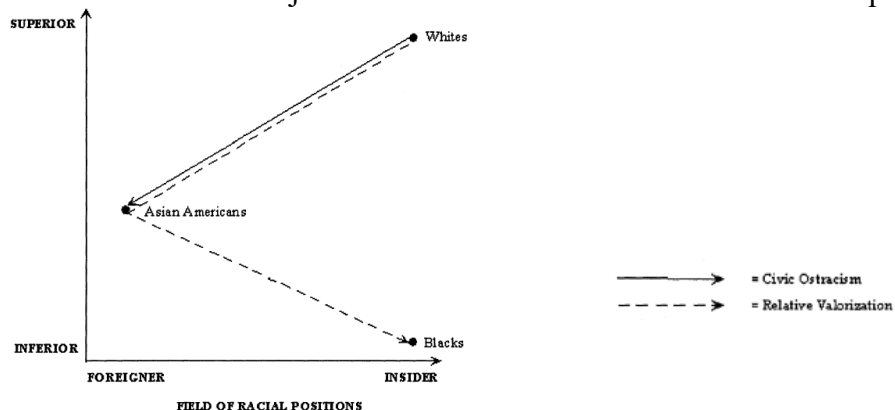


Figure 1. Racial Triangulation of Asian Americans in the United States (Kim, 1999, p. 108)

Grounded on the need for spin-off CRTs for more racial/ethnic specificity, there have been attempts to theorize Asian-specific CRTs. One of the earliest attempts was Chang's (1993) Asian American Legal Scholarship framework. Chang (1993) points out anti-Asian, nativist racist violence and discrimination and the idea of model minorities that exclude Asians from people of color. Also, other attempts to theorize AsianCrit include the law's role in perpetuating forever foreign. Particularly in the literature with educational context, it has been argued that CRT should address the distinguishable racialization between different ethnic Asian Americans and other people of color (e.g., the racial triangulation; See Kim, 1999). Asian Americans are "racially triangulated" by two axes—the superior-inferior axis and the insider-foreigner axis (Kim, 1999, See Figure 4). Kim (1999) argues that this study assumes Asian Americans are racialized in the zone of both civic ostracism—possibly less than Blacks, but still—and relative valorization to make Asian Americans perpetuate foreigners. This racialized position for Asian Americans is distinguishable from the one for Blacks, but the oppressive purpose of this racialization is to reinforce White dominance, privilege, and supremacy.

Model Minority Myth (MMM)

Model Minority Myth (MMM) is a central tenet that AsianCrit criticizes and explains why MMM is problematic. Since the middle of the 20th century, monolithic racial depiction in the U.S. led to MMM (Curammeng et al., 2017). MMM refers to the racial stereotypes usually toward Asian Americans who are hardworking, achieve higher education, and obtain higher socioeconomic status (Poon et al., 2016) than other minority groups such as Blacks or Latin*. Also, MMM characterizes Asian Americans as a polite, law-abiding group who have achieved higher success than the general population through some combination of innate talent and pull-yourself-up-by-your-bootstraps immigrant striving (Blackburn, 2019). So, MMM is strongly interwoven with discriminatory stereotypes and racialized positions from the view of the highest “White” hierarchy in the U.S.

Model Minority Myth in Mathematics/STEM. Despite the harm of MMM, it has rarely been discussed in higher education studies. Poon et al. (2016) found that MMM’s original purposes—maintenance of anti-Black racism and White supremacy—are not critically mentioned in research on framing Asian Americans and Pacific Islanders in higher education. Among 112 studies of Asian Americans and Pacific Islanders in higher education in the reviewed literature, only slightly more than 10% of the studies used a critical definition of MMM. Thus, it is crucial to deal with the racialized problems and issues regarding MMM.

One of the most common narratives toward Asians based on MMM is the “Asians are good at math” narrative. Shah (2019) analyzes critically how the “Asians are good at math” narrative imposes the positionality of Asian people in STEM as racialized. The “Asians are good at math” narrative, which is prevalent not just in mathematics/STEM education but also in general society, is little considered as a harmful racial issue but rather a harmless compliment. Nevertheless, the “Asians are good at math” narrative is not a compliment. First, this racialized statement itself is not true—not all Asians are good at math. Second, the “Asians are good at math” narrative does not allow Asians to pursue non-STEM or non-mathematical paths such as arts and sports, which also reinforces another stereotype like “Asians are smart but not creative.” Third, the “Asians are good at math” does not normalize Asian students’ “failure” experiences in mathematics and STEM. Fourth, the “Asians are good at math” implies non-Asians are supposed to be worse in math than Asians, so it maintains the deficit view on non-Asians of color but also does not threaten Whites’ ability and White supremacy.

Grounded on the dismantling of the “Asians are good at math” statement, which is based on MMM above, Shah (2019) states that the type of success of Asian students in STEM indicates a neglected and dehumanized narrative of Asian people and reproduces White supremacy. Instead, it is a compliment; the narrative of “Asians are good at math” presents an ontological cost on Asian people as a threat to personhood (Shah, 2019). Also, the racialization of MMM toward Asians is shifting as “yellow peril,” becoming the excuse for a ‘new White flight.’ Suddenly, Asians, who were once perceived as A+ students and good classmates, are repositioned as “too good at math” and threatening to White students’ self-esteem, justifying racial re-segregation. (Chen & Buell, 2018)

Critiquing Traditional View on AsianCrit in Postsecondary Mathematics/STEM Education

This study reviewed the traditional approaches, tenets, and studies on AsianCrit. Still, the general arguments of the traditional views on AsianCrit make sense, but there are limitations of traditional views on AsianCrit. More specifically, the “racially triangulated” experiences of Asian Americans and MMM are intensely relatable to postsecondary mathematics/STEM education. Still, considering the current phenomena and issues in postsecondary

mathematics/STEM education, the traditional views on AsianCrit should be revised toward a “spin-off” version for postsecondary mathematics/STEM education. So, in this part, this study suggests reconsidering AsianCrit for future directions in understanding Asian identities in postsecondary mathematics/STEM education.

First, traditional theories in AsianCrit are limited by the different immigrant statuses of Asian students. Particularly in higher STEM education, involving many Asian international students (e.g., Indian, Chinese, Korean, and students from other Asian countries), how is the AsianCrit applicable without considering international students? Interestingly, Asians involve alternatively larger non-U.S. native-born populations in STEM. Regarding U.S. citizenship status, native-born U.S. citizens are (non-Hispanic) White-dominant; on the other hand, non-U.S. and naturalized U.S. citizens are (non-Hispanic) Asian-dominant. This data result from NCSES (n.d.) indicates that Asians in STEM have a proportionally more “international” student population in terms of U.S. citizenship and immigration compared to other race/ethnicity populations. So, for instance, the view of the “perpetual foreigner” has been criticized with the voice of Asian Americans. Potentially, the “perpetual foreigner” view may create Asian international students’ unique experiences to be constantly “others” in their educational experiences, which is not necessarily the same as Asian Americans who were born and raised in the U.S.

The second limitation is that since traditional theories of AsianCrit are more toward pan-ethnic understanding, ethnic diversity within the Asian group is less highlighted. More specifically, understanding postsecondary mathematics/STEM education experiences and dynamics related to ethnic diversity has not yet been deeply dealt with. Also, given the “pan-ethnic” understanding, there are some limitations to traditional investigation or use of the MMM—not just MMM, which is little discussed with the critical perspective in postsecondary STEM education. Still, the pan-ethnic understanding of MMM also has limitations since MMM is applied differently for some Asian ethnic groups. For instance, MMM is applied differently for some certain Asian ethnic groups (e.g., Southeast Asian Americans) as both modeled and deviant (Poon et al., 2016; Iftikar & Museus, 2018).

The third limitation is that the traditional theories of AsianCrit do not necessarily cover issues from multiple social identities of Asians. For instance, AsianCrit may not fully capture how Asian women are modeled and simultaneously racialized and gendered. According to Ong et al. (2011), which is a review of around 40-year scholarships for women of color in STEM areas on postsecondary education by adopting the synthesis method to analyze 116 studies with the intersectionality framework, even though Asian American women look overrepresented in STEM compared to the U.S. population, their representation in the group of academic tenure/leadership positions is the lowest or significantly lower than other demographic groups. There has been little attention that Asian American women are placed in an ironic, paradoxical space in STEM fields, simultaneously overrepresented as Asian Americans and underrepresented as women (Castor & Collins, 2021), so they are “invisible.” Additionally, on the gendered issues, AsianCrit was not necessarily used to examine Asian sexual orientations, sexuality, nationality, language, and other social identities.

More specifically, in what ways should Asian identities be investigated? First, this study suggests adopting an understanding of Asian international students and immigrants in AsianCrit. AsianCrit usually refers to Asians as only “Asian Americans.” However, due to the increasing number of international students and migrant/immigrant populations in STEM majors in the U.S., the invitation to AsianCrit for Asian international students and migrants/immigrants in higher STEM education is necessary. No consideration of Asians in the context of STEM

postsecondary education is insufficient to address Asian discrimination and racism because “Asian migrants working under the H-1B visa obscure domestic educators’ unwillingness to teach students of color, but they also camouflage the failure of domestic educators to provide a rigorous STEM education for students of color” (Chen & Buell, 2018, p. 615). What does Asianness mean in mathematics/STEM in the U.S.? Moreover, what do Asianization and Americanization mean for Asian students in mathematics/STEM in the U.S.? What are the possible tensions within that process? These would be the questions for the future direction of the AsianCrit research mathematics/STEM education.

Second, this study insists on considering more diversity in AsianCrit within Asian groups such as ethnicity. Particularly in mathematics/STEM education, Asian students are usually modeled by the MMM. Still, some partial Asian groups—usually those who have darker skin—are treated as more deficient, such as students who achieve lower than East Asians. This would be coined and explained with “Colorism: [the] practice of discrimination in which those with lighter skin tones are treated better than those with darker skin and [it] occurs not only between groups but within groups as well” (Sue, 2016, p. 184). This means there is some colorism among Asian students. For instance, Asian populations who have darker skin within the Asian group, such as Southeastern Asians and South Asians, are perceived by more deficit views or negative stereotypes. If we disregard the diverse ethnicity of Asian populations, then we cannot genuinely focus on diversity and inclusion in mathematics/STEM education.

Lastly, intersectionality should be adopted actively. Notably, more active use of the intersection between racism and sexism for Asian women in STEM is necessary. The use of intersection is aligned with the argument of examination of Asian diverse ethnicity, languages, and immigrant statuses that I mentioned above. Furthermore, non-heterosexual or non-cisgender, or queer identities should be explored more within the Asian context, as McWilliams and Penuel (2016) assert that queer perspectives invite intersectional perspectives, including race/ethnicity, socioeconomic status, disability status, and age. Based on the suggestions, the following section describes a new suggested framework for future directions for research and practice through the critical perspective on AsianCrit in mathematics/STEM education.

Outline of the Suggested Framework

This study suggests a new framework on Asian identities for postsecondary mathematics/STEM education to address the complicated and interwoven relationships between Asian stereotypes, MMM, systemic racism, intersectional identities of Asians, and the possible ways of empowerment.

Figure 2 illustrates the diagram corresponding to the framework. Asian identities are formed as giant icebergs with their tip and parts underneath the seawater. The tip of ice means the superficial perception of Asians grounded on stereotypes and associated with the monolithic view and MMM. The seawater that hides most of the icebergs illustrates systemic racism and oppression toward Asians, such as nativism, orientalism, exoticism, dehumanization, xenophobia, and White supremacy. The seawater is too cold, deep, dark, and sometimes dangerous, so it does not allow people to explore it deeply. Underneath the water, the hidden but also strongly impacted by racism represent Asian identities, which are diverse and necessary intersectional approaches. The identities consist of the intersections between gender, ethnicity, languages, immigrant/citizenship status, sexual orientation, disabilities, and many more. These hidden Asian identities should rise to the surface to empower Asian identities and debunk the “water.”

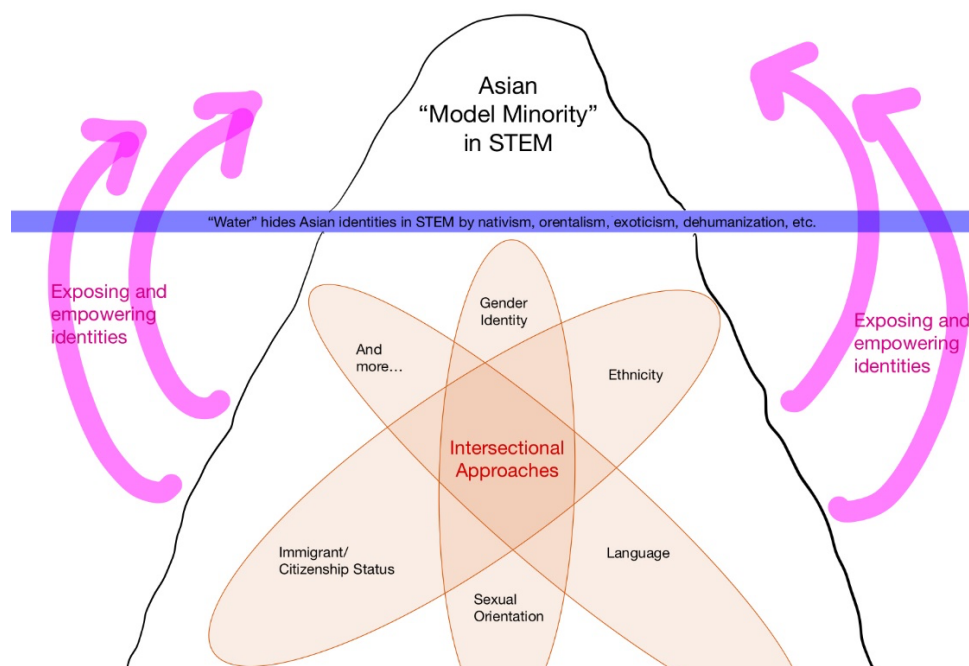


Figure 2. The Suggested New Framework on Asian Identities for Postsecondary Mathematics/STEM Education

Potential Use of the Suggested Framework

Then, what should be the next step in using the suggested framework in postsecondary STEM education? First, the framework can be used the way to debunk Gap gazing (Gutiérrez & Dixon-Román, 2011), and deficit views frequently happen when Asians are paired with Whites to illustrate the racial achievement gap in STEM. Consequently, Asians are implicated as “honorary Whites,” which refers to “signaling that the exits from oppressed minority status and assimilation into whiteness can be incomplete and contingent on fortifying antiblackness” (Martin, 2019, p. 465), and so the racial disparities many experiences are neglected (Poon et al., 2016). Shedding light on multiple interconnections of Asian identities can help dismantle racial disparities and MMM.

Also, not just in mathematics classrooms but also in STEM departmental- and major-wise, student culture should embrace diversity and counter-spaces for minoritized students. To do so, it is suggested to understand intra-racial diversity among Asian students in STEM. An excellent research example is George Mwangi et al. (2016), a study on intra-racial dynamics between native-born and foreign-born black collegians in STEM. According to George Mwangi et al. (2016), native-born and foreign-born Black collegians appreciate peer diversity as a “global” feel provider. Native-born Black students often take a role to initiate cross-cultural interaction. On the other hand, both native-born and foreign-born Black students reported class dynamics such as native-born Black students’ anxiety due to stereotypes regarding Black people in the U.S. and foreign-born Black students’ pressure that comes from the academic ability that they should prove or accent or stereotypes of their home country. Based on the findings, George Mwangi et al. (2016) propose that higher education practitioners intentionally provide formalized opportunities for foreign-born and native-born students of color to interact with and learn from each other. Like George Mwangi et al. (2016), there is a potential for understanding the dynamics of Asian interracial students to be necessary for genuine practices for deeper cross-cultural interactions between Asian international students and Asian Americans and other Asian students with diverse histories and backgrounds.

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