

STUDENTING: THE CASE OF HOMEWORK

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Studenting is comprised of the behaviours that students perform or exhibit in a learning situation, such as the classroom. Student actions that do not contribute to actual learning and that subvert the intentions of the teacher are a subset of studenting behaviours, that we call gaming behaviours. In the research that we present here we confirm a taxonomy of studenting behaviours around the way grade 11 students do homework. This paper describes these gaming behaviours and reports results showing that 65% of studenting behaviour observed subvert the intentions of the teacher.

Introduction

The term studenting was coined by Gary Fenstermacher in 1986. He describes this concept in terms of a cohort of student behaviours that in some respects parallel those of teaching.

Without students, we would not have the concept of teacher; without teachers, we would not have the concept of student. Here is a balanced ontologically dependent pair, coherently parallel to looking and finding, racing and winning...there is much more to studenting than learning how to learn. In the school setting, studenting includes getting along with one's teachers, coping with one's peers, dealing with one's parents about begin a student, and handling the non-academic aspects of school life. (p. 39)

In essence, Fenstermacher describes studenting as what students do to help themselves learn. These student activities include recitation, practice, seeking assistance, reviewing, checking, locating sources and accessing material, among others. Additionally, his definition goes beyond the activities and tasks that the student performs in order to learn to encompass other behaviours. Further, in 1994 he expanded this definition to include behaviours that students exhibit in learning situations that do not help them learn.

The student becomes proficient in doing the kinds of things that students do, such as 'psyching out' teachers, figuring out how to get certain grades, 'beating the system', dealing with boredom so that it is not obvious to teachers, negotiating the best deals on reading and writing assignments, threading the right line between curricular and extra-curricular activities, and determining what is likely to be on the test and what is not. (p.1)

There is a noticeable shift from the primary goal of student learning to the non-academic aspects of studenting as in this later incarnation much of the work of studenting consists of 'beating the system'. Together with his earlier definition, the concept of studenting allows us to broaden our exploration into, and discussion about, what students do in learning situations, such as the classroom, and specifically those features of student behaviour that do not align with the goals of the teacher. This extends constructs such as contracts and norms. Brousseau (1997) explains student behaviour in relation to an implicit didactic contract, negotiated between teacher and student, but confined to behaviours relating to the student's learning of mathematics and neglecting those behaviours not related to learning. The concepts of classroom norms and sociomathematical norms (Cobb, Wood, & Yackel, 1991; Yackel & Cobb, 1996) were

introduced as constructs for understanding the socially constructed aspects of student behaviour within the classroom. These focus on collective behaviour (rather than individual) and mathematical aspects relating to classroom discourse. An expanded definition of studenting allows us to go beyond the assumption of intended learning to encompass a broader spectrum of classroom behaviour. Consider the following anecdote:

With about half an hour left in class Mr. Count assigns some homework. Mr. Count explains that he feels it is important for students to try the problems so that they know whether or not they can do them and so they can practice solving problems without someone providing constant guidance. He encourages them to try them during remaining class time. Nadine spends the class time carefully writing out the assigned problems, neatly writing her name and the date, and reading her notes. Later that evening she neatly copies the procedures that her tutor directs her to do. She feels that because she 'did' the problems, she understands the concepts.

From Mr. Count's perspective, although she did not work during class, Nadine has learned the material – she has completed the homework problems and shown all of the work. From Nadine's perspective, she knew she will 'do' the problems later and is reducing her overall effort by waiting until she has her tutor with her to guide her. As long as she has fulfilled her obligation to 'do' the problems and has written up the solutions, Nadine feels she has met the expectations. There is a rationality to Nadine's actions, but she is not learning, at least not how Mr. Count intended. She is studenting, and in a way that subverts the teacher's intentions yet appears to achieve the required outcomes, thus beating the system.

Both non-academic features and academic aspects of student behaviour can be found in several contemporary theories. However, research using the term 'studenting' is limited and appears only infrequently with limited scope and in very specific contexts. Goldin (2011) explores the work of students from a historical and sociological perspective but limits her study to the teachers' perspectives of studenting, with respect to the nature of student work, the politics of studenting, and what the student brings to the work. Aaron looks the rationality of student behaviour in her investigation of the work of studenting in high school geometry instruction (2010). She looks at this from the perspective of the student, but only in the context of geometry instruction, and only those behaviours relating to the work students do in instruction and the tacit knowledge they bring to it. This neglects the aspects that Fenstermacher discusses in 1994; namely the work that students do to 'beat the system'.

It is exactly these aspects of studenting that we are interested in. More specifically, we are interested in the studenting behaviours that are not in alignment with the teacher's goals and expected actions, yet may be missed by the teacher during the activities of teaching. We refer to this class of studenting behaviours as gaming behaviour, as in the students are gaming the system.

Methodology

Data for this study is taken from a larger, ongoing project studying studenting behaviour within several mathematics classrooms across a large number of contexts. A grounded theory approach is used to continually analyse data as it is collected. Over time, this analysis has revealed a number of interesting student behaviours within different contexts. The ongoing coding of the variety of studenting behaviours becomes easier as behaviours become known and eventually a

saturation point is reached when new observations in a particular context reveal no new studenting behaviours. At this time, we will be able to say that we have reached a taxonomy of studenting behaviour in that particular context.

Context

Homework is something that every teacher in our study assigned on a regular basis. In some classes homework is worth marks and in other classes it is not. After studying studenting behaviour with regards to homework in a number of grade 10-12 (ages 15-18) classrooms we had reached a saturation point around the context of how students engage in this activity.

Data

The data for what we present here comes from five different classrooms (see table 1). There were two grade 10 (ages 15-16) classrooms, two grade 11 (ages 16-17) classrooms, and one grade 12 classroom (ages 17-18). In the two grade 10 classrooms and one of the grade 11 classrooms homework was checked and it was worth marks. For two of the teachers homework was checked randomly on occasion and a completion mark was assigned (or not). In the third classroom homework was handed in once a week and a number of questions were selected at random and marked. In the remaining two classrooms homework was not checked and not marked. See table 1 for a summary.

Table 1: Summary of Classrooms

Grade	N	n	Marking
10	32	20	random check for completion
10	30	20	random check for completion
11	31	20	random selection of questions marked
11	33	20	not marked
12	28	20	not marked

In each of these classrooms we interviewed 20 students selected at random. The interviews were short (1-4 minutes) and were audio recorded using a portable digital recorder. For the most part these interviews consisted of a brief answer to the questions "Did you get your homework done for today?", "If so, how did you go about getting it done?". "If not, why not?". Depending on their answers to the second question posed to them there were more questions, as outlined below, regarding their reasons for their behaviour. These interviews occurred in the moments before the beginning of the lesson, during homework checks, within breaks in the lesson, and immediately after the lesson if the school schedule permitted it. This was not foreign to the students as the lead author had spent several lessons doing similar questioning in the same classes regarding a variety of learning contexts. In all, data from 100 interviews was collected by the two authors over the course of two lessons per classroom.

For the purposes of this research we took everything the students said in these interviews to be true. There are reasons to think that this may not always be the case but, given the fact that students' authentic engagement in homework is a private phenomena, there really were no alternatives to studying it. Having said that, although not evident in the brief excerpts presented here, the students, for the most part, were quite forthcoming and convincing in their answers as

to what they were doing and why they did it. There was an honesty to their statements that did not always paint them in the best of light.

Added to the above data were lengthier interviews with the teachers regarding their intentions for assigning homework prior to the lessons in which we collected the data as well as their responses to the results of our analysis. These interviews were also audio recorded.

Analysis

As mentioned, these data were analysed immediately after collection. Initially these were analysed using a framework of grounded theory. However, as the study progressed, and a taxonomy of behaviours began to emerge, subsequent data was analysed using a framework of analytic induction (Patton, 2002). “[A]nalytic induction, in contrast to grounded theory, begins with an analyst's deduced propositions or theory-derived hypotheses and is a procedure for verifying theories and propositions based on qualitative data” (Taylor & Bogdan, 1984, p. 127 cited in Patton, 2002, p. 454). In this case, the theory informing the analysis was the emergent taxonomy of studenting behaviour with regards to homework. This is not to say that we were not open to the emergence of new themes, because we were. As it was, new sub-themes of behaviours continued to emerge for the first four classes of data we analysed. For the fifth class of data, however, nothing new emerged.

Results

From the analysis of the data a taxonomy of four behaviours emerged. In many ways, these behaviours are obvious. In what follows we present each of these obvious studenting behaviours along with the less than obvious results from our analysis.

Didn't Do It

Among the students interviewed there were a number who did not complete any part of their assigned homework. When asked to elaborate five primary reasons emerged.

The first of these – *I forgot* – may be construed as an excuse. In some cases this was our analysis as well. However, from the follow up questions it became apparent that forgetting to do homework was correlated with poor record keeping. Many of these students did not write down homework assignments, and if they did they didn't do so in any organized fashion. This is not to say that fixing this deficit in record keeping would change the outcome as it seemed that many of them were not interested in improving themselves in this way.

The second reason – *I was busy* – may also be seen as an excuse. However, in the cases of being busy the students always expanded upon their claims to include details of what it was they were doing and sometimes the choices they had to make regarding which homework they chose to do instead. "*I had basketball practice after school and when I got home I had to finish my English essay.*" But sports weren't the only thing distracting these students from homework. There was also mention of clubs, volunteer activities, as well as having jobs in the data.

The third reason offered for not doing the homework was *I tried, but I couldn't do it*. This reason was given by students who had completed little to no homework and was always accompanied by self-efficacy statements such as "*I'm lost*" and "*I can't do this*". When pushed they acknowledged that they had not sought help either at home or at school.

The final two reasons for not doing homework were that *It wasn't worth marks* and *I took a chance*. The first of these came from students in the two classes where homework wasn't marked whereas the second of these came from students in the two classes where homework was randomly checked for completion. In both cases, however, there was an underlying rationality to the behaviour that was predicated on the fact that not doing homework had little to no consequence for the students.

Cheated

Among the students interviewed there were a number of them who admitted to finding ways to cheat on their homework. By far, the most common method of cheating was to copy the homework from a friend. One student mentioned that their friend's brother had taken the course two years prior and had given them his binder with all of the work completed. As the teacher was using the same text and the same assignments this binder was "*gold*" to this student. A more innovative form of cheating claimed by a number of students was to show a page of homework from a previous day while the teacher walked up and down the aisles checking to see if the homework had been completed. Sometimes this involved rewriting the question numbers to align with the questions assigned. The claim by these students was that "*this almost always worked*". If they were caught they simply apologized for showing the wrong page and then feigned looking for the correct one. A different form of deceit came from two students in the class where random questions were marked. They mentioned that they would only do about half of the homework with the hope that the ones they did were the ones that got marked. This strategy, related to the *I took a chance* behaviour above worked well enough for them to keep doing it.

Obviously, these forms of cheating fell almost entirely within the classes where homework was worth marks. We say almost because there one student among the classes where homework was marked that admitted to copying their friend's homework. When pushed on this she explained that she wanted to have a complete set of notes. This fits with results for a different study (Liljedahl & Allan, under review) where complete notes were seen as the most important outcome of a lesson.

Got Help

A number of students across all of the classes mentioned that they had done their homework with the assistance of a tutor, a parent, friends, or the teacher. In these cases we asked the follow up question "If you had to do a quiz on this material today, how do you think you would do?" From this question three ways in which help is used emerged.

The first of these is that help is something that is used to complete the assignment, but very little, if any, understanding, is achieved from it. That is, the students in this group claimed that, although they had completed the homework, they would likely fail a quiz outright. These students primarily received help from a tutor or a parent and mostly used it to collect homework marks.

The second use of help was an upgrade of the first. These students claimed that they would likely pass a quiz but not do well on it. From more questioning it was clear, however, that these students felt that without help they would fail such a quiz. This group of student primarily received help from tutors, parents, and the teacher.

The third group of students who used help were those who felt they would do very well on a quiz. They received help from tutors, parents, and the teacher, but many of them also utilized peers, speaking about it more as though they were working together on their homework. Overall,

this was a confident group of students who seemed to use help to "*solidify [their] understandings*" as well as "*learn things [they] didn't know how to do*".

Did it on Their Own

Many of the students who did the homework did it on their own. For these students we asked them "How much were working from what was in your notes?" This question emerged from prior research (Liljedahl & Allan, under review) in which we found that students often used their notes to map worked examples onto new tasks. This mapping is a visibly recognizable behaviour as students determine what goes in line N of their solution more from what is in line N of the worked example than from what in line N-1 of their own work. This, of course, is harder to see in finished homework, but nonetheless, the follow-up question gave us insight into their behaviour. This was most evident in students who had not succeeded in completing their homework. When asked, they said that they couldn't do some of the questions "*because [they hadn't] been shown how to do it in class*". This reliance on what was shown in class (and written down in their notes) is a strong indicator of a mimicking behaviour (Liljedahl & Allan, under review). When asked how they thought they would perform on a quiz on the material most felt they would pass, but none felt they would excel.

Of the students who had completed the entirety of the homework on their own all felt they would do very well on a quiz. When asked about their notes some acknowledged referring to them a little bit but most claimed to have not used them at all. There were a small number of students, however, who spoke about using the notes extensively, and then working very hard to figure out the questions that weren't covered by the notes.

Discussion

Although the sample sizes were too small to make any generalizations we did notice some very stark contrasts between the classrooms where homework was marked versus those classes where homework was not marked. In particular, there was a clear difference in the number of students not doing the homework and cheating. This prompted us to consider the behaviours across the marked/not marked divide (see table 2).

Looking at these numbers it is clear that a larger percentage of students in the classes where homework was not worth marks didn't do homework (40%) in comparison to the classes where homework was worth marks (25%). This is not surprising. We know that marks are an incredibly powerful tool for motivating student behaviour. But does it motivate the behaviour that we want? Cheating and getting help with homework only for the purposes of collecting marks are behaviours that all five teachers agreed subvert their intentions, albeit in ways that are much less visible to them. Taking these three behaviours together (not doing homework, cheating, and getting help only to get marks) provides quite a different set of results. For the classes where homework is worth marks these three behaviours account for 58% of student behaviour vis-à-vis homework, whereas in the classes where homework is not worth marks they only account for 45% of the behaviours.

Table 2: Distribution of Behaviours

	Marked (n=60)	Not Marked (n=40)
Didn't Do It	15	16
I forgot	5	3
I was busy	4	2
I tried, but I couldn't do it	3	3
I took a chance	3	0
It wasn't worth marks	0	8
Cheated	14	1
Copied	7	1
Faked	5	0
Half homework risk	2	0
Got Help	18	12
Felt they would fail quiz	6	1
Felt they would pass quiz	3	3
Felt they would excel at quiz	9	8
Did it On Their Own	13	11
Mimicked from notes	4	5
Did not mimic from notes	6	6
Mimicked but completed	3	0

Present within both the marked and unmarked classes was evidence of mimicking. We know from prior research (Liljedahl & Allan, under review) that this behaviour may subvert a teacher's intentions. So it was in this study. The five teachers in this study all stated that the purpose of homework was for students to test their understanding of, and abilities with, new content. Mimicking, they felt, does not provide students with an accurate indication of either their understanding or their ability. As such, if we factor these into the above analysis then subversive behaviours account for 70% and 58% of the behaviours for the classes where homework is worth marks and the classes where homework is not marked respectively. Combining the two groups of participants we get that 65% of the students exhibited studenting behaviour that was viewed by both us and the teachers as subverting the intentions of the teachers.

Conclusions

These findings are consistent with our research in other contexts as well. Across the board students are finding ways to subvert the expectations of the teacher in ways that the teacher is not aware of. In many cases these behaviours are centred on proxies for learning and understanding, such as mimicking and overemphasis on note-taking, that are not actually conducive to learning – but appear to be in alignment with the teacher's goals.

From the perspective of the student, however, there is a certain rationality to their actions that we are trying to understand using theories from behavioural economics, such as minimisation of effort, economy of action, bounded rationality (Simon, 1955), loss aversion, and risk aversion. At the same time we are exploring game theory to try to understand potential performance goals when students 'game the system' (Baker, Roll, Corbett, & Koedinger, 2005), the behaviours and

related consequences when students engage in 'playing the game' or 'playing the system' (Dryden, 1995), and students' behaviour in response to incentive grading systems (Newfields, 2007).

From the perspective of the researcher we are also exploring ways to think more deeply about the classification of some of these behavioral categories as subversive. For example, although there were two students who were playing the system by completing only half of the assigned homework it is not entirely clear to us if they are subverting the teachers' intentions, or the opportunity to learn, or both. Likewise, the three students who used mimicking in their homework extensively but then extended their learning from these solutions in order to complete questions not demonstrated in class were perhaps not subverting the teacher or their learning.

Finally, it is worth noting that since we brought to the attention of the teachers in this study the results of the analysis and the emergent taxonomy they have all begun to explore alternatives to their current practices vis-à-vis homework. It seems as though the kind of knowledge generated by research into the gaming aspects of studenting behaviour can be a powerful catalyst for initiating teacher change.

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