Chapter 5
Mathematical Inqueery: Queering the Theory, Praxis, and Politics of Mathematics Pedagogy

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The juxtaposition of queer pedagogy and mathematics may at first seem rather uncanny; mathematics and mathematics education have traditionally been positioned as outside of cultural influences. Recent work in critical mathematics education, however, opens new space to consider how queering mathematics education can address not only the normativity of mathematical processes, but also normative messages about subjectivity, family, and economics contained within mathematics education. This chapter examines the queer impulses in mathematics as a discipline and elaborates on "mathematical inqueery" (Rands 2009) as a queer theoretical perspective on mathematics education. The theory, praxis, and politics of mathematical inqueery are considered in relation to queering family, citizenship, and "financial literacy" in the "global economy."

5.1 Setting the Stage: Social Turns in Mathematics Education

The focus on mathematics pedagogy as an area of study is a fairly recent development that began in the 1970s out of conversations between psychologists interested in cognition and educators interested in mathematics (de Corte et al. 1996). It is not surprising that cognitive psychologists chose mathematics as an "ideal" subject for examining cognition; the cognitive realm and the social realm have often been viewed in contrast to one another, and the images of mathematics and mathematics education have traditionally placed them squarely inside the cognitive realm and outside the social realm. As D'Ambrosio (1999) noted, "During the first half of [the 20th century] … mathematics and mathematics teaching were considered to be

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independent of the sociocultural context" (p. 48). In fact, Skovsmose (2009) pointed out that "[i]t is precisely mathematics that is assumed to strip away all those elements that can be associated with subjectivity" (p. 68). The traditional view of mathematics is that it is neutral, universal, and uninfluenced by the social and cultural realms. Hence, as Stemhagen (2006) observed, many math teachers see social justice issues as "out of their hands" (p. 1). However, in the past quarter-century, a growing number of mathematics educators have reframed mathematics and mathematics education within the social realm. Valero and Zevenbergen (2004) identified two versions of a "social turn" in mathematics education. The first turn is toward social constructivism and draws on Vygotsky's work. Theorists and researchers in this line of thought assert that mathematical knowledge is socially constituted within the social milieu of a classroom culture. The second "social turn" is toward a view based on sociology and critical theory. In this case, mathematics education is assumed to be a social and political practice, which is "historically constituted in complex systems of action and meaning in the intermesh of multiple contexts such as the classroom, the school, the community, the nation and even the globalized world" (p. 2). This line of thought addresses issues of power and raises questions about the ways in which mathematics can be and has been oppressive. Gutiérrez (2002) contrasted "dominant" and "critical" mathematics in the following way: "dominant mathematics" is "mathematics that reflects the status quo in society" (p. 150), whereas "critical mathematics" is "mathematics that squarely acknowledges students as members of a society rife with issues of power and domination" (p. 151). Despite these two versions of "social turns" and the development of critical mathematics education, queer perspectives on mathematics education had been remarkably absent until recently (Rands 2009). Numerous scholars have contributed to an emerging body of work drawing on queer and trans perspectives. Mendick (2006b) used queer theory to critique the masculinity of mathematics and mathematics education. In addition, Mendick (2006a) staged an encounter between queer theory and mathematics education. In 2009, I wrote an article that introduced "mathematical inqueery" as an approach to math education using a queer theory perspective (Rands 2009) and later expanded on the approach (Rands 2016). Esmonde (2010, 2011) used the lens of genderism to critique the ways in which mathematics education centered mathematics achievement as a boys' issue. In 2013, James Sheldon and I organized a working group at the Psychology of Mathematics Education-North American Chapter conference entitled "Queering, Trans-Forming, and Engendering Mathematics and Mathematics Education" (Sheldon and Rands 2013). Since then, others (e.g., Dubbs 2016; Fischer 2013; Kersey 2018; Pennell 2016; Rands 2013; Rubel 2016; Sheldon 2019; Sheldon and Courey 2016) have written about math education from queer and trans perspectives. The uncanny juxtaposition of queer pedagogy and mathematics education provokes the production of new forms of inquiry in and through mathematics, that is, "mathematical inqueery."

5.2 Theory: Mathematical Inqueery as a Queer Theoretical Perspective on Mathematics Education

Mathematical inqueery, like other queer pedagogies, proceeds from new directions in queer theory. Originally a derogatory term directed at lesbian, gay, bisexual, and transgender people, the term "queer" has been reappropriated in the last several decades and has taken on two distinct meanings. First, "queer" is used as an all-encompassing term for a set of minority sexual and gender identities—as a more compact way to refer to the ever-expandable list lesbian, gay, bisexual, transgender, questioning, intersex …(LGBTQI …). This use is based on the view in liberal theory of identity as a fixed, uncontested, essential self. Second, "queer" has taken on a complex network of signification in the context of queer theory in which identity is viewed as contingent, unfixed, and in a constant process of reconstitution through discursive practices (Butler 1990, 1993; Curran 2006; Foucault 1978; Sedgwick 1993; Sumara and Davis 1998; Talburt and Steinberg 2000; Warner 1999).

The tensions between the two uses of the term "queer" align with tensions between "gay/lesbian pedagogy" and "queer pedagogy." Examining the 1994 *Radical Teacher* issue on gay/lesbian/queer pedagogies further illuminates this tension. Phillips (1994) refers to the "queer debate" in an article on "pedagogy, theory, and the scene of resistance." The "Forum" delves into this debate by posing the questions, "Is queer pedagogy the same as lesbian/gay pedagogy? Why? If not, which is to be preferred, and why?" (p. 52). Although two respondents (Sillanpoa 1994; Woodhouse 1994) took "deep and abiding exception" to the term queer or answered that queer pedagogy did not exist, many of the respondents delineated differences between gay/lesbian pedagogy and queer pedagogy. For example, Hoad (1994) stated that lesbian/gay pedagogy "looks more like a consciousness raising pedagogy, entailing alerting students to questions of homophobia, creating tolerance of diversity in the classroom, scrupulously avoiding a recognition of the classroom as an eroticized space" (p. 54). On the other hand, he viewed "queer pedagogy as something more risky and explosive; it requires a radical interrogation of all social analyses, particularly in areas that appear to have little to do with sex. It should favor questions over answers. It should shock and titillate, not just inform" (p. 54). The queer, according to Holmes (1994), "is not a positivity but an interrogative and frequently interventionist position taken on the basis of a skepticism toward the supposedly 'natural' understandings of human society such as sexuality, race, class, and gender" (p. 54). Queer pedagogy is not merely the *inclusion* of queer students, families, and issues in the curriculum but rather entails questioning and interrogation (also see Nelson 1999).

Another tension within gay/lesbian/queer pedagogy consists of the simultaneous pulls toward a focus on sexuality and toward a broader focus on normativity. While "[q]ueer pedagogy insists on the importance of sexuality, of definitions and understandings worked through sexuality, as constitutive of everyone and everything in this (post)modern moment of Western history … [and] points to the problems any sexual categories have in defining all individuals" (Shepard 1994, p. 56), it also

"takes its bearings in defining itself against normativity, not heterosexuality" (Parker 1994, p. 55). As Warner (1993) asserted, queer "rejects a minoritizing logic of toleration or simple political interest-representation in favor of a more thorough resistance to regimes of the normal" (p. xxvi). This tension inheres in queer theory and queer pedagogy, as Parker (1994) explained:

> [I]n another discursive framing, gay and queer can and do coexist—more or less (un)easily—since they are, and at the same time are not, substitutable for one another … [G]iven the fact that heterosexuality is nothing if not normative, this means that there is always a possible (and indeed a predictably huge) overlap between these terms. But this is neither airtight nor inevitable: think, for example, of the variously normative aspects of gay and lesbian identities. (p. 55)

Parker's (1994) statement pointed out the ways in which gay and queer exist in a dynamic relationship. At times, people use them interchangeably; other times, they are used in distinct ways. Parker's (1994) explanation also addresses the ways in which gay and lesbian identities can also be normative. Following this line of thought, queer scholarship has introduced heteronormativity's gay twin, homonormativity. Duggan (2003) conceptualized homonormativity as a "new neoliberal sexual politics … that does not contest dominant heteronormative assumptions and institutions, but upholds and sustains them" (p. 50). While queer liberalism (Eng with Halberstam and Muñoz 2005, p. 10) is a rights-based approach that challenges heteronormativity, queer pedagogy contests both heteronomativity and homonormativity alike.

In "Queering/Querying Pedagogy? Or, Pedagogy Is a Pretty Queer Thing," Luhmann (1998) critiqued discourses of pedagogy that entail the typical "worry over strategies for effective knowledge transmission that reduce knowledge to mere information and students to rational but passive beings untroubled by the material studied" (p. 126). In challenging models of knowledge as transmission, Sheldon (2017) has pointed out that queer pedagogy is not simply a switch from passive to active as in mainstream discourses of active learning; rather, receptivity is just as important. In introducing the queer idea of versatility to education, Sheldon (2016) also observed that queer pedagogy is about dynamic subject-positions, not just about making the student the agent. While keeping these complexities in mind, pedagogy might be "posed as a question (as opposed to the answer) of knowledge" (Luhmann 1998, p. 126). Pedagogy conceived in this way "is a pretty queer thing," as indicated by the title of Luhmann's chapter. Queer theory and pedagogy "desire to subvert the processes of normalization" (Luhmann 1998, p. 128). Similarly, one might assert that math "is a pretty queer thing." In fact, the impulses in queer theory to challenge normativity, question boundaries, and move to inquiry resonate with certain impulses in mathematics as a discipline.

Although the public image of mathematics tends to be that it is a dry, uncreative discipline focused on following rules, memorization, and quickly finding "right answers," (Frank 1990; Kogelman and Warren 1978; Mtetwa and Garofalo 1989; Paulos 1992; Sam 1999), numerous mathematicians and mathematics educators have challenged this image. For example, the nineteenth-century mathematician Sonya Kovalevsky (also known as Sophia Kovalevskia) is quoted as saying, "Many

who have never had occasion to learn what mathematics is confuse it with arithmetic, and consider it a dry and arid science. In reality, however, it is the science which demands the utmost imagination" (quoted in Curnutt n.d., para. 1). At first glance, the mathematical process of proof—with the nightmarish memories of high school geometry it may evoke for some people—perhaps seems as far from queer theory as one can get. However, Quinn (2012) pointed out that like physical sciences that "all went through 'revolutions': wrenching transitions in which methods change radically and become much more powerful" (p. 31), mathematics also underwent a revolution between 1890 and 1930. Quinn (2012) noted that, for various reasons, the mathematical revolution was much less visible than those in the physical sciences.

Despite the lack of public attention, shifts at the beginning of the twentieth century profoundly affected the way in which mathematics proceeds. A central change concerned what was accepted as a mathematical proof: "Old proofs could include appeals to physical intuition (e.g., about continuity and real numbers), authority (e.g., 'Euler did this so it must be OK'), and casual establishment of alternatives ('these must be all the possibilities because I can't imagine any others'). Modern proofs require each step to be carefully justified" (Quinn 2012, p. 32). Although some may perceive this shift as a shift toward rigidity, an alternative perspective points to the way this shift in what "counts" as proof allows for the critique of common sense assumptions—as does queer theory (for example, substitute "heterosexual people" for "these" in Quinn's quote: *heterosexual people* must comprise "all the possibilities because I can't imagine any others"; the result is the basic assumption of heterosexism). Due to this revolutionary shift in the conception of proof, according to Quinn (2012), "[i]t became possible, for instance, to see that some intuitively outrageous things are nonetheless true. Weierstrass's no-where-differentiable function (1872) and Peano's horrifying space-filling curve (1890) were early examples, and we have seen much stranger [*queerer?*] things since" (pp. 31–32). Peano's space-filling curve is certainly not a "normal" curve (in either the lay meaning of "normal" or the curve determined by a normal distribution in mathematics). Such an invention resonates with queer theory's impulses to challenge normativity, question categorical boundaries (what counts as a "curve") and move to inquiry. It is perhaps not too surprising, then, that Sedgwick (1990) chose for her seminal introduction to *Epistemology of the Closet* the mathematics term "Axiomatic." Although Sedgwick's work is a work of literary criticism, certainly not mathematics, the choice of title underlines the similar impulses in queer theory and modern mathematics. Until the nineteenth century, the term "axiom" referred to a truth taken to be self-evident (Folina 2010). With the mathematical revolution described by Quinn (2012), the meaning of the term "axiom" also shifted; "axioms as truths that simply reflect prior meanings thus yielded to the idea of axioms as determining meanings … by stipulating truths" (Folina 2010, para 3). As Canadian mathematician Robert Milson (with Eric Tressler) explained, "[i]n the modern understanding, a set of axioms is any collection of formally stated assertions from which other formally stated assertions follow by the application of certain well-defined rules" (2004, para. 14). This subtle shift in the meaning of "axiom" allowed

mathematicians to challenge assumptions that had previously been taken as "self-evident" or as accepted common sense, such as Euclid's fifth postulate or common-sense definitions of dimension, just as Sedgwick's axioms did so as queer theory came into being.

When I suggested that space-filling curves are "pretty queer things" at a Teaching Mathematics for Social Justice conference, one participant in the session insightfully pointed out that work on such "queer" mathematical objects did not necessarily mean that the mathematicians (in this case Peano and Hilbert) were any less homophobic or heterosexist than others of their time. This insight again emphasizes the tension in queer studies between pulls toward a focus on sexuality and toward a broader focus in normativity. Challenging taken-for-granted assumptions in mathematics may not automatically transfer into challenging taken-for-granted assumptions about sexuality. The pull to the other side toward a minoritizing focus on sexuality is evident in such groups as the Association of Lesbian, Gay, Bisexual and Transgendered Mathematicians (ALGBTM), a group of "gay, lesbian, bisexual, transgender mathematicians, statisticians, math educators, and math theorists, and allies thereof" (ALGBTM 2012, para. 1). The mission of the group is "to establish and cultivate a vital and supportive community of LGBT mathematicians and their allies" (para. 3) through such means as publicizing "the historical and current contributions of LGBT mathematicians to mathematics" and promoting "an image of mathematicians as an appropriate vocational choice for future LGBT mathematicians" (para. 3). Although the risk in following the first pull is to lose the focus on sexuality in the struggle to challenge normativity, the risk in following the second pull is to lose the interrogatory edge of the impulses in queer theory in settling for inclusion and representation within mathematics.

In the pedagogy of mathematical inqueery, the queer impulses in pedagogy (Luhmann 1998), queer theory, and mathematics converge. Mathematical inqueery challenges normativity, continuously questions the boundaries of social, identity, and mathematical categories, and follows Nelson's (1999) call to move beyond inclusion to inquiry. Mathematical inqueery attempts to move toward a universalizing view that challenges normativity without completely losing the minoritizing focus on sexuality. Mathematical inqueery brings queer theory's interrogatory edge into the intersection with pedagogy and mathematics to mathematize the queer and queer mathematics.

5.3 Praxis and Politics: Queering Family, Citizenship, and "Financial Literacy" Through Mathematical Inqueery

In 2009, the National Governor's Association (NGA) and the Council of Chief State School Officers (CCSSO) announced that 49 U.S. states and territories had joined the Common Core Standards Initiative (National Governor's Association and the

Council of Chief State School Officers n.d.). In 2010, the Common Core standards for mathematics were released (Common Core State Standards Inititiative n.d.-a, n.d.-b). Within another year, by June 2011, 44 states and territories had formally adopted the standards (Common Core State Standards Inititiative n.d.-c). As of 2018, 41 states, four territories, the Department of Defense Education Activity, and the District of Columbia had adopted the standards (Common Core State Standards Initiative n.d.-c). Although the mathematics standards' description of *what* students in kindergarten through high school should learn about mathematics spans 90 pages, the answer to the question, *why* students should learn these concepts and skills, is answered in a single repeated statement in auxiliary documents: "The standards developed … must ensure ***all*** American students are prepared for the global economic workplace" (National Governor's Association and the Council of Chief State School Officers n.d., p. 1). Similarly, in 2011, the Partnership for 21st Century Skills (P21) stated in bright red lettering at the top of its homepage, "The Partnership … is a national organization that advocates for 21st century readiness for every student. As the United States continues to compete in a global economy …" (Partnership for Twentieth Century Skills 2011, para. 1; this statement has since been removed). In these conceptualizations, the purpose of mathematics education has narrowed to a single purpose: to maintain U.S. economic world domination while simultaneously preparing students to be workers under global capitalism. (Such a purpose for mathematics education is not new; for example, see Gardner et al. 1983). To that end, one of five twenty-first century interdisciplinary themes put forth by the Partnership is "financial, economic, business and entrepreneurial literacy," with the following subcomponents: "knowing how to make appropriate personal economic choices"; "understanding the role of the economy in society"; and "using entrepreneurial skills to enhance workplace productivity and career options" (Partnership for Twentieth Century Skills 2011, "Financial, Economic, Business," para. 1). In testimony to the Congressional Committee on House Financial Services, Voyles (*Empowering Consumers* 2010) cited Mike Hagerty and Kevin Clevenger as saying in support of mandated personal finance education:

> Can the Missouri required Personal Finance Course prevent another financial crisis? In our opinion; no, but nothing can actually prevent it. However, if one is asking whether the personal finance course can make a substantial difference for the future of citizens in our state and our country, absolutely yes! (para. 6)

This quote is interesting because it links education, personal finance, and citizenship in connection to "financial crisis." Queer scholarship in a special issue of *GLQ: A Journal of Lesbian and Gay Studies* focused on "Queer Studies and the Crises of Capitalism" provided insights into the ways in which sexuality is implicated in these connections. Editors Rosenberg and Villarejo (2012) pointed out that financial "crisis … is not new" (p. 1). In fact:

> [I]t is a tried-and-true tactic of the consolidation of class power and imperialist nationalism that extends back at least to the Panic of 1893. As with our contemporary crisis, the capitalist classes reaped the real benefits in 1893, interrupting the momentum of the thriving populist and labor movements in the United States and justifying a redoubled wave of imperial expansion. (p. 1)

In the words of David Harvey, "Financial crises serve to rationalize the irrationalities of capitalism" (Rosenberg and Villarejo 2012, pp. 1–2). Furthermore, texts foundational to queer theory such as Foucault's (1977) *Discipline and Punish*, D'Emilio's (1993) analysis of gay identity in conjunction with wage labor, and Rubin's (1975) "political economy of sex," rely on Marxist and historical-materialist methodologies. Works in queer of color critique such as that of Ferguson, Muñoz, Melamed, and Eng "take up the legacies of historical materialism to think through the relationship of racialization, imperialism, and neoliberalism" (Rosenberg and Villarejo 2012, p. 3) as well. This collection of works laid the groundwork for a queer critique of neoliberalism embedded in contemporary calls for increased financial literacy education. Jakobsen (2012) made explicit the role of heteronormativity in the way in which contemporary neoliberal financial policies have come to be. She argued that the contemporary notion of "freedom" in the U.S. has roots in the Protestant Reformation:

> For the Reformers the meaning of freedom is first and foremost freedom from the Church, and the sign of this freedom, certainly for Martin Luther and John Calvin, is marriage over and against celibacy. Celibacy represented the moral ideal of the Church before the Reformation, and the Reformers' emphasis on marriage provides a counterpoint to this ideal. We do not always associate marriage with sexual freedom, but for the Reformers marriage represented not just freedom from the Church but a form of freedom that developed into what Michel Foucault has diagnosed as peculiarly modern: freedom that involves not wide open libertinism but disciplined activity. And this type of disciplined activity that both regulated and produced freedom, is precisely how the Reformers understood marriage. (pp. 23–24)

Marriage, according to Calvin (1536/1960), frees a householder from "greed, ambition, and other lusts of the flesh, keeps before him the purpose of serving God in a definite calling" (p. 1258; quoted in Jakobsen 2012, p. 24). Not only does marriage free the householder from "lusts of the flesh," but it also connects this sexual ethic with an individual's economic vocation as part of God's will: "The individual who fulfills his calling can know that this economic activity, including his economic gain, is in the service of God" (Calvin 1536/1960; quoted in Jakobsen 2012, p. 24). This Protestant (hetero)sexualization of personal financial gain as duty means that "insofar as US politics is informed by this tradition, the autonomous individual is the basis for other forms of social relation, including families, communities, and the nation-state" (Jakobsen 2012, p. 24). This view challenges the claims of mainstream economists that "their conceptual building blocks are objective, value-free, and scientific" (Barker and Feiner 2004). Instead, according to Barker and Feiner (2004), "the concepts of, for example, rationality and scarcity, maximization and equilibrium, commodities and exploitation, embody historically specific visions of normative masculinity, femininity, whiteness, and heterosexual orientation that are particular to the West" (p. 28). Jakobsen (2012) gave two interesting examples of the ways in which heteronormativity structures economic policies. The first consisted of the World Bank's set of development programs in Ecuador whose "express purpose [was] to create heteronormative relations" (Jakobsen 2012, p. 28). These programs distribute pamphlets on the benefits of companionate marriage and

provide small business loans to women in impoverished Ecuadorian communities based on the rationale that "women will have some access to economic resources and men will be drawn into household labor and child care" (p. 29). This policy attempts to switch the provider role to women instead of men, but nevertheless is based on heteronormative presumptions of relationships that are "directed in the end not toward local development per se but toward better integration of Ecuadorian communities into a privatized labor pattern, including privatizing household labor that is part and parcel of neoliberal globalization" (Jakobsen 2012, p. 29). The second example comes from the Office of Faith-based and Neighborhood Partnerships, whose stated task was to improve American communities irrespective of religious or political beliefs. Given this fairly specific task, the Office's statement of its top priorities makes some interesting expansions. The statement began by identifying economic recovery and poverty as the top priorities. Within two sentences, the statement echoed the Protestant aggregation of normative heterosexuality, economic duty, and gendered expectations: "The Office will strive to support fathers who stand by their families, which involves working to get young men off the streets and into well-paying jobs, and encouraging responsible fatherhood" (Jakobsen 2012, p. 36). The statement then rounded out the Protestant aggregation by suddenly jumping to the topic of religious tolerance among different "faiths"—not in American communities—but through fostering "interfaith dialogue with leaders and scholars around the world" (Jakobsen 2012, p. 36). As Jakobsen (2012) pointed out, "the overall effect … is to create a traditional vision of American gender roles, family structures, and their implications for policy … women are tied to children, and while they need to be supported so that abortions are not necessary, they, unlike fathers, apparently do not need well-paying jobs" (p. 37).

Approaches to teaching financial literacy in schools often reflect the same Protestant aggregation of notions identified by Jakobsen. One example came from a lesson plan entitled "Every Penny Counts" (n.d.) provided by the Council of Economic Education's (CEC) website. The main task in the lesson involved reading and discussing the story "Josh Has Many Wants" (Council of Economics Education [CEE] n.d.) In the story, a young boy named Josh receives birthday money from a neighbor and debates what he should buy with it. As written, the story omits information about how much money Josh has received and the cost of the various items he considers buying, but it would be easy for a teacher to add this information or ask students to use resources to find out typical prices. Determining whether characters have enough money to buy various items, finding different combinations of items characters can afford to buy, and exploring different coin combinations that can make a certain amount are common mathematical tasks in the primary grades. However, such tasks alone leave the impression that financial activity is neutral and apolitical and reflects the influence of "the forces of neoliberal multiculturalism, [which suture] liberal antiracism to U.S. naturalism" thereby "depoliticize[ing] capitalism by collapsing it with Americanism" (Melamed, quoted in Jakobsen 2012, pp. 2–3). Mathematical inqueery, on the other hand, brings to the task the interrogatory edge of queer theory. In this case, the teacher and students could read the story with an eye toward the normative. As it turns out, Josh's story embeds many

normative aspects contained within the Protestant aggregation. The story begins with Josh sitting in the car next to his mom, dreaming about "all the things he can buy with all the money he now has," (Council of Economics Education n.d.) birthday money from a neighbor. Already, the image created of Josh places him most likely within the normative economic category of middle class, with regular access to a family car and with plenty of birthday money. Next, Josh's mom takes him to the grocery store to buy food, fulfilling the middle-class White Protestant gender expectation of women as consumers of groceries and food preparers for their families. Josh continues to daydream about all of the different items he could buy and decides that he *really* wants a hamster. Meanwhile, he uses some of his birthday money to buy a candy bar on impulse, suggesting a possible classroom discussion on avoiding impulse buying. A reading based on Foucault (1977) notes the discipline-freedom connection in the story—Josh is "free" to choose what he will buy with his money but must maintain discipline and avoid buying on impulse. At the same time, Josh is positioned as an autonomous individual in two ways. First, when he asks his mother if he can have a candy bar, she replies, "Josh, I am buying food for our meal tonight. If you want the candy bar, you can use some of your money" (Council of Economic Education n.d.). Josh's mother affirms his autonomy to spend his money as he likes. Second, the clerk reaffirms Josh's autonomy to spend the rest of his money however he wants by asking Josh how he plans to spend the rest of it. Soon Josh and his mother arrive at home and eat dinner as a family—Josh, Mom, and Dad, the epitome of heteronormative family structures. Josh's father repeats the clerk's question about how Josh will spend his money—once again positioning Josh as an autonomous individual. Josh expresses his desire to spend his money in many different ways, but emphasizes that he "really, really" wants a hamster. Interestingly, Van Houtte and Javis (1995) found that students in grades 3–6 reported higher autonomy if they were pet owners; perhaps the desire for a hamster taps into a cultural longing for autonomy. Josh's father serves as a nonjudgmental facilitator of Josh's autonomy and disciplined freedom: "Sounds to me like your money is burning a hole in your pocket … I mean you want to spend your money NOW because you have so many wants … You want to go places, but it seems like a hamster is most important to you" (Council of Economic Education n.d.). Josh's dad then takes the next step in facilitating Josh's disciplined freedom by asking Josh to explain why he wants a hamster. Josh explains that the reason he wants a hamster is because his friend has one that "even has a ball to run around the house in" (Council of Economic Education n.d.). Reference to a house in which the hamster can run around solidifies the image of Josh and his friends as individual units in middle-class heteronormative families living in personal single-family detached houses. Josh's freedom to fulfill his wants as quickly as possible as long as he does so in a disciplined manner is affirmed when his mother quickly says yes to his request to go to the pet store the next day. Josh's discipline is tested once again at the pet store the next day, when a goldfish sale tempts him to change his mind about which pet to purchase. The decision is left up to the reader, shifting Josh's middle-class, heteronormative, disciplined autonomous subjectivity to the reader: "It seems Josh must make a decision. He needs help. What do you think Josh should do? Does thinking

about 'trade-offs' help?" (Council of Economic Education n.d.). Returning to the lesson plan, Melamed's neoliberal multiculturalism that depolititizes capitalism by collapsing it with Americanism stands out in sharp relief in the lesson's take away message: "Everyone must choose. People, rich and poor, young and old, must address the problem of wanting more than they can have" (Council of Economic Education n.d.). This statement suggests that everyone is positioned within capitalism in the same way.

Interestingly, the Consumer and Financial Protection Bureau (2016) in its report on "financial capability" acknowledges that structural and contextual factors contribute to financial well-being, and hence not everyone is positioned in the same way within the economic system; however, the report then dismisses these factors as not being feasible to address: "Indeed, [these] broad factors that contribute to adult financial well-being are outside the scope of this report … This report identifies individual abilities and characteristics that financial education organizations and policy and community leaders can seek to influence" (p. 4). Such a view is in contrast to recent research and programs that take into consideration economic factors that affect queer youth. For example, while certainly many queer youth are not in the child welfare system or living unhoused, queer youth are overrepresented in both of these populations (Forge et al. 2018, p. 47). Approximately 20–40% of youth living as unhoused identify as LGBTQ (Choi et al. 2015; Cochran et al. 2002; Durso and Gates 2012; Forge et al. 2018; Quintana et al. 2010; Van Leeuwen et al. 2006; Wright et al. 2016). In a study that modeled needs assessment and program planning, (Berberet 2006), 39% of LGBTQ youth said that they had been "kicked out" of their home based on their gender identity or sexual orientation (p. 373). A mathematical inqueery approach to economics recognizes that the economic strategies that work for middle-class housed youth such as Josh may no longer work in other situations such as for queer youth living unhoused. Berberet found that economic strategies such as couch surfing, dumpster diving, selling and trading drugs, and squatting came to the forefront as survival strategies. For many LGBTQ youth living unhoused, shelters are inaccessible due to homophobia/transphobia. For example, one 16-year-old youth explained, "'It's better on the street. You can fight … or run. But in those shelters you're trapped'" (Berberet 2006, p. 380). In Berberet's (2006) needs assessment, 100% of the queer youth said that they often did not share their sexual orientation with staff due to fears of how they would be treated. Of those who did disclose their sexual orientation 74% said they had experienced harassments and threats (Berberet 2006, p. 380). The needs assessment/program planning project described by Berberet resulted in the Sunburst Apartments, the first permanent housing program with adjunctive services for LGBTQ youth. While teaching math for social justice perspectives often encourage learning about structural inequalities in the classroom (e.g., Gutstein and Peterson 2013; McCoy 2008), the Sunburst Apartments program can be seen as an educational process that addresses structural inequalities directly. The program involved numerous layers of economic education. For example, service providers became learners of financial literacy as they became more aware of the economic strategies youth used to navigate living unhoused. Stakeholders learned ways to leverage for funding by sharing

the specific needs of queer youth living unhoused. Stakeholders also learned ways to collaboratively obtain funding for the project. It is worthy of noting that in this framing, the program positioned stakeholders and service providers as learners of financial literacy inverting the typical positioning of youth as learners from adults. It would also be possible to involve youth more in the financial aspects of the program planning.

5.4 Theory, Praxis, Politics

James Sheldon (personal communication 2018) observed that critiquing financial literacy reveals the ways in which (hetero)normativity is embedded within the structure of mathematics. While educators often assume that "context" is overlaid onto "math," these two entities are in fact inseparable. As an example, exponential financial formulas are structured to embed neoliberal capitalist assumptions about interest. Interest relates to personal financial gain, and in this way serves an ideological function of maintaining a focus on the individual and on accumulating wealth (or accumulating debt, depending on one's vantage point). The vantage point matters: queer young adults (especially those of color) are likely to have accumulated more debt than their straight peers (Poirier et al. 2018). Mathematical inqueery presses us to question the assumptions undergirding financial literacy and ultimately to invent new formulas and new ways of relating to one another in the world.

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