

Black Immigrant Children: Abjection, In(ex)clusion and School Mathematics Reform

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Niños negros inmigrantes: Abyección, In (ex)clusión
y la matemática escolar reformada

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Abstract

This paper examines the limits and possibilities of the discourses and practices of inclusion of Black immigrant students in reform mathematics classrooms. Data from a larger qualitative study concerned with the education of mathematics teachers in Chilean marginalized schools is used. Conceptualizations about the dynamics of exclusion and inclusion help us illustrate how reform mathematics teaching entails double gestures of hope (about “us”) and fear (about the “others”). The results provide evidence that educational reforms and policies are embedded in a system of reason which historically fabricated Blacks as invisible and inferior, shaping the chances of inclusion of Black children.

Keywords

Immigration; racism; mathematics education; inclusive education; educational reform

Resumen

Este artículo examina las limitaciones y las posibilidades de los discursos y de las prácticas de inclusión entre estudiantes negros inmigrantes en las aulas donde se enseñan la matemática reformada. Utiliza datos de un estudio cualitativo más amplio sobre la educación de profesores de la matemática en escuelas chilenas marginales. Conceptualizaciones sobre las dinámicas de la exclusión y de la inclusión nos ayudan a explicar cómo la enseñanza de la matemática reformada acarrea gestos dobles: por un lado, de la esperanza (en cuanto a “nosotros”) y, por el otro, del miedo (en cuanto a “los otros”). Los resultados muestran evidencias que las reformas y las políticas educacionales están empotradas en un sistema racionalista, el cual históricamente representaban a los negros como invisibles e inferiores y así perjudicaba las posibilidades de la inclusión de niños negros.

Palabras clave

Inmigración; discriminación étnica; enseñanza de las matemáticas; educación inclusiva; reforma de la educación

Descripción del artículo | Article description

Artículo de investigación derivado del proyecto *Fortalecimiento de las prácticas de maestros que enseñan matemáticas a estudiantes marginalizados: Un estudio exploratorio*.

Introduction

The modern Chilean state was built upon a nationalist project promoted by local elites to consolidate the “Chilean” race and nation. At the core of the project was a physical and cultural whitening process that sought to erase both the indigenous and Black elements from the national identity and culture. Historically, two mechanisms were used to achieve this goal. The first was the invisibilization of the presence of Blacks in Chile and the removal of their contributions to what Salvo (2013) calls the “formation of the Chileanidad”. Different scholars (Arre, 2011; González, 2014) have documented the slave trade and the quotidian social, commercial and personal instances in which Blacks and *mulattos* interacted with whites and *Criollos* in the country. Nevertheless, the Chilean racial myth renders invisible the Black lineage. The second mechanism of whitening was migration. To “bring progress and improve the race” (Tijoux & Díaz, 2014, p. 300), local governments promoted and facilitated the migration of Europeans to the southern Chilean regions which were mainly inhabited by local indigenous communities. Thus, the Chilean racial myth portrays Chile as a culturally homogeneous nation (Poblete & Galaz, 2007) and Chileans as white-*mestizos* with strong European bonds (Tijoux & Díaz, 2014) and no trace of Black heritage.

Immigration is, then, one of Chile’s foundational features (Tijoux & Díaz, 2014). Nevertheless, a recent migratory wave is overtly unwelcome. As neoliberal capitalism has accelerated the economic exploitation and decline of already impoverished South American and Caribbean countries, the new migratory wave driven by promises of financial prosperity and political stability—the “Chilean dream”—has mostly brought in poor and Black and Brown people from Colombia, Dominican Republic, Venezuela and Haiti (Servicio Jesuita a Migrantes, SJM, 2020a). In 2019, immigrants made up 7,8 % of the population in Chile; Venezuela was the main country of origin comprising 30,5 % of the immigrant population, followed by Peru (15,8 %), Haiti (12,5 %), Colombia (10,8 %) and Bolivia (8 %) (SJM, 2020a). This migration wave is considered a threat to the country’s identity as a white and educated nation (Trujillo & Tijoux, 2016). In this sense, race is at the core of a system of differentiation that contributes to categorizing newcomers. This racializing process sets up a hierarchy in which, as Tijoux (2013) affirms,

the category of “immigrant” is mostly assigned to Black and Brown persons while other non-Blacks (e.g., light-skinned Venezuelans) are not perceived as such. Because of race, status as outsiders and quotidian violence, marginalization and exclusion are more commonly experienced by Black immigrants (Echeverry, 2016).

An ambitious post-dictatorship education reform has sought to address inequities in access and participation in the Chilean system of schooling (Valenzuela *et al.*, 2016). Following the positioning of Chile as a “successful neoliberal experiment” (Campos-Martinez *et al.*, 2015), this reform is aimed at consolidating Chile as a modern, pacific and prosperous state in the global landscape by producing a “cosmopolitan citizen” (Andrade-Molina, 2018). This citizen is portrayed as a “lifelong learner that should be willing to engage in a perpetual process of making choices and problem solving... Also, a highly skilled citizen that is willing to participate fully in society” (Andrade-Molina, 2017, p. 396). To produce the modern “cosmopolitan Chilean citizen”, a new curriculum, the law of school inclusion (Ministry of Education, MINEDUC, 2015) and a renewed system of teacher education (MINEDUC, 2016) are at the core of these reform efforts. Additionally, a strong system of standardized tests was introduced as part of the implementation of neoliberal policies in education related to management, privatization and competition for resources and students (Campos-Martinez *et al.*, 2015).

Within the context of educational reform aimed at producing the new Chilean citizen and achieving the promise of education for all, a critical challenge for teachers, administrators and policymakers is to ensure the inclusion of immigrant students in the local educational system. According to the SJM (2020b), during the period between 2014 and 2019 the immigrant student population grew from 22,425 to 160,463 children which represents an increase of 615,6 %. In 2019 4,4 % of the students enrolled in local schools were newcomers (SJM, 2020b). These immigrant-origin students are a diverse group. In 2018, they made up 27 % of Venezuelans, 18 % of Haitians, 16 % of Peruvians, 15 % of Colombians and 14 % of Bolivians (Elige Educar, 2020). Eyzaguirre *et al.* (2019) show that while Chilean students are mostly enrolled in voucher schools, the vast majority of immigrant students attend public municipal schools which are generally poorly funded and lack resources to properly function.

The Ministry of Education (MINEDUC, 2017) has promoted an intercultural approach to embrace student diversity and promote the participation of immigrant students in schools. This intercultural approach centers on the students’ cultural diversity and is considered an ethical-political project that seeks to build bridges between the different cultures that converge in the

current Chilean education system (MINEDUC, 2017). However, this effort has fallen short as research shows that, in Chilean schools, teacher-student interactions in mathematics classrooms vary across student racial and ethnic groups (Ortega *et al.*, 2020). In fact, adopting an intercultural approach has been insufficient to address the racism exacerbated by the presence of Black immigrant students in local schools (Pavez-Soto *et al.*, 2019). Thus, anti-Black racism has challenged the materialization of the promise of school inclusion in the Chilean educational system and put into question the complex relationships between ethnicity and race.

In this paper we examine the limits and possibilities of the discourses and practices of inclusion of Black immigrant students in reform mathematics classrooms. We use data from a three-year long, qualitative study concerned with the education of mathematics teachers in so-called “vulnerable” schools in Santiago, Chile (Valoyes-Chávez, 2019a). We focus on different mechanisms and practices that contribute to the exclusion of Black students from the type of mathematics activity proposed as the epitome of inclusion and participation of “all students”: the solving of problems in collective, randomly organized small groups (National Council of Teachers of Mathematics, NCTM, 1984). We draw on Popkewitz’s (2005; 2008) notions of abjection and “double gestures” to document discourses and practices that, while aimed at enabling the full inclusion of students positioned as “vulnerable” in the mathematics classroom, simultaneously produce “fears of the dangers and dangerous populations” (Popkewitz, 2008, p. 133). Our main goal is to illustrate how reform-based mathematics teaching aimed at supporting the inclusion of all students entails the double gestures of hope (about “us”) and fear (about the “others”). We focus on the mechanisms of in(ex)clusion (Valero & García, 2014) that make the Black immigrant child intelligible as a “vulnerable” student and a danger to the achievement of the “Chilean dream”.

Abjection, Double Gestures and Anti-Blackness

Abjection and Double Gestures

Popkewitz (2008) contends that educational policies embody narratives about the hopes and fears that entails processes of abjection. Drawing on Hacking’s (2007) analysis of the making of kinds of people, this researcher explores how schooling fabricates a particular kind of child: the future citizen (Popkewitz, 2004). This child is portrayed as a mathematically competent individual, namely a longlife learner and problem solver who is guided by reason and rationality and able to live in a united world while showing hospitality toward others (Popkewitz, 2008). Education, calibrated

by national and international imperatives and priorities, is thought as the means to “make” the reasonable person associated with European Enlightenment. First, education is aimed at bringing “abstract concepts of human purpose, civic virtues, the common good and, by the late 20th century, universal human rights as principles of conduct into daily life” (Popkewitz, 2018, p. 222) into the making of society. Second, education is designed to prevent the arrival of savages and barbarians on the impulse to bring order to society (Popkewitz, 2008; 2018), which enabled qualification and disqualification of individuals through principles of collective belonging. This view of schooling “instantiated comparative distinctions that differentiated, divided, and abjected groups and individuals *not* ‘civilized’ and hence not qualified for participation” (Popkewitz, 2008, p. xiv). The comparative distinctions overlap with the hopes of the realization of a universalized child which exacerbates the irony of democracy and equality (Popkewitz, 2018); and from which, the unity of the whole or the global simultaneously differentiates and casts out qualities of the “others” as threatening to harmony and stability.

Popkewitz (2008) illustrates how an apparatus of abjection that unfolds from the hopes of global citizenship debates “directs attention to groups and individuals whose status exists in in-between spaces of inclusion and exclusion—recognized for inclusion as a citizen; yet different, abject and excluded of their modes of life” (Popkewitz, 2008, p. 133). From here, the “urban” is a political designation of populations targeted for social intervention that makes the ‘trouble/troubling child’ in both rural and urban schooling a child of low expectations, low self-esteem, family dysfunctions and different learning styles. The categories of urban, immigrant, vulnerable, and trouble/troubling students, produced by inclusionary educational policies and reforms, target particular students as those in need of being rescued and of intervention to become the future citizen (Bloch *et al.*, 2003). In other words, “[t]he child left behind exists in an in-between place of requiring rescue and excluded as different” (Popkewitz, 2008, p. 146).

AntiBlackness and Double Gestures

The hopes and fears in the making of society entail double gestures in which the hopes of the inclusive and democratic future embodies fears about urban dangers and its dangerous people. These hopes and fears are historically produced under systems of reasons that have particular views about the future and its threats and that are tightly interwoven with racial, political and economic projects in societies. Martin (2013) argues that anti-Blackness is at the core of racial, political and economic projects in mathematics education which advance the interests of the socially powerful. Fears about Black students “perpetuate antiblackness and epistemological

violence” (Martin, 2019, p. 463), resulting in the discursive dehumanization which naturalizes intellectual inferiority. Narratives that fabricate the Black student as mathematically illiterate through the circulation of discourses built around statistical reasoning are part of such racial, political and economic projects. Dumas (2016) emphasizes that anti-Blackness “marks an irreconcilability between the Black and any sense of social or cultural regard” (p. 13). That all students should accommodate into the practices of the mathematically able citizen leads to assume that educational policy aims at equal opportunities for all despite their racial identity. However, Martin’s scholarship challenges these assumptions by examining how mathematically based rethorics—centered on correlations—has produced the exclusion of Black students from school mathematics on the impulse of including all—i.e., from white liberalism inclusionary rhetoric such as *mathematics for all* (Martin, 2013).

The sciences of education seek to formulate a set of rules to organize experience, acting and choices. However, as Martin (2019) contends, “equity and inclusion are offered up to white and Black audiences with similar appeals but different promises and consequences” (p. 469). Put it another way, the fears of global citizenship materialize in Black students being historically abjected or considered as *other* than human (Dumas, 2016). Inclusionary educational reforms aim at organizing and reconstructing society. However, such practices of democratization and involvement of marginalized students organize differences by reinscribing and exacerbating their differences as individuals. This reduces the assumed choices Black students—and other marginalized groups—have by experiencing constant acts of violence and exclusion while inserting them into anti-Black school mathematics practices.

In(Ex)clusion

The processes of abjection produce exclusion by enunciating who the desired citizen is and should be (Popkewitz, 2008). In this line of conceptualization, different scholars (Faustino *et al.*, 2017; Martin, 2021; Valero, 2017; Valero & García, 2014) have examined how educational policies and reform efforts aimed at facilitating the inclusion of all children in school mathematics end up producing the opposite effect. Valero and García (2014) discuss how these processes unfold narratives of “what is included” and “what is not included”. They introduce the term *in(ex)clusion* to refer to the fabrication of ‘inclusive subjectivities’—in the attempt to achieve the promise of social inclusion—embedded in contexts related to practices of exclusion in the mathematics classrooms. García (2014) contends that the fear of the “other” intertwines with teacher practices and their pastoral

need to include that “other”. In(ex)clusion is produced within the homogenizing role of curricular reforms built around securing equal opportunity to all through the learning of school mathematics (García, 2014; Valero, 2017). Wherefrom, in fabricating the reasonable citizen, educational reforms acknowledge students’ differences but maintain mathematics at the core of schooling and categorize students according to their mathematics performance and skills. Valero and García (2014) argue that, in school mathematics, curricular guidelines are ascribed to movements such as “mathematics for all”. However, schooling segregates those for whom mathematics is not a possibility. Mathematics becomes the means to achieve the knowledge, skills and competencies of the reasonable, cosmopolitan citizen (Valero, 2017). Yet, mathematics teaching and learning poses the opposite effect in trying to include all students in the practices of school mathematics by segregating students who do not succeed (Valero, 2013). In this light, the hope of *mathematics for all* becomes a mechanism for the exclusion of a large portion of students (Valero, 2017): the in(ex)clusion.

To analyze these dynamics of inclusion/exclusions, Faustino *et al.* (2017) introduce a model which articulates the notions of macro and micro inclusion and macro and micro exclusions. Larger efforts of educational inclusion (macroinclusion) could produce the exclusion of particular student populations through subtle and covert classroom practices (microexclusion). For these researchers, the prefix *micro* refers to the level in which the exclusion operates -individual and group levels- and therefore, “microexclusion could be brutal and severe” (p. 2). Martin (2021) expands this model by incorporating the *macro* (large social systems such as legal and economic systems), *meso* (medium systems such as political parties and communities) and *micro* (small systems such as families) levels of analysis. This multilevel model allows for a deeper examination of the interrelated nature of the dynamics of inclusion/exclusion in the mathematics education system of practices as well as the different sociopolitical, racial, economic and ideological aspects shaping such dynamics. The model highlights how inclusion and exclusion interact at the different levels of society and, for instance, reform efforts at the macro level (e.g., educational policies) may generate meso (e.g., educational systems and schools) and micro (e.g., classroom and individual levels) exclusion.

Method

Context of the Study

To shed light on the double gestures of inclusion/exclusion in the reform mathematics classroom, this paper analyzes small-group interactions

between Black immigrant students and their white-*mestizo* Chilean peers while solving non-routine mathematical problems. The data come from a larger study aimed at enhancing teachers' knowledge to teach mathematics in so-called vulnerable schools in Santiago, Chile (Valoyes-Chávez, 2019a). The schools were part of a government program aimed at facilitating the access of low-income students to higher education and voluntarily engaged in the study. The larger study followed three high school mathematics teachers in these three schools over a three-year period to document their learning process. The participating teachers had previously taken part in a one-year professional development program with a focus on problem-solving teaching (Felmer & Perdomo-Díaz, 2017). An important goal of the study was to encourage teachers to confront and challenge class, gender and racial stereotypes about their students (Valoyes-Chávez, 2019b). This was motivated by research that has shown the role of stereotypes and low expectations in the chances of implementing reform mathematics teaching; therefore, we aimed to test this issue. To do so, we asked the participating teachers to "shadow" (Foote, 2009) between two and four students who they believed would struggle to learn mathematics during the school year. "Shadowing" was intended to help the participating teachers in the study to "know the students better" in order to elaborate strategies that would boost their mathematics learning. The autonomously selected students were mostly Chilean girls and immigrants.

Here we focus on the data collected from Matías's mathematics classroom and his students. Matías's school was located in a low-income neighborhood in Santiago. According to the information provided by the school administrative staff, immigrant students made up 35% of the student population at the time of the study. This was a significant percentage taking into account that, as we discussed before, immigrant children and youths accounted for 4,4 % of the entire student population in 2019 (SJM, 2020b). However, data about the students' country of origin, their race or ethnicity was not available. As Luz explored the school, she noted that the vast majority of Black children attended preschool and elementary grades. Less than 10 Black students were enrolled in the middle and high school grades and four of them were in Matías's mathematics classroom.

Participants

Matías was a white-*mestizo* mathematics teacher. He taught eighth and ninth grade mathematics and was regarded as a very good and committed teacher by his students and the school administrative staff. Matías voluntarily engaged in the PD program and was very active in the workshops and the individual coaching sessions. Among the students who

Matías chose to “shadow” during the 2019 school year were Annette and Henry, two Black adolescents from Haiti. Henry and Annette had spent about three years in Chile by the time of the study. They and their families were part of the about 200.000 Haitians who migrated to the country between 2014 and 2019 (Departamento de Extranjería y Migración, DEM, 2020). Henry was 15 years old and lived with his mom and two younger brothers. Annette was 15 years old and lived with an older sister and her family.

Despite the two students being able to communicate well in Spanish with their teachers and peers, Matías expressed concerns about the students’ abilities to participate in the small group discussions. He also worried about the possible difficulties the students could face to fully participate in the process of solving the proposed problems. Matías’ concerns were truly genuine as he was committed to support the mathematics learning of each student in the class.

Data Collection and Analysis

The main source of data consisted of recordings of Matías’s classes while implementing problem-solving teaching. Annette and Henry were also filmed while solving problems in small groups. Sometimes the students would wear a glass-mounted camera to document their interactions with peers and the teachers. On other occasions, a camera would closely follow them. We selected episodes from these recordings to interview Matías and the students. To select these episodes, special attention was given to gestures, physical positionings, and interaction patterns of question-answer-question between Matías and the students. We sought instances in which such interactions either hide or promote the participation of the students in the mathematics activity. In the case of Matías, the video-motivated interviews were aimed at motivating reflections about his teaching practices and ways to enhance the participation of all students while solving problems in small groups. We showed Matías the episodes and asked him to interpret them. The episodes were also used to prompt conversations about race and anti-Black racism in the classroom and in Chilean society. In the case of Annette and Henry, the video-motivated interviews were aimed at documenting the students’ interpretations of the interactions with their peers and the teachers. A simultaneous data collection and analysis was used (Charmaz, 1996). Collecting and analyzing the data in this way allowed us to identify recurrent ideas in Matías’s and the students’ interpretations of the episodes. We would identify and bring back persistent ideas and themes in the following interviews to get a better understanding of such interpretations.

For the purpose of this paper, we selected three episodes that allow us to illustrate and discuss the mechanisms and practices aimed at including the Black students in the activity of solving problems in small groups but that end up excluding them. The video-motivated interviews of both Matías and the students where they reflect about the episodes are also considered for this paper. The episodes portray Henry and Annette working with their Chilean peers in small groups. During the mathematics classes, the teacher would randomly organize the students in groups. Because of this organization, the Black students would always be seated with different peers in their groups. Then, the teacher would hand out copies of the problem to be solved by the groups of students and walk around answering their questions. The class normally finished with a plenary where the students would discuss their responses to the proposed problem.

Researchers' Positionality

From the interpretative stance adopted in this study, we assume that the positions we occupy in the social world as well as the current racial, cultural, political and social circumstances shape and impregnate our interpretations of the events we seek to understand and analyze (Elliot, 2005). Interpretations are always developed from a particular social position in a specific time. This is particularly important while analyzing issues such as anti-Black racism which involves emotions and the racialized and gendered researcher's experiences.

As critical scholars, we are committed to challenge mathematics education policies, practices and discourses that dehumanize and oppress Black children (Martin & Gholson, 2012) and contribute to the pervasive dominance of white logic and methods in the field.

Findings and Discussion

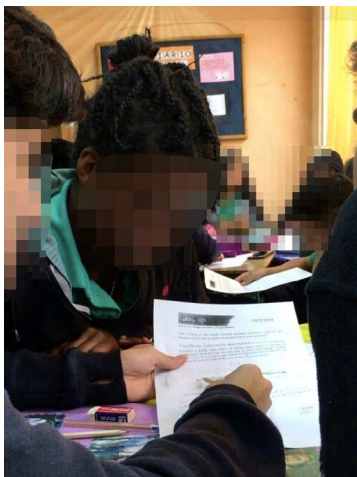
Our analysis evidences that problem solving teaching comprises double gestures of hope (about "us") and fear (about the "racial other"). While proposed as an epitome of inclusion, this type of mathematical instruction may become a site where dynamics of "In(ex)clusion" take place. On one hand, the reform-based instruction seeks to enhance the participation of *all* students in the collective production of mathematics knowledge. It is argued that problem solving teaching would contribute to fabricate "the child of the future with a cosmopolitan identity which shows tolerance of race and gender differences, genuine curiosity toward and willingness to learn from other cultures, and responsibility toward excluded groups within and beyond one's society" (Popkewitz, 2008a, p. 137). On the other hand,

and as we will discuss later, problem solving can be considered a process of casting out “others”. These individuals are “recognized for inclusion as a citizen; yet different, abjected and excluded by virtue of their modes of life” (Popkewitz, 2005, p. 306). In what follows, we highlight the double gestures of hope and fear in the implementation of problem-solving teaching in Chilean mathematics classrooms.

Episode 1

Annette and three white-*mestizo* Chilean students—Jorge, Luisa and José—are seated together working on the problem Matías has distributed (see annex 1). The students are expected to help each other with the task. They also need to agree upon an answer to present and explain to the whole class during the plenary. Each student in Annette’s group has her/his own copy of the problem and they start working alone right away. After a while, the students start proposing ideas to find a path to solve the problem. Although the proposed mathematics activity is aimed at engaging the students in collective work full of rich mathematical discussions, this is not the case. Turning his body towards Luisa and José, Jorge starts discussing aspects of the problem with them (see picture 1). Jorge also turns the paper in the direction of the two students and raises it up in a way that makes it hard for Annette to follow what he is doing. Under Jorge’s leadership, the students lively engage in the mathematical discussion. As picture 1 shows, Jorge exclusively addresses his questions and comments to José and Luisa without making any eye-contact with Annette, who tries to keep up with the conversation.

Picture 1



Picture 2



Picture 3



Fuente: elaboración propia

Jorge, José and Luisa act as if Annette were not part of the group. Their acting renders Annette invisible. In fact, Annette's attempts to contribute to the discussion are ignored. These actions not only end up excluding Annette from the collective activity of solving problems, but also convey clear messages of both, invisibilization of the Black student and disregard of her contributions.

Annette's reaction to this exclusionary act is to show to the other students that she *is* there and willing to participate in the mathematical discussion that is taking place. As picture 2 shows, Annette enters Jorge's personal space to make herself present. She brings her body close to Jorge's and passes her right arm over his left arm. Then, Annette starts writing on Jorge's paper while he, ignoring her, keeps explaining his work to Luisa. Although Annette's body is clearly over Jorge's, he continues to ignore her. Picture 3 shows that, despite Annette's attempts to engage in the conversation, the three students keep ignoring her. They sustain the discussion by sharing ideas among themselves while looking at one another's faces.

The discourses of the mathematics education reform posit problem solving not only as a fundamental activity at the core of production of mathematics knowledge, but they also portray it as involving multiple quotidian and unusual functions considered essential for the social life of each citizen (NCTM, 1984). Therefore, it is argued that solving problems constitutes a critical ability to be developed in schools that allows students to participate in the democratic and social life in Western societies (Schoenfeld, 2002). However, the Black immigrant student is neither invited nor welcome to take part in the collective solution of problems. The systems of reason that historically have produced Blackness as a threat to the Chilean identity as a white nation still operate. The "hope" of an inclusive school where all children are welcome to become the desired citizen is confronted with the historical fears of a population positioned as a danger to the Chilean identity. It was, therefore, rendered invisible during the construction of the nation-state (Salvo, 2013). Precisely, it is this mechanism of invisibilization which operates in the reform mathematics classroom which contributes to maintaining Blacks in Chile in "their place" as outsiders (immigrants) and invisible members of society. Problem-solving teaching simultaneously embodies practices of inclusion and exclusion.

During an interview, Luz showed Matías the video clip of Annette's interactions with the three other students and asked him to provide his interpretation of what happened. In particular, Luz underscored anti-Black racism as the main reason for the invisibilization of Annette and the disregard for her contributions in the process of solving the problem. Matías stated:

I don't believe that what was going on here relates to racism. It wasn't an exclusion because of [Annette's] color. That could have happened in higher socioeconomic contexts but not here. [Racism] is more notorious there. Because, for instance, ¿[do you know] Michelle? I think that's her name; I have seen her participating in diverse activities in every class. She is very active and participates a lot in class. I think [unfinished idea]. [The students] think she is good and smart; so, I believe that the reason for [Annette's] exclusion is more a thing of performance than of color. I think they exclude her because she is not good in mathematics and I do know that's the worst for her. But it is not a matter of color.

It is worth pointing out three elements that emerge from Matías' remarks. The first one relates to the minimization of anti-Black racism as the main social force shaping and mediating the interactions among the students. This "color blind racism" (Bonilla-Silva, 2010) draws upon central frames that mostly fabricate Blacks as culturally rather than biologically inferior. Second, minimizing the significance of racism allows Matías to frame the act of exclusion as the result of Annette's lack of mathematical abilities which are needed to engage in collective problem solving. It is mathematical ability rather than anti-Black racism the main force shaping the students' interactions. Moreover, racial discrimination is portrayed as an external phenomenon that can occur in wealthier contexts but not in "vulnerable" schools. In this way, the ideological move contributes to justify the act of exclusion and makes anti-Black racism go unnoticed and uncontested in the reform mathematics classroom. Finally, a particular narrative is used to justify the exclusion. The racial story relates to what Bonilla-Silva (2013) denominates "testimonies". They are "accounts where the narrator is a central participant in the story or close to the characters in the story" (Bonilla-Silva, 2013, p. 72) and in this case, the testimony in Matías' narrative involves Michelle, another Black immigrant student. The case of Michelle is used to persuade others that it is Annette's lack of mathematical ability rather than anti-Black racism the main reason for exclusion. Thus, the testimony serves the rhetorical function of bolstering Matías' arguments on the controversial racial matter posed by Luz's question.

Episode 2

The systematicity of the mechanism of invisibilization becomes evident in the interactions between the teacher and students while solving the problem. Annette's group gets stuck and asks for Matías's help. Picture 4 shows how Matías positions his body to interact with the students. He locates himself behind Annette's desk and bends his body over the student. From the camera location it is impossible to identify Annette.

Picture 4



Fuente: elaboración propia

This positioning allows Matías to maintain visual contact with Jorge, José and Luisa while, at the same time, it removes Annette from his visual field. The discussion that follows takes place exclusively between Matías and the three Chilean students as Annette does not have any opportunity of engaging in the conversation and remains silent. The teacher poses some questions and addresses the students' doubts and inquiries. Jorge and Luisa are the most active asking Matías questions and demanding for clarifications. While pointing to the procedures in Jorge's worksheet, Matías passes his arm on the right side of Annette. Despite the fact that he must be aware of Annette's physical presence, he does not address her nor make visual contact with her. Annette goes unnoticeable and becomes invisible within the context of the teacher and students' interactions.

The invisibilization of the Black immigrant student emerges as evidence of how systems of reason operate within the contexts of educational reform efforts. As Popkewitz (2008) posits, educational reform embodies rules and standards "about who the child is and should be and who is "different, abjected and thus excluded" (p. 133). They clearly limit the chances of success of educational reforms in influencing the forms of interactions of teachers and students in schools. Invisibilization is, then, a deeply and historically rooted response to the fears of the "racial other" that calls into question the discourses of inclusion pushed by the current educational policy in Chile.

Episode 3

Henry is seated with four Chilean students: Carmen, Luis, John and Pedro. As in Annette's group, each student has his/her own worksheet and starts individually working on the problem (see annex 2). After a while, the students reorganize themselves and split into smaller groups of two.

Carmen and Luis get closer to share ideas while John and Pedro act in a similar way. As picture 5 shows, the Chilean students have physically distanced themselves from Henry.

Picture 5



Fuente: elaboración propia

This new arrangement isolates Henry and leaves him working alone. For a few minutes he focuses on his worksheet and then gets distracted. He plays with his pencil and his hands. Henry does not make any effort to engage in the conversations that his peers are holding nor do they attempt to include him in their discussions. As in Annette's case, Henry is rendered invisible by his peers.

The episode confirms that excluding the Black immigrant students from the proposed mathematics activity is not an exceptional situation, but rather a recurring event. Luz showed the episode to Henry and asked him to reflect about it. He said:

Henry: When we have group work, they don't want to work with me. I don't really work in groups, they leave alone. And they laugh at me when I ask something to *el tío*. It is, you know, sometimes I can't find the words [in Spanish] to say what I want. But, what else can I do? I would like to study electrical engineering, something like that. So, I need to be good at math and I try. I can learn math by myself. I don't need their help.

Luz: Why do you think they behave in that way?

Henry: I don't know. [long silence]. They call me "Black". That made me angry. But I don't care anymore.

Henry is well aware of the exclusionary act and its reasons. Although he recognizes that language may be related to his peers' behaviors, it is

race what mainly causes the type of interactions observed in the episode. Henry's narrative expresses how racial interactions shape both the collective process of solving problems and the chances of the student to be fully included in the mathematics activity.

Even in the reform mathematics classroom, Henry and Annette's racial identities are linked to subordination. Within the context of collective problem-solving teaching—a mathematical activity portrayed as the response to exclusion and inequity—the Black students are considered as having less mathematics ability and therefore unworthy of inclusion. Being randomly organized in groups does not guarantee the harmonious sharing of knowledge among the students as it is promised. While considered a pedagogical strategy to include *all* students, problem solving teaching produces the opposite effect: excluding Black immigrant students. The hope of “mathematics for all” becomes a segregational mechanism for the exclusion of a large portion of students (Valero, 2017).

Synthesis and Concluding Remarks

Within the context of mathematics education reform efforts in Chile, the Black immigrant child represents a double threat to the production of the Chilean future citizen. In Chilean educational hopes, problem-solving teaching and learning are proposed as the epitome for the inclusion of all students. However, as our study indicates, problem-solving teaching embodies cultural theses about the Black immigrant children and youth in Chile that produce double gestures and in(ex)clusion, positioning this student population as the “uncivilized other”. Educational reforms and policies in the country are embedded in a system of reason that has historically fabricated Blacks as the undesirable, inferior other, from which the category of Black citizen becomes only an ironic promise in the impulse of social inclusion. Our study provides evidence of how an educational policy at the macro level aimed at facilitating the inclusion of all students sustains and produces instances of exclusion at the mathematics classroom and individual levels. This macroinclusion/microexclusion dynamics are clearly shaped by the historical anti-blackness nature of the Chilean racialized context and the tensions emerging from the current and mostly Black migratory wave.

The invisibilization of the Black immigrant students in Matías's classroom mirrors the historical invisibilization of Blacks in Chile and the denial of Blackness as part of the national identity and culture. This invisibilization is at the core of the historical systems of reason that produce and make intelligible difference in school through cultural standards (Popkewitz,

2008). Invisibilization acts as a technology of “race power” that, according to Leonardo (2013), turns individuals into particular subjects and aims “to regulate, colonize and discipline a body that comes to interrupt the ‘race normality’ of the mathematics classroom” (Valoyes-Chávez & Darragh, s. f.). Within this context, discourses that have historically associated Blackness with the absence of the western values of humanness (rationality, morality, intelligence, agency and civility) are reflected in the organization and structuring of the Chilean society (Biblioteca Nacional de Chile, n.d.) and entangled with the making of the ‘Chilean citizen’.

Double gestures in the form of abjection are part of the practices of school mathematics that produces the in(ex)clusion of students such as Annette and Henry. The curriculum, reforms, and textbooks are part of a social, democratic, inclusionary cosmopolitan discourses within salvation themes of progress and happiness for all through school mathematics. However, the practices of school mathematics, especially the teacher and student’s interactions are part of a system of reason that cannot be broken by the promises of schooling. For example, Annette and Henry are just outside of the scope of the principles that sustain the discourses and desires of such reform. Their Blackness—considered as a sign of inferiority—threatens the superiority of the “Chilean race” which was achieved through the historic European immigration. Therefore, the Black immigrant students’ presence and participation are unwelcome in the classroom.

Historically, mathematics education reforms have failed to address the educational needs of Black students (Berry, 2018; Martin, 2019). Reform in the field “can be viewed as sustaining the dehumanization process because these reforms are beholden to the overall antiBlack system in which mathematics is embedded. The goal of reform is slight modification of teaching, curriculum, and assessment processes, not radical dismantling” (Martin *et al.*, 2019, p. 47). Our study points out the limits and pitfalls of the mathematics education reform in Chile for the Black immigrant population. The discussion proposed in this paper contributes to elucidating these limitations. As Martin (2019) points out, “despite the strategic use of equity-and inclusion-oriented rhetoric within standards-based reforms, and the rising-tide-lifts-all-boats assumptions of the Common Core, the implied promises of equity and inclusion for Black learners, in particular, have not come to fruition” (p. 460). Invisibilization of the students and the disregard for their mathematics contributions while solving problems are forms of the epistemic violence against Black children and youth in mathematics classrooms that cannot be understood and addressed without taking into consideration that both mathematics and mathematics education function as white institutional spaces (Martin, 2019).

One limitation of the study is its focus on one single reform mathematics classroom in Chile. However, this unique case allows us to shed light on the complexities and challenges of materializing the *Mathematics for All* promise in racialized social systems. The study contributes to the growing body of research in the field that examines how mathematics education reforms respond to and are part of racial, economic and political projects (Martin, 2013). Contrary to their rhetoric, these reform efforts continue reinforcing the exclusion, marginalization and dehumanization of Black children in school mathematics. First, more research is needed to unpack how systems of reason in different racialized systems shape and challenge the discourses of inclusion and the materialization of reform efforts. Second, it is critical for research in the field to examine how curricular innovations (e.g, problem solving teaching and learning) that seek to promote the inclusion of all students end up generating the opposite effect. We call for more research examining these issues.

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References

- Andrade-Molina, M. (2018). Mindniac: the reasonable citizen of schooling (Chilean edition). *The Mathematics Enthusiast*, 15(1), 36–53. <https://doi.org/10.54870/1551-3440.1416>
- Andrade-Molina, M. (2017). Be the best version of yourself! OECD's promises of welfare through school mathematics. En A. Chronaki (Ed.), *Proceedings of the Ninth International Mathematics Education and Society Conference* (pp. 393–400). University of Thessaly.

- Arre, M. (2011). Comercio de esclavos: mulatos criollos en Coquimbo o circulación de esclavos de "reproducción" local, siglos XVIII-XIX. Una propuesta de investigación. *Cuadernos de Historia*, 35, 61–91. <http://dx.doi.org/10.4067/S0719-12432011000200003>
- Berry, R. Q. (2018). Disrupting policies and reforms in mathematics education to address the needs of marginalized learners. En T.G. Bartnell (Ed.), *Toward Equity and Social Justice in Mathematics Education* (pp. 3–20). Springer.
- Biblioteca Nacional de Chile. (s.f.). "La categoría raza". *Memoria Chilena*. <http://www.memoriachilena.gob.cl/602/w3-article-95153.html>
- Bloch, M., Holmlund, K., Moqvist, I., & Popkewitz, T. (2003). Global and local patterns of governing the child, family, their care, and education. An introduction. En M., Bloch, K., Holmlund., I., Moqvist., & T., Popkewitz (Eds.), *Governing children, families and education. Restructuring the welfare state* (pp. 3–31). Palgrave Macmillan.
- Bonilla-Silva, E. (2013). Racial attitudes or racial ideology? An alternative paradigm for examining actors' racial views. *Journal of Political Ideologies*, 8(1), 63–82. <https://doi.org/10.1080/13569310306082>
- Bonilla-Silva, E. (2010). *Racism without racist. A color blind racism and the persistence of racial inequality in contemporary America*. Lanham, MD: Rowman & Littlefield.
- Campos-Marinez, J., Corbalán, F., & Inzunza, J. (2015). Mapping neoliberal reform in Chile: Following the development and legitimation of the Chilean System of School Quality Measurement (SIMCE). En W. Au & J. Ferrare (Eds.), *Mapping Corporate Education Reform. Power and Policy Networks in the Neoliberal State* (pp. 106–125). Routledge.
- Charmaz, K. (1996). The search for meaning. Grounded theory. En J.A. Smith, R. Harré, & L. Van Langenhove (Eds.), *Rethinking methods in psychology* (pp. 27–49). Sage.
- Departamento de Extranjería y Migración. (2021). Estimación de personas extranjeras residentes habituales en Chile al 31 de diciembre de 2020. Informe metodológico. <https://serviciomigraciones.cl/estadisticasmigratorias/estimacionesdeextranjeros/>
- Dumas, M. J. (2016). Against the Dark: Antiblackness in Education Policy and Discourse. *Theory Into Practice*, 55(1), 11–19. <https://doi.org/10.1080/00405841.2016.1116852>
- Dumas, M. J., & Ross, K. M. (2016). "Be Real Black for Me": Imagining BlackCrit in Education. *Urban Education*, 51(4), 415–442. <https://doi.org/10.1177/0042085916628611>
- Elige Educar (2020). Estudiantes migrantes en Chile. https://eligeeducar.cl/content/uploads/2020/07/AULA-MAESTRA_-ESTUDIANTES-MIGRANTES-EN-CHILE.pdf
- Echeverry, M. M. (2016). Otridad racializada en la migración forzada de afrocolombianos a Antofagasta (Chile). *Nómadas*, 45, 91–103. http://editorial.uccentral.edu.co/ojs_uc/index.php/nomadas/article/view/2471
- Elliot, J. (2005). *Using narrative in social research. Qualitative and quantitative approaches*. Sage.
- Eyzaguirre, S., Aguirre, J., & Blanco, N. (2019). Dónde estudian, cómo les va y qué impacto tienen los escolares inmigrantes. En I. Aninat, & R. Vergara (Eds.), *Inmigración en Chile: Una mirada multidimensional* (pp. 149–190). Fondo de Cultura Económica.

- Faustino, A. C., Queiroz, A., Gomes, G. H., Muzinatti, J. L., & Skovsmose, O. (2017, April). *Macroinclusion and microexclusion in mathematics education*. En *Mathematics Education and Life at Times of Crisis*, (Vol. 2, pp. 470–479). http://mes9.ece.uth.gr/portal/images/proceedings/MES9_Proceedings_low_Volume2.pdf <https://www.mescommunity.info/proceedings/MES10.pdf>
- Felmer, P., & Perdomo-Díaz, J. (2017). Un programa de desarrollo profesional docente para un currículo de matemática centrado en las habilidades: La resolución de problemas como eje articulador. *Revista Educación Matemática*, 29(1), 201–217. <https://doi.org/10.24844/em2901.08>.
- Foot, M. Q. (2009). Stepping out of the classroom: Building teacher knowledge for developing classroom practice. *Teacher Education Quarterly*, 36(3), 39–53. <https://www.proquest.com/docview/222871410>
- García, G. (2014). La producción de la (in)exclusión, currículo y cultura(s) en el aula de matemáticas. *Revista Latinoamericana de etnomatemática*, 7(2), 202–221. <https://www.revista.etnomatematica.org/index.php/RevLatEm/article/view/136>
- González, C. (2014). *Esclavos y esclavas demandando justicia. Chile 1749-1823. Documentación judicial por carta de libertad y papel de venta*. Editorial Universitaria.
- Hacking, I. (2007). Kinds of people: Moving targets. *Proceedings of the British Academy*, 151, 285–318. [https://joelvelasco.net/teaching/5330\(spring2021\)/hacking-kinds_of_people.pdf](https://joelvelasco.net/teaching/5330(spring2021)/hacking-kinds_of_people.pdf)
- Jiménez-Vargas, F., & Montecinos-Sanhueza, C. (2019). Polifonía en educación multicultural: Enfoques académicos sobre diversidad y escuela. *Magis, Revista Internacional de Investigación en Educación*, 12(24), 105–128. <https://doi.org/10.11144/Javeriana.m12-24.peme>
- Martin, D. B. (2021, June 9-18). *Rethinking equity and inclusion as racial justice models in mathematics education*. [Online workshop] Workshop on Mathematics and Racial Justice. Mathematical Sciences Research Institute. Chicago, United States. <https://www.msri.org/workshops/1012/schedules/29801>
- Martin, D. B. (2019). Equity, inclusion, and antiblackness in mathematics education, *Race Ethnicity and Education*, 22(4), 459–478. <https://doi.org/10.1080/13613324.2019.1592833>
- Martin, D. B. (2013). Race, racial projects and mathematics education. *Journal for Research in Mathematics Education*, 44(1), 316–333. <https://doi.org/10.5951/jresmetheduc.44.1.0316>
- Martin, D. B., & Gholson, M. (2012). On becoming and being a critical Black scholar in mathematics education: The politics of race and identity. En O. Skovsmose & B. Greer (Eds.), *Opening the cage* (pp. 203–222). Sense Publishers.
- Martin, D. B., Price, P., & Moore, R. (2019). Refusing systemic violence against Black children. Toward a Black liberatory mathematics education. En D. Julius & J. Christopher (Eds.), *Critical Race Theory in mathematics education* (pp. 32–55). Routledge.
- Matus, C., Rojas-Lasch, C., Guerrero-Morales, P., Herraz-Mardones, P. C., & Sanjal-Tudela, A. (2019). Diferencia y normalidad: producción etnográfica e intervención en escuelas. *Magis, Revista Internacional De Investigación En Educación*, 11(23), 23–38. <https://doi.org/10.11144/Javeriana.m11-23.dnpe>

- Ministry of Education. (2017). *Orientaciones técnicas para la inclusión educativa de estudiantes extranjeros* [Technical orientations for the educational inclusion of foreign students]. <https://www.ayudameduc.cl/sites/default/files/orientaciones-estudiantes-extranjeros-21-12-17.pdf>
- Ministry of Education. (2016). *Sistema de Desarrollo Profesional Docente* [Teachers' System of Professional Development]. <https://www.bcn.cl/leychile/navegar?idNorma=1087343>
- Ministry of Education. (2015). *Ley de inclusión escolar que regula la admisión de los y las estudiantes, elimina el financiamiento compartido y prohíbe el lucro en establecimientos educacionales que reciben aportes del estado* [School inclusion law that regulates the admission of students, eliminates shared financing and prohibits profit in educational establishments that receive contributions from the state]. <https://www.bcn.cl/leychile/navegar?idNorma=1078172>
- National Council of Teachers of Mathematics. (1984). *An agenda for action. Recommendations for school mathematics of the 1980*. Reston, VA: NCTM.
- Ortega, L., Boda, Z., Treviño, E., Arriagada, V., Gelber, D., & Escribano, M.R. (2020). The centrality of immigrant students within teacher-student interaction networks: A relational approach to educational inclusion. *Teaching and Teacher Education*, 95, 103–126. <https://doi.org/10.1016/j.tate.2020.103126>.
- Palacios, N. (1918). *Raza chilena. Libro escrito por un chileno y para los chilenos*. Editorial Chilena.
- Pavez-Soto, I., Ortiz-López, J.E., Sepúlveda, N., Jara, P., & Olguín, C. (2019). Racialización de la niñez migrante haitiana en las escuelas de Chile. *Interciencia* 44(7), 414–420. <https://www.redalyc.org/journal/339/33960285007/html/>
- Poblete, R., & Galaz, C. (2008, Septiembre). Identity at the crossroad: Peruvian immigration and education in contemporaneous Chile. II International Congress of Ethnography and Education. Immigration and Citizenship. Emigra, Barcelona, España.
- Popkewitz, T. S. (2004). The alchemy of the mathematics curriculum: Inscriptions and the fabrication of the child. *American Educational Research Journal*, 41(1), 3–34. <https://www.jstor.org/stable/3699383>
- Popkewitz, T. (2005). Education sciences, schooling, and the abjection: Recognizing difference and the making of inequality. *South African Journal of Education*, 28, 301–319. <https://doi.org/10.15700/saje.v28n3a177>
- Popkewitz, T. (2008). Cosmopolitanism, the citizen and processes of abjection. En M. Peters, H. Blee & A. Britton. *Global Citizenship: Philosophy, Theory and Pedagogy* (pp. 133–153). Sense Publication.
- Popkewitz, T., & Lindblad, S. (2018). Statistics reasoning, governing education and making difference as kinds of people. En S. Lindblad, D. Pettersson & T. Popkewitz (Eds.) *Education by the numbers and the making of society. The expertise of international assessments* (pp. 203–221). Routledge.
- Popkewitz, T. (2018). Anticipating the future society: the cultural inscription of numbers and international large-scale assessment. En S. Lindblad, D. Pettersson & T. Popkewitz (Eds.) *Education by the numbers and the making of society. The expertise of international assessments* (pp. 222–238). Routledge.

- Salvo, J. (2013). El componente africano de la chilenidad. *Persona y Sociedad*, 27(3), 53–77. <https://doi.org/10.53689/pys.v27i3.49>
- Schoenfeld, A. (2002). Making mathematics work for all children: issues of standards, testing and equity. *Educational Researcher*, 31(1), 13–25. <https://www.jstor.org/stable/3594305>
- Segato, R. (2007). *La nación y sus otros. Raza, etnicidad y diversidad religiosa en tiempos de políticas de la identidad* [The nation and its others. Race, ethnicity and religious diversity in times of identity politics]. Prometeo Libros.
- Servicio Jesuita a Migrantes. (2020a). *Migración en Chile. Anuario 2019. Un análisis multisectorial*. <https://www.migracionenchile.cl/wp-content/uploads/2020/09/MIGRACION-EN-CHILE-V6.pdf>
- Servicio Jesuita a Migrantes. (2020b). *Acceso e inclusión de personas migrantes en el ámbito educativo*. <https://www.migracionenchile.cl/wp-content/uploads/2020/06/Informe-2-Educaci%C3%B3n-2020.pdf>.
- Tijoux, M.E. (2013). Las escuelas de la inmigración en la ciudad de Santiago: Elementos para una educación contra el racismo. *Polis, Revista Latinoamericana*, 12(35), 287–307. <http://dx.doi.org/10.4067/S0718-65682013000200013>
- Tijoux, M. T., & Díaz, G. (2014). Inmigrantes, los “nuevos bárbaros” en la gramática biopolítica de los estados contemporáneos, *Quadranti*, 2(1), 283–309. <https://www.rivistaquadranti.eu/riviste/02/Tijoux&Letelier.pdf>
- Trujillo, I., & Tijoux, M. E. (2016). Racialización, ficción, animalización. En M.E. Tijoux (Ed.), *Racismo en Chile: La piel como marca de la inmigración* (pp. 49–63). Editorial Universitaria.
- Valenzuela, J. P., Bellei, C., & Allende, C. (2016). Measuring systematic long-term trajectories of school effectiveness improvement. *School Effectiveness and School Improvement*, 27(4), 473–491. <https://doi.org/10.1080/09243453.2016.1150861>.
- Valero, P., & García, G. (2014). El currículo de las matemáticas escolares y el gobierno del sujeto moderno. *Bolema*, 28(49), 491.515. <https://doi.org/10.1590/1980-4415v28n49a02>
- Valero, P. (2017). El deseo de acceso y equidad en la educación matemática. *Revista Colombiana de Educación*, (73), 99–128. <https://doi.org/10.17227/01203916.73rce97.126>
- Valoyes-Chávez, L. (2019a). On the making of a new mathematics teacher: professional development, subjectivation, and resistance to change. *Educational Studies in Mathematics*, 100(2), 177–191. <https://doi.org/10.1007/s10649-018-9869-5>
- Valoyes-Chávez, L. (2019b). Stereotypes and the education of in-service mathematics teachers in urban contexts. En P. Felmer et al. (Eds), *Problem Solving in Mathematics Instruction and Teacher Professional Development* (pp. 379–400). Springer. https://doi.org/10.1007/978-3-030-29215-7_20
- Valoyes-Chávez, L., & Darragh, L. (s. f.). Interrogating the promise of inclusion and equity for Black immigrant students in mathematics education. [Manuscript submitted for publication, Facultad de Educación, Universidad Católica de Temuco.].

Annex 1

Problem: One little monkey and its peaches

One little monkey had 60 peaches. The first day the monkey decided to keep $\frac{3}{4}$ of its peaches and threw the rest. Then the monkey ate one. On the second day it decided to keep $\frac{7}{11}$ of its peaches and threw the rest. Then the monkey ate one. On the third day it decided to keep $\frac{5}{9}$ of his peaches and threw the rest. Then the monkey ate one. On the fourth day it decided to keep $\frac{2}{7}$ of its peaches and threw the rest. Then the monkey ate one. On the fifth day it decided to keep $\frac{2}{3}$ of its peaches and threw the rest. Then the monkey ate one. How many peaches did the monkey have left?

Annex 2

Problem: The test score

In a 20-question test, for each correct answer they give 3 points and for each failed answer (wrong or not answered) they take away 2 points. If a student got 15 points in the test, how many correct answers did she get? How many failed answers did she get?