THE EFFECT OF A CLASSROOM TOKEN ECONOMY ON STUDENTS’ ACADEMIC PERFORMANCE

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ABSTRACT

This study explored the effects of a classroom token economy on student academic achievement in an urban, 6th grade, middle school setting. It involved the comparison of two very similar, self-contained, special education mathematics classes; only one of which used a classroom token economy.

The results for this study indicated while students’ academic performance appeared to increase, a statistically significant difference did not exist for the presence of a classroom economy in this case. Both classes were measured and compared through the use of before and after testing relative to curriculum involving the counting and use of U.S. coinage and currency.

Discussion regarding the implications and limitations of this case, along with possibilities for further study are also presented.
Introduction

Background issues and concerns

Educators continue to debate whether the existence of “reward systems” (token economies) in the classroom are appropriate, effective and beneficial to classroom management and student achievement levels. Detractors indicate “reward systems” are inappropriate in that students should not be “given a prize” for doing the things they are supposed to inherently do as responsible students. Detractors also feel teachers using such systems upset the balance of teacher authority within the school as a whole, as well as having possible negative effects on student academic interest in classes where teachers do not use such systems. Actual benefits of token economies are debatable according to detractors and true differences in achievement levels do not necessarily exist.

Proponents claim the presence of a classroom token economy supports appropriate student behavior (including in special education classes) and in turn make classroom management by educators less cumbersome and more efficient. With better student behavior and more efficient classroom management, proponents point out that student time on task is increased and logically allows for a more enriched learning experience. As a result, proponents suggest students are therefore capable of higher academic achievement levels.

Practice under investigation

The practice under investigation was looking at differences between student academic achievement scores in classrooms where a token economy exists and classrooms where a token economy does not exist. The study investigated whether or not the existence of a token economy in the classroom had a significant difference on increasing the academic achievement of students.
**School policy to be informed by study**

Teachers are typically allowed to set-up their own classroom management systems and are often given mandated interventions to be used with their students, while other interventions can be created and carried out on their own. With a significant difference regarding student academic achievement via the use of a classroom token economy, teachers should be encouraged by their school district to create such a system in their classroom. Schools should be encouraged to create building-wide token economies as well.

**Conceptual underpinning**

Competition to get satisfactory grades is no longer sufficient to motivate students to achieve academically. If a student’s motivation to learn and academic achievement can be increased via a simple, low cost, classroom token economy, why wouldn’t a teacher want to create one for their classroom? The result would be a higher level of comprehension of the skill sets presented in class as well as better academic scores. If better classroom management results, many student groups which are typically considered harder to control (inner city, special education, etc.) could be managed more appropriately by teachers if a classroom token economy were implemented.

**Statement of the problem**

If a positive significant difference results in student academic achievement when a token economy exists in the classroom, teachers should be made aware so they can provide yet another method of increasing the learning of their students.

**Purpose of the study**

This study is to explore the effects of a classroom token economy on student academic achievement.
Research question

Is there a significant difference in student achievement between students in a token economy system and students not in a token economy system?

Null hypothesis

There is not a significant difference in student achievement between students in a token economy system and students not in a token economy system.

Anticipated benefits of the study

The results of the study can be used to educate proponents and detractors alike about the effects of classroom token economies on students’ academic achievement.

Definition of terms

(1) Academic achievement – the extent to which a student has accomplished learning as indicated by grades achieved following the presentation of an academic unit of study.

(2) Classroom token economy – a behavior modification system used by teachers to reinforce desired student behaviors through systematic reinforcement using units of measure called “tokens”.

(3) Reinforcers – an item or activity used as a reward; a stimulus to strengthen and continue a desired response.

(4) Significant difference – a statistically measurable difference between two groups for which the probability of obtaining the difference simply by chance is less than a small percentage (10% for the purposes of this study). The assumption can therefore be made that the difference is due to the presence of a classroom token economy.

(5) Tokens – units of systematic reinforcement given to increase desired student behavior(s).
Tokens can be symbols, chips, individual consumables, coins or other items that are earned by students. Tokens are designed to be exchanged for other reinforcers desired by students.

**Summary**

This study was conducted to see if there was a significant, positive effect from the use of classroom token economies on student academic achievement. The t-test scores reflected no significant difference in student academic achievement in the classroom using a token economy.

Teachers, principals and school districts should be informed this tool deserves further consideration and study. While the findings of an increase in achievement were not found to be statistically significant in this case, teachers and districts can still benefit from the information gathered and employ their own classroom token economies as a potential method of student academic improvement.
Review of Literature

This review of related literature focuses on the unique needs of adolescents and appropriate strategies to increase student motivation through the use of positive reinforcers (as it relates to this study on classroom token economies) in order to also increase student academic achievement levels. The use of school-wide as well as classroom token economies is reviewed, along with best practices and a look at the effect on teacher popularity. A majority of the literature reviewed suggests token economies (both school-wide and within the classroom) are indeed an effective motivational tool, particularly for adolescents in middle school (grades 6 through 8) and especially in circumstances where more traditional approaches are simply not effective (Warshaw, 1975).

Traditional teaching delivery methods are not meeting the motivational needs of middle school students (Eccles & Lord, 1991). Social motivation and social-cognitive functioning are crucial to the academic motivation of adolescents (Wentzel, 1989).

Being early adolescents, middle school students have unique intellectual, social and emotional needs. Teachers must use appropriate strategies to motivate students (Erickson, 1968; Glasser, 1986, 1990; Irvin 1990). Researchers believe three key concepts are necessary for this particular group of students to be the most successful academically: (1) children need to understand how they brought about their own success; (2) activities of value and at which a student believe they will succeed by putting forth a reasonable effort; and (3) students taking personal responsibility for their learning are more likely to be successful academically.
Anderman and Midgley (1998) point out the decline in motivation for students when they transition from elementary to middle school has been shown by past research to be linked to both physiological and psychological factors associated with puberty and is therefore unavoidable.

This idea is challenged in that it is shown that characteristics of the student’s learning environment are considered key. Anderman and Midgley (1998) indicate student motivation can be increased through three theories: Attribution Theory (a student’s own perceptions of how they perform is directly related to motivation); Goal Theory (the reasons a student sees for achieving) and Self-Determination Theory (a student’s sense of autonomy).

Linnenbrink and Pintrich (2002) found that motivation toward academic achievement is multi-faceted. There are four main parts or facets. First, academic self-efficacy, a person’s beliefs about their performance can be a key part of motivation. Second, attributions, a person’s own self-analysis of why they did well or did not do well are a key item toward motivation. This can be situational, subject related, etc. Third, intrinsic motivation, a person’s ability to engage in something for its own sake, is a key motivator. Fourth, having mastery goals directly relates to academic achievement. It is pointed out that since students can be motivated multiple ways, it is important to understand how and why students are motivated to achieve academically and teach accordingly.

Leblanc (2004) studied the link between intrinsic motivation and external rewards working with 27 junior high school academic underperformers in an after school program. It was found that a token economy can be seen as a way to increase students’ intrinsic motivation by way of external reinforcement. It is agreed that to have achievement, motivation is a necessary ingredient. Generating motivation is the key. Token economies, it is stressed, need to be
modified in order to serve as a way to increase individual student’s perception of their own competence, feelings of autonomy, and a real life connection between school learning and life in the future. Using these three elements, motivation is enhanced and performance increases. Redesign should include students taking part in the agreed criteria of earning tokens as well as having a hand in the choice of reinforcers. Students ended up feeling more competent, having more control over how and what they learned and viewed their token economy as an extension of classroom rules with real life applications.

Ardoff and Weaver (1975) examined the token economy at the classroom level. They set up a token economy for 116 delinquent boys, ages 8 to 15 in a residential treatment center where the system is called “Boys Totem Town.” An individual contract was worked out with each student who was provided tokens for behavior and academic achievement. Tokens equated with chips, candy and pop. Other schedules work up to telephone calls and being able to stay up late.

The results of the experimental group over the control group were significant. Academic points were attempted by the experimental group of students four times as fast; nearly 16% more academic points were attempted; there were gains in the their Wide Range Achievement Test (pre-test/post test) and there were significant differences in the experimental group’s reading and math achievement scores. One additional finding was that behavior improved in classes overall, not just classes with the totem system.

Bafile (2014) showed that incentive programs can be an effective classroom management tool for teachers. This article explores different ways of implementing a classroom token economy, such as an auction and a superstore.
Auctions: Students were given 10 chips each at the beginning of the week. Chips were marked with the student's number. When inappropriate behaviors occurred, the student had to deposit tokens into the teacher's account (recycled ice cream bucket). The teacher and students took an accounting of the number of tokens by week's end and the process started new the next Monday. Eventually, the teacher held an auction wherein students could bid on items with the "money" they had earned. Students were provided reminders by sale items being placed on display.

Super Store: Students accumulate plastic money for work completed, handed in on time, seating posture, attitude, etc. Students then purchased items on given dates after accumulating sufficient funds.

Reinforcers could include praise and attention (social reinforcers), activities and privileges, tangibles and edibles and generalized reinforcers such as tokens, money or points. Reinforcement is preferred over punishment whenever possible as a strategy for influencing behavior. The benefits of a token economy were found to be decreased chaos; increased incentive for desired behavior and provisions being made to allow for the desired behaviors to occur. Token economies should be set up with three simple steps: identification of target behaviors; specified contingencies; and rules for exchanges.

McLaughlin and Malaby (1972) conducted a year-long study of regular education, fifth and sixth grade, public school students in a lower socioeconomic area of Spokane, Washington. Areas examined included the effect of a token economy on assignment completion and also the effect on quiet behavior. Baselines showed a great deal of variation. After introduction of a token economy, assignment completion went up to nearly 100%. When the focus was switched
to the token economy applying to quiet behavior, the rate of assignment completion once again varied.

When the token economy was reinstituted for assignment completion, student assignment completion once again increased. Token points were awarded (desired behavior) or taken away (non-desired behaviors). Students could trade points for privileges that were basically classroom jobs. They system became self-supportive with students being bankers, record keepers, etc. Very little time was required of the teacher each week to maintain the classroom token economy (<30 minutes).

Mirzamani, Ashoori and Sereshki (2011) examined the possibility that social and token Economy reinforcements effected the academic achievement of 30, randomly chosen, 9th grade male students with intellectual disabilities in three different junior high schools. Pre-test, post-test showed that the social and token economy groups out-performed the control group. Social (attention and encouragement) and token (chips that could be earned) reinforcement lists correlated to grades A, B and C. In this case, token economy and social reinforcement did have an effect on the academic achievement of male students with intellectual disabilities. The limitation cited for this study was the small sample size.

White (1995) compared the effects of a school-wide token economy program on the achievement, behavior, and attitude of middle school students. Achievement, behavior and attitude toward school were measured for two similar suburban middle schools, one using a school-wide token economy program and the other not using token economies. The findings were that a significant relationship exists between a token economy and student academic performance as measured by grades and the number of A/B Honor Roll students.
Bach and McCracken (2006) provide guidelines which explain the basic principles of behavior and provide some main points toward successful behavioral interventions. There is a great deal of support for behavioral intervention in middle schools. Considerations for behavioral reinforcers should include that it can be given immediately and that it is on hand in good supply. It is suggested that awarding points that can be used to obtain goods or privileges is a good practice. Points can be awarded immediately. The person can use the points to buy something of their choice (empowerment) at a later time. Having a variety of reinforcers is encouraged in order to keep the reinforcement system appealing and effective.

Kistner, Hammer, Wolfe, Rothblum and Drabman, (1982) examined the effect of a token economy system on the productivity rate of children and the related popularity of teachers amongst students. Six children with reading deficits were the subjects in the classrooms of three different teachers. The findings indicated the presence of a token economy increased student productivity without negative behavioral effects in classes where there were no tokens provided to students. The use of a token economy did not increase a teacher’s popularity but it did decrease the popularity of one teacher until she also provided tokens to students.
Research Methods

Research design

A quantitative study was completed to see if a significant difference existed in the academic achievement of students in classrooms that utilize a token economy. The independent variable being tested was the use of a classroom token economy. The dependent variable being tested was student academic scores on an academic unit on the counting and use of U.S. coins and currency.

In the token economy classroom, students earned “points”, which translated into cents in their individual account, each day. Points were awarded for being to class on time; turning in completed homework; and participating in class. In addition, graduated amounts of points were awarded for above average grades (an A or B) on short quizzes. Additional points could be earned via unsolicited compliments received from other teachers regarding good student behavior in other classes. Points were deducted for students being sent to a buddy room, the recovery room, in school suspensions and out of school suspensions. Points could be redeemed each Friday at the teacher’s “Small Store”. Pencils, pens, rulers, erasers, stickers, erasers, key chains, chips, juice pouches, gum, candy and other small items at varying prices could be purchased using the point/cents accumulated in each student’s account.

With the difference between student scores in classrooms using a token economy and classrooms not using a token economy being significantly different, school districts, principals and teachers need to be informed in order to increase student comprehension and academic performance.
This study was conducted in an urban school district, which is immediately adjacent to a large metropolitan area. An all 6th grade middle school was selected, which consists of 940 students. Approximately 12% of the population is involved with special services (special education), receiving services through an Individualized Education Program. Two, sixth grade, self-contained special education classes were utilized for this study. Both are taught by the same special education teacher in the same building and using the exact same classroom during different hours of the day. The two classrooms are made up of students that are similar in number (13 in each class), and nearly equivalent with regard to gender (6 boys and 7 girls in the first class compared to 7 boys and 6 girls in the second class) and racial minority status (2 racial minorities in the first class compared to 3 racial minorities in the second class). In the first classroom the teacher does not utilize a token economy while in the second classroom the teacher does utilize a token economy.

Mathematics pre-tests and post-tests for the same academic unit on the counting and use of U.S. coins and currency were given to students in both the classroom without and the classroom with a token economy. Pre-tests established the baseline for each student in each classroom. Differences in achievement between pre-test and post test was calculated in order to compare the increased percentage of student and classroom academic achievement.

A t-test was used to determine if a significant difference existed between student achievement in the classroom without a token economy and student achievement in the classroom with a token economy. The amount of test score increase (or decrease) for each student in each classroom was recorded. Scores were separated into two categories. The first category was scores for the students in the classroom without a token economy. The second
category was scores for the students in the classroom with a token economy. The mean, mean D, t-test, df and p-value were calculated accordingly. The Alpha level to test the null hypothesis was set at .10.
Findings

Following are two charts regarding the findings of this study. The first chart depicts self-contained, special education class number one, where the teacher did not utilize a classroom token economy. The second chart depicts self-contained, special education class number two, where the teacher did utilize a classroom token economy.

While the classes are of the same size and have similar demographics, each chart displays a class of 13 different students. Each student in each class is identified by a number and listed with their corresponding score, which is the difference (as a percentage) between before and after tests prepared by the teacher. This score is being used as a measure of academic achievement regarding an academic unit on counting and using U.S. coins and currency. Also provided for each numbered student is information with regard to their gender and whether or not they are a racial minority.

For the students in the first classroom without the token economy, the median was -4.23%. The Median was -3%. The Standard Deviation was 11.32%. The Maximum was 24% while the minimum was -22%. Males made up 46% (6) of the class, while 54% (7) were female. 15% (2) of the class members were racial minorities. The Variance within this group was calculated to be .0128.

For the students in the second classroom with the token economy, the median was 7.08%. The Median was 8%. The Standard Deviation was 23.05% and the Maximum was 40% while the minimum was -48%. Males made up 54% (7) of the class, while 46% (6) were female. 23% (3) of the class members were racial minorities. The Variance within this group was calculated to be .0531.
Classroom without a Token Economy

<table>
<thead>
<tr>
<th>SC Sped</th>
<th>Math</th>
<th>Student#</th>
<th>Diff Before &amp; After</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
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</tr>
<tr>
<td>7</td>
<td>-4%</td>
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</tr>
<tr>
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<tr>
<td>11</td>
<td>-12%</td>
<td>1</td>
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<tr>
<td>12</td>
<td>-11%</td>
<td>1</td>
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<tr>
<td>13</td>
<td>-2%</td>
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<td></td>
</tr>
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<td><strong>Total</strong></td>
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<td><strong>-4.23%</strong></td>
<td><strong>6</strong></td>
</tr>
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Mean: -4.23%  
Median: -3%  
Std Deviation: 11.32%  
Maximum: 24%  
Minimum: -22%  
Variance: 0.012818768

Classroom with a Token Economy

<table>
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<th>SC Sped</th>
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<th>Student#</th>
<th>% Diff Before &amp; After</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18%</td>
<td>1</td>
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</tr>
<tr>
<td>2</td>
<td>-48%</td>
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<td>1</td>
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<tr>
<td>3</td>
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<td>4</td>
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<td>5</td>
<td>6%</td>
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<tr>
<td>6</td>
<td>0%</td>
<td>1</td>
<td></td>
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<tr>
<td>7</td>
<td>-8%</td>
<td>1</td>
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<tr>
<td>12</td>
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<td></td>
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<tr>
<td>13</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>n=13</strong></td>
<td><strong>7.08%</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

Mean: 7.08%  
Median: 8%  
Std Deviation: 23.05%  
Maximum: 40%  
Minimum: -48%  
Variance: 0.053107203
Below are two graphs regarding the findings of this study. The first graph depicts self-contained, special education class number one, where the teacher did not utilize a classroom token economy. The second graph depicts self-contained, special education class number two, where the teacher did utilize a classroom token economy.

While the classes are of the same size and have similar demographics, each graph displays a class of 13 different students. Each student in each class is identified by a number and a bar on the graph which represents their corresponding score, which is the difference (as a percentage) between before and after tests prepared by the teacher. Again, this score is being used as a measure of academic achievement regarding an academic unit on counting and using U.S. coins and currency.

As can be seen in the graph for the classroom without a token economy, nine of the before and after test scores are in negative numbers, while three had no change and one increased positively. The graph for the classroom with a token economy shows four of the before and after test scores are in negative numbers while one had no change and eight had positive increases.

Classroom without a Token Economy
Classroom with a Token Economy

\[
\begin{array}{cccccc}
\text{Source} & \text{Mean} & \text{Mean D} & \text{t-test} & \text{df} & \text{p-value} \\
\text{W/O CTE} & -4.23\% & & & & \\
\text{With CTE} & 7.08\% & 11.308 & 1.588 & 24 & 0.1254 \\
\end{array}
\]

Note: Significant when \( p \leq 0.10 \)

The mean for the difference between before and after testing for the classroom without the classroom token economy was \(-4.23\%\). The mean for the difference between before and after testing for the classroom with the classroom token economy was \(7.08\%\). The difference between the mean scores (Mean D) was 11.308. The \( t \)-test result was 1.588. The degrees of freedom were 24. The null hypothesis was: There is not a significant difference in student achievement between students in a token economy system and students not in a token economy system. The
null hypothesis could not be rejected because the $p$-value of 0.1254 is greater than the alpha of 0.10. This means for this study there was not a significant difference found in comparing the test scores of students in a classroom with a classroom token economy to a classroom without a classroom token economy.
Conclusions and Recommendations

The findings of this study indicate there is no significant difference in student achievement between students in a token economy system and students not in a token economy system. Notable differences in student performance between the two classrooms, however, could indicate there is still the potential for benefits from the use of classroom token economies.

In particular, the classroom of students with the token economy had a mean “difference in before and after score” which was over 11% higher than the mean score of the classroom of students without a token economy. A nearly identical difference between the two groups was found when comparing the medians for the respective difference in before and after scores. The difference between the two groups’ modes on before and after test scores was also found to be quite similar to the aforementioned findings regarding the means and medians. These three forms of average being homogenous in this case could suggest the potential for benefits to students in a classroom with a token economy.

The conceptual underpinning of this study indicated competition amongst students was no longer a sufficient method to motivate students and that all means available should be used by educators to increase student motivation to learn, comprehension and academic achievement. Further, token economies were promoted as a relatively simple and low cost method to assist educators toward achieving such a goal. Possible benefits to classroom management for harder to control groups of students was also mentioned.

In this study, students in the classroom with a token economy scored over 10% higher, albeit not significantly higher, in comparison to counterparts in the classroom without the token economy. Any benefits to classroom management were not directly measured in this particular
study, but it cannot be ruled out as possibly playing a role in the differences evident in comparing the two classrooms.

It is important to consider some of the limitations of this study when examining the results. The fact this study was conducted using only two classrooms of students with a total of 26 students renders any findings ultimately irrelevant due to the extremely small sample size. Using several classes and/or multiple schools would have improved sample size and therefore reliability. This was not an option available to the facilitator of the study.

While the first and last classroom hours of a school day each have particular, potential issues related to the time of day (degrees of attentiveness due to sleepiness vs. anticipation of after school activities), these were not controlled for in this study. Taking data from classes that were the same or similar hours of the day would have helped control for this difference.

The two classrooms used as samples were both self-contained, special education, middle school math classrooms of similar make-up with regard to gender and minority status. However, it should be noted the categorical type and degree of learning disability varied by student in the two classrooms. While the students of these two classrooms were similar in many ways, this variable of individual student difference could not be totally controlled for in this study.

The recommended use of information gained in this study is the education of proponents and detractors alike relative to the possible positive effects of classroom token economies on students’ academic achievement. Teachers, principals and school districts should be informed this easy to use, inexpensive tool deserves further consideration and study. While a classroom token economy was not proven to have a significant effect in this particular case, the idea is
worthy of further study and is recommended in order to determine if it can be used as a positive method of motivation for increasing students’ academic success.

It is recommended future studies in this area should improve the degree of reliability by using a larger sample size. It is also suggested the classes examined should be from comparable time periods of the school day, rather than contrasting times such as the first and last hours where differences in student functioning and attitude might exist. When working with special education classrooms, student information should be reviewed for the categorical type and degree of learning disability to make certain the groups are in fact similar. Lastly, future studies should incorporate a measure for “classroom management” (perhaps using such things as the number of redirects, buddy seat referrals, buddy room referrals, administrator calls, etc.) to determine if a significant difference exists between the two types of classroom.
References


Leblanc, J. (2004), Hunter College of the City University of New York. Enhancing intrinsic motivation through the use of a token economy. Retrieved from

http://www.usca.edu/essays/vol112004/leblanc%2Cpdf.pdf


http://www.wce.wwu.edu/Depts/SPED/Forms/Kens%20Readings/Motivation%20as%20an%20enabler%20for%20academic%20success%20Linnenbrink%202002.pdf


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3395934

