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Buying in and Checking Out: Identity Development and Meaning Making in the Practice of Mathematics Homework

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Buying In and Checking Out: Identity Development and Meaning Making in the Practice of Mathematics Homework

Mara Landers

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Abstract

This paper presents findings from an ethnographic study of the role and meaning of mathematics homework in the lives of middle school students. The study conceptualizes and examines homework as a social practice, with a focus on how students make meaning out of their experiences and the role of identity development in meaning making. Specifically, the study examines how middle school students come to value or reject mathematics homework. Case study analyses revealed two ways of characterizing students' experiences with homework. Students who buy into homework develop aspects of their identities related to school, math and homework that support them in valuing homework. Students who check out develop aspects of their identities that support them in rejecting homework. The concepts of buying in and checking out have implications for theory development around motivation and identity and for school practices around homework.

Keywords: homework, middle school, identity, motivation, ethnography

Aceptar o No Aceptar Hacer la Tarea: Desarrollo de la Identidad y la Creación de Significado en la Práctica de las Tareas para Casa en Matemáticas

Mara Landers

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Resumen

Este artículo presenta los resultados de una investigación etnográfica sobre el papel y los significados de las tareas para casa en matemáticas referido a la vida de alumnado de secundaria. La investigación conceptualiza y examina la tarea doméstica como una práctica social, con un enfoque en cómo el alumnado crea sentido de sus experiencias y del papel del desarrollo de la identidad en la construcción de significados. Específicamente, la investigación examina como el alumnado de secundaria deciden valorar o rechazar las tareas para casa de matemáticas. El análisis de los estudios de caso revela dos maneras de definir las experiencias del alumnado con las tareas. Hay alumnado que acepta hacer la tarea y desarrollan parte de su identidad relacionándose con la escuela, las matemáticas, y la tarea, apoyándola valoración de la tarea. Hay alumnado que no aceptan hacer la tarea y desarrollan parte de su identidad en el rechazo de la tarea. Los conceptos de aceptar y no aceptar tienen consecuencias para el desarrollo de las teorías en los campos de motivación e identidad, y para las prácticas escolares relacionadas con las tareas para casa.

Palabras clave: tareas para casa, secundaria, identidad, motivación, etnografía

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The subject of homework sparks debate in every-day and academic conversations. Some argue that homework is harmful and should be abolished, while others focus on its value in supporting student engagement. When students do not “do their homework,” or complete it to teachers’ satisfactions, parents and teachers are frustrated. Alternatively, compliance is seen as academic commitment and a desire to learn. I argue that in order to truly support homework as a learning opportunity, we first have to understand the role and meaning of homework in students’ lives. This requires conceptualizing homework not simply as an artifact of work accomplished, but as a social practice that students engage in and make meaning out of with others in their lives (Landers, in press). This perspective on homework makes central the role of identity in participation in practice and meaning making (Wenger, 1998).

This paper describes the processes by which students come to value or to reject math homework. Many studies have examined the meanings that participants (students, parents, and teachers) attach to homework by considering feelings, motivation, and the perceived value and purpose of homework. However, how students make meaning out of their experiences has not received the same attention. Through a three-year ethnographic study in an urban middle school I examined students’ participation in the practice of mathematics homework and their perspectives on that participation. Analysis of the cases of fourteen students revealed two ways to characterize their experiences. Students who buy in develop aspects of their identities related to school, math, and homework that support them in coming to value homework. Students who check out develop aspects of their identities that support them in rejecting homework. This conceptualization of homework and the case studies presented here have implications for both theory development around motivation and identity, and school practices around homework.

The following section provides an overview of relevant research on homework. Then I outline the theoretical grounding, and the context and methods of the study. Following, I turn to the findings of the study. The paper ends with a discussion of implications of the study, limitations, and directions for future research.

Research on Homework

While most homework research has examined homework from a quantitative perspective (e.g., investigating the relationship between homework and achievement measures), some studies have examined homework as a practice. These studies, as well as those that examined homework meaning and motivation, are discussed here.

Homework as a Social Practice

Researchers who have studied homework as a social practice have mainly examined families' homework practices, including how parents support students in doing homework (Deslandes & Rousseau, 2008; Cooper, Lindsey, Ny & Greathouse, 1998; Hoover-Dempsey, Battiato, Walker, Reed, DeJong & Jones, 2001; Xu & Corno, 2003) and act as able tutors (Pratt, Green, Macvicar, & Bountrogianni, 1992; Shumow & Miller, 1991). Observations of families doing homework have revealed how parents assist with time management and focus (Delgado-Gaitan, 1992; McDermott, Goldman, & Varenne, 1984; Xu & Corno, 1998) and how they use personal and social resources to help their children (Delgado-Gaitan, 1992; McDermott, Goldman, & Varenne, 1984; Varenne & McDermott, 1999). These studies focused on elementary students, though researchers have found that parents stay involved in homework in later grades (Deslandes & Rousseau, 2008; Patall et al, 2008). However, in middle school, students are less likely to receive homework help from parents, especially in math (Dauber & Epstein, 1993), and they may not want adults present while they are doing homework (Hong & Milgram, 2000).

Some practice-oriented studies have demonstrated how meaning is integral to homework practices, specifically how the value of homework for parents leads them to seek and use resources (e.g., Delgado-Gaitan, 1992; Varenne & McDermott, 1999) or to interrupt family life for homework (Xu & Corno, 1998). Studies of older students (Robinson & Kuin, 1999; Pope, 2001) have revealed that the practice of copying is connected to students' valuing of homework as a means to earn good grades. This focus on the utility of homework over its intrinsic value is also found in studies that have explicitly examined meaning.

The Meaning of Homework

Overall, researchers and participants characterize homework as positive or negative. Adults value homework for its potential to help students develop time management skills, responsibility, and study habits (Warton, 2001; Xu & Corno, 1998); to prepare for work (Corno & Xu, 2004); to help develop productive beliefs about achievement and studying, (Bempechat, 2004); to reinforce school learning (Xu & Corno, 1998); and to support school success (Cooper, 1989; Corno & Xu, 2004; Coutts, 2004). Given the positive aspects, adults tolerate the downsides: arguments and the sacrifice of family time (Coutts, 2004; Warton, 2001; Xu & Corno, 1998).

Students are aware of both positive and negative meanings of homework. Some like homework and do it to please adults (Chen & Stevenson, 1989; Warton, 2001; Xu & Corno, 1998). Others claim that homework helps develop study habits and responsibility (Corno & Xu, 2004; Xu, 2007; Xu & Yuan, 2003) and leads to school success (Cooper, 1989; Corno & Xu, 2004; Coutts, 2004). Yet some students indicate that homework is not important (Hinchey, 1996) and it causes negative feelings (Bryan & Nelson, 1994; Chen & Stevenson, 1998; Cooper, Lindsey, Nye, & Greathouse, 1998; Hinchey, 1996; Leone & Richards, 1989; Shumow et al, 2008). Negative feelings during math homework have been linked to poor performance (Else-quest et al, 2008) and “drill and kill” assignments may traumatize students (Lange & Meaney, 2011).

While younger students may not understand the adult perspective (Warton, 2001), by middle school, students begin to understand adult thinking (Corno & Xu, 2004; Coutts, 2004). By high school, the student and adult view may converge on the idea that homework is a vehicle for academic success (Coutts, 2004). Older students are more likely to recognize intrinsic reasons for doing homework, and students who agree with intrinsic reasons are more likely to engage in productive homework behaviors, complete their homework, and earn higher grades (Xu, 2005). Still, older students have mixed feelings about homework and admit that they are willing to copy to get it done and earn grades (Pope, 2001; Robinson & Kuin, 1999).

Thus while students may come to understand that homework has value, it is not clear how they come to take ownership of different meanings. The current study aims to extend existing research by examining what ideas are personally meaningful to students and how meaning is made through participation in homework practices.

Theoretical Perspective

This study conceptualizes homework as a social practice that students engage in with others in their lives. Practice is defined here as “doing in a historical and social context that gives structure and meaning to what we do” (Wenger, 1998, p.47). Researchers have long studied social practices as central to learning and development (e.g., Cole, 1996; Lave & Wenger, 1991; Nasir, 2002; Rogoff, 2003) and for several decades the field of mathematics education has experienced what Lerman called a “social turn,” or “the emergence... of theories that see meaning, thinking, and reasoning as products of social activity” (Lerman, 2000, p.23). Research from this perspective examines how participation in a practice provides opportunities for learning, problem solving, and cognitive and identity development.

The Homework Cycle

Homework differs from many other practices in that it is done across contexts, specifically in a cycle of contexts: students and homework artifacts move from school, to home, and back, daily over time. In school, teachers assign tasks, and students may work on assignments with classmates and teachers. Then students leave school and engage in activities such as arguing with parents about homework, or getting help to complete tasks. Then they return to school to review, finish, or turn in work. Figure 1 illustrates this “homework cycle.”

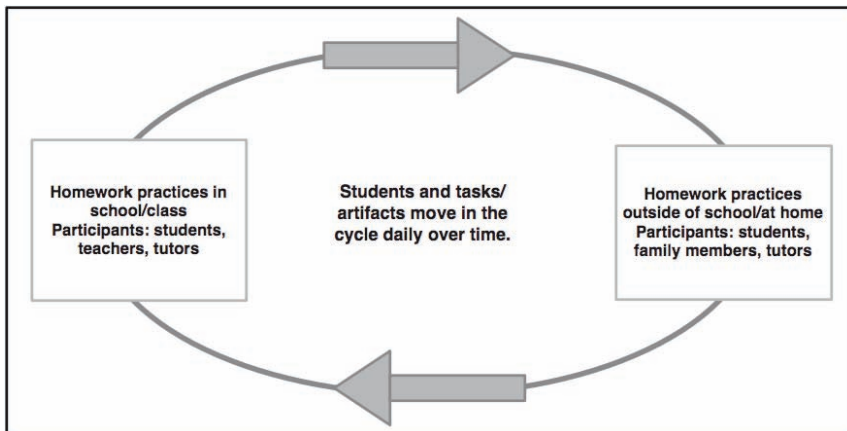


Figure 1. The homework cycle

Elsewhere I have argued that within this cycle two reciprocal processes are at work (Landers, *in press*). First, students' participation is shaped by what homework means to them and their identities as students. Second, as they participate in the cycle over time, they develop aspects of their identities relevant to homework as well as a sense of what homework means to them. The current study examines this second process.

Meaning Making and Identity Development

In Wenger's (1998) social theory of learning, individuals negotiate the meaning of their work in and across communities of practice. Relevant to homework, students participate in academic and social communities, such as math classes, schools, teams, clubs, and families. Through this participation they learn how others characterize homework and they take ownership of meanings: ideas become personally meaningful, and they may construct new meanings as well. For example, in conversations with adults students might learn about homework as part of academic success. Through conversations with siblings or through the media they may take on the idea of homework as punishment. In Wenger's terms, ownership is the level of "negotiability" or the "ability,

facility, and legitimacy to contribute to, take responsibility for, and shape the meanings that matter in a social context (p. 197). The meanings that students construct may not matter to others, as students and adults have uneven power relations. Nonetheless, they make meanings their own:

Teachers talk about students gaining ownership of the curricular material, and by this they refer to their achieving not only perfunctory mastery but personal meaning as well... In this sense, the notion of ownership refers both to an experience of holding some meanings as our own and to social relations of ownership with respect to others who might also claim some say in the matter. Ownership involves control over meaning, but the notion of control is not quite appropriate because it is too externalized. What I call ownership of meaning is more intimate; it is deeper than just control. It refers to the ways meanings, and our ability to negotiate them, become part of who we are. (Wenger, 1998, p.201)

Meaning making is therefore deeply intertwined with identity development. Wenger explains that, “building an identity consists of negotiating the meanings of our experience of membership in social communities” (p. 145), and that ownership “refers to the ways meanings, and our abilities to negotiate them, become part of who we are (p. 201). In this theoretical space identity is more than self-image. It is, a “constant becoming” that forms trajectories within and across communities of practice. Wenger describes identity further as a “nexus of multi-membership” (p.159) to emphasize that as members of different communities we “construct different aspects of ourselves” (p.159). This does not mean that we have multiple identities, but that identity is shaped by participation in different communities. In the current study I consider four aspects of identity: students’ orientations to participation in math as a school subject (math identity), to homework as an activity (homework identity), to school as an academic and social community (academic identity), and to their participation in communities in the future, such as college and careers (future identity).

Wenger further specifies that identities develop in the tension between negotiability and identification, which is about investment in

various forms of belonging to communities. As individuals engage in the practices of a community they gain a sense of themselves by creating bonds or distinctions. In the homework cycle, some students come to identify with school and academic practices in general, the discipline of mathematics, or the practices of a particular math class, while others may identify with other communities, and not with school, academics, or math. Students may come to identify as people who do homework, or they may identify as students who do not (homework identity). Identification also occurs when individuals use their imaginations to move beyond their current context, and when they align their beliefs and practices with larger enterprises. In research studies and in popular culture, doing homework is connected to academic success (academic identity). In the current study, students' visions of their future selves as college students or working adults (future identity) were connected to the homework meanings of which they took ownership. Next I describe the context of the study, data sources and analytical approaches.

The Study

Context

As part of a multi-university research project I worked for three years as a participant-observer in math classes at Roosevelt Middle School¹, which serves students from several cities in Northern California. Each year I observed and tutored in math classes on a daily basis. In year 1 I worked in Mrs. Fisher's sixth grade class. In year 2 I worked with Mr. Gardner in seventh grade Pre-Algebra. In year 3 I worked in two of Mr. Gardner's eighth grade classes: Algebra I and Algebra 1A (the first half of Algebra for students who had not taken seventh grade Pre-Algebra). The current study draws mainly from data collected in year 3.

Both teachers used College Preparatory Mathematics (CPM), a curriculum in which each chapter consisted of a single problem set. Both teachers followed the authors' guidelines to give certain problems as classwork and the rest for homework, though in Algebra 1A assignments were more often worksheets than CPM problems. In year 3,

both of Mr. Gardner's classes turned in assignments at the end of each week.

Preliminary Interviews

During year 1 homework arose as a concern for Mrs. Fisher, as some students regularly completed homework while others did not. At the end of the year I interviewed students from her class about their homework motivation and practices. In the spring of year 2 I interviewed students from Mr. Gardner's Pre-Algebra class, including several of Mrs. Fisher's students from the previous year. In both rounds of interviews students brought out the notion of identity, especially their visions of their future selves. Thus identity became a central focus in year 3.

The Year 3 Study

The aim of this study was to analyze meaning and identity in practice, towards understanding how students took ownership of meanings of homework, how they developed aspects of their identities, and how meaning and identity shaped their participation in homework practices. The current paper takes up the first two of these goals, towards understanding how students come to value or reject math homework and the role of identity in this process.

Participants. Fourteen students were selected, using three criteria: they represented a range of performance in math; several students were chosen because their homework performance outweighed their test performance; and students who had participated in pilot interviews were chosen because they provided longitudinal data. The teacher and parents of the fourteen focal students were also asked to participate in interviews about their perspectives on and role in homework. Ten of the fourteen students' parents participated, as did Mr. Gardner.

Table 1

Study Participants. Students in bold participated in the preliminary interviews

Name	Course	1 st Quarter grade	2 nd Quarter grade	Race/ethnicity	Parent interview
Keshia	Algebra	A	C+	African American	Mother
Shantelle	Algebra	C-	C+	African American	
DeShawn	Algebra	B-	B	African American	
Aliyah	Algebra	C	C-	African American & Caucasian	
Nia	Algebra	C-	D	African American	
Felicia	Algebra	B-	C	Multi-racial	Mother
Nate	Algebra	C	D-	African American	Mother
Trey	Algebra	B	A-	African American	Mother
Meena	Alg. 1A	B+	B+	South-Asian	Father
Craig	Alg. 1A	B+	C+	African American & Caucasian	Mother
Nick	Alg. 1A	D	F	African American	Mother
Luke	Alg. 1A	D	F	African American	Father
Evan	Alg. 1A	D	C-	African American	Mother
Cierra	Alg. 1A	B-	C+	African American	Mother

Because of my role as “participant-observer” in this research I include myself as a participant as well. In Mrs. Fischer’s class I acted as a teacher/tutor, but I positioned myself differently in Mr. Gardner’s classes. I did not participate in classroom management. I allowed students to break rules in front of me, such as having cell phones and food in class. I attended school activities including sports events and dances, and I listened when students shared confidences, such as romantic involvements or complaints about teachers. This approach allowed me to get to know students, towards understanding

their perspectives and gaining their buy-in, as well as their parents', for the research.

Building theory from case studies entails the comparison of emerging theory and data, such that the resulting theory closely fits the data (Eisenhardt, 1989). The cases of two students provided an initial hypothesis of how to characterize the homework cycle for students who valued homework and for students who rejected it. The remaining twelve cases were analyzed to refine the emerging concepts of “buying in” and “checking out.”

Findings

The case analyses led to a conceptualization of how students took ownership of meaning as a three-part process: (1) learning about meanings; (2) developing aspects of identity; and (3) taking ownership of meanings.

Through their experiences at home, school, and other settings, students learn about what homework means to others in their lives. When students are developing aspects of their identities that support them in taking ownership of positive meanings, they are buying in. Ownership of positive meanings provides them with homework motivation. Being motivated by personal goals and values supports students in effective participation in the homework cycle, toward academic success. In contrast, checking out means developing aspects of identity that lead students to reject homework. When students take ownership of negative meanings they have little or no homework motivation. If they are motivated, it is extrinsically, which does not sustain effective homework practices. Affect is key. Most of the students who bought in had positive responses to math and good relationships with Mr. Gardner. Checking out is characterized by negative affect toward math, school, or even a teacher.

While some students in the study could be characterized as “bought in” or “checked out”, these concepts are not static categories of students, but ways to describe their relationship with homework at any point in their trajectories through middle school. In fact in several cases I was able to identify experiences that led a student to shift from buying in to

check out, or vice versa. Thus the paths depicted in figure 2 are “idealized” in that they characterize a student’s experience, identity, and ownership of meanings, which all may shift over time.

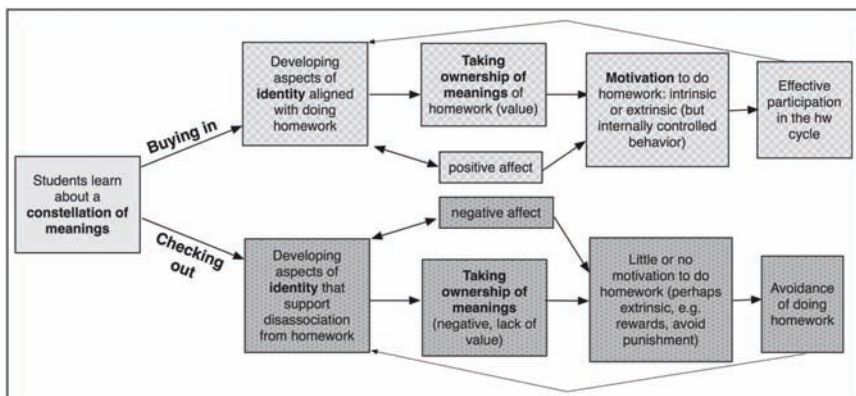


Figure 2. Buying in and checking out as idealized trajectories

The findings are organized around the three components described above.

Learning about Meaning

In line with the literature, the students and their parents characterized homework as negative and as positive. While students tended to attribute positive meanings to adults, their descriptions of homework as negative were framed in terms of personal experience.

Learning about negative meanings. All fourteen students described homework as negative by comparing it to other activities. Five students expressed their distaste for math. For example, Aliyah was “never good at getting [math homework] done.” Since elementary school, she would look at her math homework and it would be “an automatic turn off... I didn’t want to do it” (interview 1/05).

Table 2
Negative meanings of homework for students

Category	Students (14)
Less enjoyable than other activities	10
Dislikes math and/or hw	7
Less work is better	6
Less important than other activities	3
Homework is hard	3
Homework works against social activities, status	3
Teachers give homework to control or punish students	2

Students did not attribute negative meanings to their parents, but they described arguments and nagging about homework. Further, seven of the ten parents felt that homework had a negative side. They focused on different concerns than students, but their negative meanings aligned with the students’ focus on homework as unpleasant and time consuming.

Table 3
Negative meanings for parents

Category	Parents (7)
Management: It is hard to manage due to problems with assignments, communication, parent lack of math knowledge.	3
Burden on students: too much work/stress	5
Burden on families: causes family problems, takes away time	2
Does not necessarily help students learn	3

Three parents expressed strong, negative feelings, describing yelling at their children, and telling them things like “it’s really just doing what you need to do... getting through it” (Ursula, Nate’s mother, interview 3/05). One parent admitted doing homework for her younger son so that he would not be punished in school for coming in empty handed. This kind of action reinforces the idea that it is more important to get work done than to learn from doing the work.

The students were also exposed to negative meanings in school. Mr. Gardner’s homework policies aimed to give students opportunities to get homework help in school and to reward them for effort; however, these policies supported students in characterizing homework as something to be minimized. Given his experience as a parent, Mr. Gardner did not want students to have more than half an hour of homework each night because they had five subjects of work to do. Ten students liked this policy because it meant that they had less work to do. However, this practice, combined with Mr. Gardner’s practice of collecting work at the end of the week, gave students the opportunity to “slough off” and not keep up with assignments (Mr. Gardner, interview, 7/05). Thus while students interpreted his policies as kindness, they also learned that homework was something to be minimized. With similar practices in other classes, some students took away the message that teachers did not care about homework. As Nick explained, copying was an acceptable practice because “all they really care about is you getting it done. That’s what I’ve learned. You just get it done, you could do like a HALF job, like you don’t even have to get everything correct.” (interview, 4/05).

Learning about positive meanings. Student and parent interviews revealed nine categories of positive meanings of homework. In particular, students’ experiences in school and conversations with their families taught them about the connections between homework and school success.

Table 4

Sources of positive meanings. Each category in column 1 is the perceived result of homework. The number in parentheses indicates the number of students who mentioned the category. The last column indicates the number of parents who mentioned the category

Category	Sources School experience	Teacher	Parents	Unknown	Other	(Parents) experience
Grades (14)	14	1	10			9
Passing (12)	11	2	5			3
Utility value (value for future goals (13)	1	1	9			10
Test preparation (11)	11	1	2			3
Learning/ enhance mind (3)			2	1		9
Learning for future (8)	1	4	1	3	1	3
Teacher goals & practices (12)		12				7
Work ethic/ Responsibility (3)			1	2		6
Sense of personal attainment (3)	2			1		0

Experiences in middle school had taught these students that doing homework would help them prepare them for math tests, earn good grades in math, and pass to the next grade. Six students recounted experiences in which they connected their math grade to how much homework they had done. Felicia, for example, believed that doing homework in seventh grade helped her raise her grade in Mr. Gardner’s class. She recalled that she “didn’t do class work a lot, but I did do my homework and that brought me up to a good enough grade” (interview, 1/05). Math was a graduation requirement at Roosevelt, and teachers and counselors reminded students of how many credits they

needed to graduate. Mr. Gardner connected homework and passing math to moving on to and to be prepared for high school (fieldnotes, 1/4/05, 2/2/05).

Students also were learning from their parents that homework contributes to future opportunities. For example, Trey and Nick both had conversations with their mothers about severe consequences of not doing homework. Trey heard that not doing homework is “ruining your life,” while Nick heard that it would be “throwing away your life.” Both students had learned that doing homework would enable a student to pass through school to college, towards a career and an upwardly mobile life. One might conclude that Trey and Nick both bought into homework, but, this was not the case. Trey identified with school: his identity as an academically successful, college-bound student supported him in taking ownership of the value of homework for learning and for academic success. The desire to avoid “ruining your life” was personally meaningful to him, as, “you gonna flunk if you don’t do homework...it matters to me cuz I want to do something with my life.” Trey consistently and effectively engaged in the practice of homework. That is, he bought in. In contrast, Nick disassociated himself from school: he drew on his identity as popular and NBA-bound in order to reject homework. By eighth grade, Nick had checked out. He understood why homework could be valuable, but he took ownership of negative meanings, positioning homework as “just something you do” that is “not needed in life,” not worth “annoying” family members for help on, and not worth the time of a popular student and future professional athlete (interview, 2/05). Such claims allowed him to ignore homework, even when it meant he would not pass math or the eighth grade.

Next I discuss the aspects of identity that supported Trey and his classmates in buying into homework.

Buying Into Homework

Eleven² students bought into homework at some point during middle school. They took ownership of its value, though they focused on utility, rather than the value of homework for learning. When students

mentioned learning, they were still focused on utility, for example, doing homework to prepare for a test, in order to earn a good grade in math.

Across cases, academic identity and future identity were clearly connected to the value of homework. Students who identified as academically capable and successful (or potentially successful), and those who identified as college and career-bound, took ownership of the value of homework, summarized in Table 5 and discussed below. While students who had developed these aspects of their identities were supported in buying into homework, the relationship between the other two aspects of identity and ownership is less clear.

Table 5
Ownership of meanings and aspects of identity

Meaning	Aspect of identity	Students
The homework contract: students exchange homework for a grade from their teacher.	Orientation to school: identifying as successful or potentially successful (earning good grades)	Eleven students owned homework contract and identifying as such.
Value for the future: Student must do homework to “pass” through school, to get to college, careers, and/or an upwardly mobile life.	Orientation to school: identifying as successful or potentially successful, (earning good grades) Future: Identifying as college/career bound	Nine students took ownership and identified as such. (One student showed evidence of taking ownership and shifted from not envisioning college, to considering it.)

Academic and future identities. Students who identified as currently or potentially successful took ownership of the value of homework for its role in their math grades. Specifically, what was meaningful to them was the homework contract: they saw homework as an exchange with their teacher for a grade. All fourteen students understood this idea, and eleven of the students took ownership of it. These eleven students identified themselves as successful or striving to be successful, and so they were concerned about what grades they earned. For Trey and Meena, the goal was to earn A's in math. DeShawn and Keshia were both striving for the honor roll. Others were concerned about earning passing grades. Given their personal values, these students focused on turning in homework to raise or maintain their grades.

Drawing on their future-identities, nine of these students also took ownership of the value of homework for future goals. Trey envisioned himself going to college and possibly medical school, and as noted above, he drew on this vision to motivate himself to work. Nia also saw herself as college-bound, and she reasoned that students need to do homework to earn grades, towards entrance into college. Thus homework was a “ten” on her priority list because “I plan to go to college, and I need my grades to be good” (interview, 1/05). For Nia, homework was also about learning and being prepared for college: “I think [homework] is gonna get me to college, The job I want, and what I wanna do in life... because, you're learning from your homework and, like, when you go to college you gotta do homework and stuff like that [you] need to be turning in. You're gonna get a grade for that” (interview, 3/05).

Homework and math identities. How students oriented to math and to homework did not necessarily support them in buying in. Eight of the eleven students who were buying in identified themselves as liking math, and three identified as “math-haters.” While only the eight “math likers” took ownership of the idea that doing homework would prepare them for math tests, all eleven students took ownership of the idea that doing homework would help them attain future goals, such as college.

Ten of the eleven students identified as homework doers - they felt personally obligated to do homework on a regular basis. Seven of these students took ownership of the connection between homework and tests,

and eight took ownership of the connection between homework and grades. However, identifying in this way was not a necessary condition for taking ownership of the value of homework. One student, Aliyah, openly rejected homework, yet she still bought in. She was willing to copy a friend's homework in order to turn it in for a grade (interview, 1/05). Felicia too struggled from "about a week after school started" to motivate herself to do classwork or homework in math (interview 1/05), but because she did not want to risk failing eighth grade, she did enough work to pass. Felicia's case, discussed further below, provides an example of how identity shifts can lead a student to check out.

Checking Out

Four students checked out at some point during middle school. Nick and Nate had checked out of homework by the end of eighth grade. Craig was checked out in seventh grade but began to buy in during eighth grade. Felicia shifted towards checking out in eighth grade.

These students identified in ways that supported them in taking ownership of negative meanings and hence rejecting the value of homework. They identified as "math haters," which gave them reasons to dismiss the value of math homework. Nick and Felicia drew on their identities as popular students to reject homework. They positioned homework as much less important than social activities. Nick, Nate, and Craig rejected math homework because they did not connect it to their visions of their futures. Craig was the only student who never indicated a career he might be interested in, and in seventh grade he dismissed the idea of college, as his brother had said he wasn't smart enough. Nick and Nate had visions of their futures that clearly did not include math. Nate wanted a practical job that did not require a college degree. Math homework was not important because he was "not going to become a mathematician" (interview, 3/05). Nate also began to devalue school in general, proclaiming that homework "sucks" and was probably used by teachers to control students (interview, 3/05). Nick envisioned a future as an NBA star, claiming that athletes did not need to do well in school, especially in math. As described above, Nick used his identity to rationalize his rejection of homework.

Shifting Identities and Experiences

Students like Trey and Meena may maintain their buy-in all throughout their school experiences, and students like Nick and Nate may never buy into school or homework. Yet other students may experience middle and high school in ways that lead them from a path of buying in to checking out, or vice versa. As noted previously, Craig began to buy in as he saw some success in eighth grade math. Unfortunately other students' experiences led them to identify in ways that disassociate them from school in general and math or homework in particular. Felicia's case both illustrates the concepts of buying in and checking out, and demonstrates how shifts in identity create openings for a student to shift from buying in to checking out.

The case of Felicia. I first met Felicia when she was in Mr. Gardner's seventh grade pre-algebra class. She identified as "a top student," smart, dedicated, and college-bound. She had taken ownership of the utility value of homework, and doing homework gave her personal satisfaction.

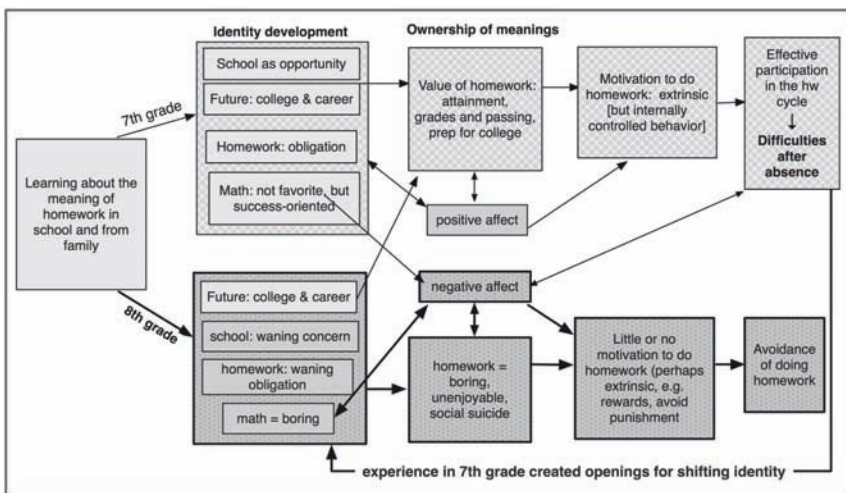


Figure 3. Felicia's trajectories of buying in and checking out

In seventh grade, increasing academic pressure and a brief absence from school created an opening for shifts in Felicia's identity and ownership of the value of homework. After missing a week of school due to illness, she struggled to catch up, and she felt that she had to choose which homework to complete. This decision created tension between her and her teachers:

Mara: So why do you choose English and not math?

Felicia: I think because I was excelling in math, more than English, so I was kind of trying to even them out. It was still really hard not to do the work cuz, it's like once you get to your highest point where you're the best student you've ever been? When you fall, all the teachers are looking at you like, like when I say I don't have it, then they're like "whatever".

Mara: You think they're upset at you?

Felicia: I don't think they're upset at me. It's just like they have this disappointed look on their face and it's like, well that makes me feel good, that I tried but I didn't do it.

Felicia believed that Mr. Gardner was particularly unsupportive of her effort to catch up. He "makes you feel bad about it sometimes" she described in reference to needing help, and that "nobody is listening" to her (interview, 1/04).

Felicia was becoming a different student. While once she had earned "nothing but 'As'", now she "didn't understand anything." "It was real hard to catch up being gone for a week," she said as she reflected on these events in eighth grade. Before Felicia she "never missed one assignment", and felt obligated to do homework to "make my parents proud." When she fell behind, she "gave up doing work" (interview, 1/05). Later she regretted giving up, as it made eighth grade difficult. She blamed herself for not persevering, and she pointed out a shift in her academic identity: she had become "lazy" (interview, 1/05). Now she was "smart but lazy" and "not smart in math" (interview, 3/05). When she did not improve her Algebra grade from the first to the second quarter, she declared, "I don't care! I hate that class!" Thus the shift was not only about her orientation to school, but to math in particular, and her growing negative feelings about Mr. Gardner, who was her math

teacher again in eighth grade. By the middle of eighth grade she had disassociated herself from math and Mr. Gardner, such that she enjoyed disappointing him:

Mara: How did you manage to get yourself to do [the assignment] on Thursday?

Felicia: Yeah. Um, cuz it's like, I was in a bad mood.

Mara: Ahh. That's really [interesting]. It's like your bad mood, being angry at something, that's kinda like your motivator to work?

Felicia: Yeah. But isn't it weird how like when Mr. Gardner gets mad at me? Like, I don't wanna work, at all.

Mara: So it's demotivating.

Felicia: Yeah, it's like proving him wrong. You know what I mean? Like...I don't wanna do my work and he's like, well, I just love seeing that look on his face like he's sad.

Felicia, interview 3/05

While in seventh grade she had been hurt by teachers' disappointment in her, now she was the kind of student who had the power to upset a teacher.

From seventh to eighth grade, Felicia began to check out. Part of the shift in identity and ownership of meaning was a decline in her willingness to tolerate math as a subject and a class. She was willing to do what she needed to pass, but she could no longer be a student who worked for adult approval. While once she had valued homework as part of her repertoire as a top student, in eighth grade she focused on the negative aspects of homework, and grades and passing became its only value. In seventh grade her reasons for doing homework centered on her obligation and her desire to earn recognition. In eighth grade she focused on the homework contract and passing. Only a "prissy know it all" would do homework if it were not graded (interview 3/05). She saw copying as a way to live up to her end of the homework contract without having to do the work.

Felicia's focus on doing homework for grades, combined with Mr. Gardner's practice of giving credit for but not correcting work, meant that she could do homework without taking it as a learning opportunity.

Felicia spent less and less time doing math, only doing some class work, and little homework. Thus she was not always prepared for tests and her Algebra grade declined from a B- to a D. However, she did not want to disappoint her mother and she did not want to risk not graduating. Before the Algebra final exam, she asked me to help her study³. This last ditch effort to avoid failing is indicative of the conflict between her feelings about math and Mr. Gardner on the one hand, and her desire to maintain her identity as a successful, college-bound student on the other. That is, while she was shifting towards checking out, she did not check out completely because she maintained her identity as a smart, college-bound student.

Summary and Conclusion

Buying in and checking out have been presented here as ways to characterize how students come to value or reject mathematics homework. The case studies show that students who buy in identify in connection with school: they identify as academically successful and college-bound, which supports them in taking ownership of the value of homework for their academic success. Students who check out identify in ways that disassociate them from school, math and homework. Thus they understand, but reject homework, as it is irrelevant to who they are and who they are becoming. The concepts of buying in and checking out and the cases presented here have implications for our understanding of motivation, as well as limitations that lead to avenues for future research.

Implications

Examining how students buy in or check out provides an understanding of how students' experiences build up over time, shaping their identities, and hence what homework means to them. Buying in can be understood as the development of motivation, through an identity lens. Taking ownership of the value of homework, as homework motivation, is a function of aspects of identity such as how students orient to school as an opportunity, or their visions of their future selves as college students.

Motivation is then understood not in terms of isolated ideas about homework (e.g., reasons for doing it), but as part of who they are as students or as members of families or social groups. With new experiences, aspects of identity may shift, influencing motivation. Checking out can therefore be seen as a process of de-motivation. Identifying in particular ways (e.g., not college-bound) provides students with rationales for rejecting homework as something potentially valuable in their lives.

Particularly salient in these processes are students' feelings about math and homework. Negative feelings about math and homework are not surprising; however, the case studies reveal how affect and identity interact over time. Affective reactions to experiences shape identity, and students' identities play into how they react to experiences. Therefore students' feelings can be understood as more than reactions in the moment, but also as indications of their developing perspectives on their long-term experiences with school, math, and homework.

The implication of this work for practice is the need to consider how students interpret homework policies and practices and their overall experiences in school related to homework. Consider again how Nick viewed teachers' acceptance of incomplete or incorrect work as a lack of concern on their part, which fed into his willingness to ignore homework. Even for his classmates who did buy in, the focus for most was grades, without a concomitant focus on learning. Buying in as such means that doing homework becomes part of "doing school" (Pope, 2001). Like the middle school students in the current study, the high school students with whom Pope worked treated homework as a hoop to jump through in order to get through school. Caught in a "grade trap," they felt that the system did not support them in focusing on learning, but in earning good grades by whatever means necessary, including copying homework. This reliance on copying rather than engaging with assignments was also seen in the current study, as well as in a college context (Robinson & Kuin, 1999). The implication is that if school in general and homework in particular are meant to be learning experiences, then we have to examine how we structure students' opportunities, including the types of homework assignments we give,

how work is evaluated, and what homework policies teachers and schools put in place.

Limitations and Future Directions

Working long-term in a single context with a small number of students allowed me to learn about their experiences in detail. However, the findings of such a study do not necessarily generalize to other contexts. In order to understand what buying in and checking out would mean more generally, it would be necessary to examine these same issues in other contexts, including different academic subjects and educational levels. What aspects of older students identities support buy in, or put them at risk for checking out?

Another direction for research is design-based studies of homework policies and practices. The current study did not consider the structure and content of assignments, as these aspects of Mr. Gardner's assignments were relatively static over the course of the year. How might students orient to homework, given different types of assignments, or a different grading system? How can teachers structure homework to support students in developing aspects of their identities that in turn support them in focusing on learning? What must schools provide teachers? Research that explores such questions would ideally result in a set of principles for teachers to support buy-in in general, as well as students in taking up homework as an opportunity to learn.

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Notes

1 Roosevelt and the names of students and teachers are pseudonyms.

2 This group of eleven students includes one student who was checked out in seventh grade and then bought in during eighth grade, as well as a student who shifted in the opposite direction. Therefore these two students are also part of the group of four students who checked out. One student in the study, Luke, was never counted in either group because his interview analyses were inconclusive with respect to ownership of meanings.

3 Students who participated in the out-of-school shadowing phase of the study were given "coupons" for tutoring.

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