Intrinsic motivation in the classroom: Increasing learning and retention

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Intrinsic Motivation in the Classroom: Increasing Learning and Retention

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Intrinsic Motivation in the Classroom:

Increasing Learning and Retention

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Abstract

A growing body of research suggests that intrinsic motivation and self-determination are key factors in academic achievement and success. The present study investigated whether children learned and retained information better when taught a social skills lesson using a self-determining approach, rather than a traditional directive lesson plan. In particular, this study examined whether lesson plans that included choice and autonomy support would affect students' intrinsic motivation for the task, and improve their learning and retention over time. Fifty-six fourth grade students from a large suburban school district in upstate New York participated. Significant group differences were found on a pre-test measure indicating that the classes differed on their prior knowledge of the topic. There were no significant differences on the post-test measure however. Two groups, those that participated in a role-play activity and those that had a choice, improved their scores from pre to post test more than the third group. Additionally, intrinsic motivation was positively correlated with the student's change in scores from pre-test to post-test. While the correlation was not significant, it indicated a positive relationship between intrinsic motivation and information learned and retained over time. The implications of these findings are discussed.
Intrinsic Motivation in the Classroom: Increasing Learning and Retention

Student achievement in school has been hotly debated in recent years. Many people have criticized educators and schools in the United States arguing that students are not learning adequately when compared to other industrialized nations. Some educators and politicians have suggested that making curricula more demanding would increase student achievement, but a growing number of researchers and educators agree that increasing student motivation is the key to enhancing learning and performance in school (Linnenbrink & Pintrich, 2002). As Bruner (1965, p.1010) eloquently stated, “we have tended to overlook the question of what keeps learners interested in the activity of learning, in the achievement of competence beyond bare necessity and first payoff.” Bruner succinctly described the heart of intrinsic motivation in education.

Psychologists and educators have long considered the role of motivation in school achievement. Conflicting ideas exist regarding how motivation is defined and what factors contribute to its increase or decrease in the classroom, however. Earlier research endorsed the idea that motivation could only be characterized in a quantitative manner between two endpoints on a continuum (Linnenbrink & Pintrich, 2002). From this viewpoint, students are either motivated or not motivated. Recently, it has been recognized that motivation is not a stable trait of an individual, but rather a more contextual and domain specific construct. It has been this broader interpretation that has allowed for the development of alternative theories regarding student motivation (Linnenbrink & Pintrich, 2002).

A common thread in many motivation theories is intrinsic motivation. Woodworth (1918) was the first psychologist to propose that behavior could be intrinsically motivated. He suggested
that an activity can be initiated by an extrinsic motive but that "only when it is running by its own drive...can it run freely and effectively" (1918, p. 12). Woodworth's notion suggested an active organism is a necessary component to intrinsic motivation, which was an unpopular idea during the time of Thorndike and Watson.

White (1959), also a proponent of the active organism, suggested the idea of effectance motivation. Effectance motivation is an innate, intrinsic need to deal effectively with the environment. White further suggested that intrinsic motivation is not clearly attributable to a biological need, or extrinsic factors, and that feelings of efficacy resulting from mastery are inherently pleasurable (White, 1959). His proposition of the active organism, coupled with the need to be effective in the environment dramatically reformulated motivation theory. White's theory regarding motivation proved to be influential in the development of more contemporary intrinsic motivation theories.

Harter (1981b) expanded upon White's concept of motivation from a developmental perspective. She felt that White's generalized need for effectance was too broad and therefore focused on extending this framework to include developmental trends in motivation. Harter proposed that as a child develops, his or her need to be effective in the environment is modified through increased cognitive abilities and socialization.

Harter (1981b) found that intrinsic and extrinsic motivators shifted dramatically as children moved from third to ninth grade. Third graders were intrinsically motivated with regard to preference for challenge, mastery, and curiosity in school, but were extrinsically motivated with regard to independent judgement and internal versus external criteria for success or failure. The pattern among ninth graders was the exact opposite. The older students tended to be more extrinsically motivated on measures of challenge, mastery, and curiosity, but exhibited higher
intrinsic scores in measures of independent judgement and criteria for success or failure (Harter, 1981b).

These findings suggest that motivation to learn for its own sake decreases with age, while children and adolescent's ability to think independently increases. This interpretation suggests that many of our school systems are gradually stifling students' curiosity and interest in learning. Children adapt to changing school environments that reinforce a more extrinsic orientation as they move up in grade level (Harter, 1981b). The cause for this developmental shift remains unknown, but the evidence points to a change in motivation orientation.

Deci (1980) elaborated on motivation theory suggesting that intrinsic motivation was based on an innate need for self-determined competence. Deci maintained White's belief that feelings of efficacy were pleasurable, but added that there needs to be an accompanying awareness of control over the situation. Deci and Ryan (1985) outlined the Self-Determination Theory to further explain intrinsic motivation.

The Self-Determination theory, like Woodworth (1918) and White's (1959) theories, assumes an active organism. Self-determination is the experience of choice, and an internal locus of causality, which is central to intrinsic motivation. Individuals experience choice when they select one option from among a group of equally appealing options. The experience of choice results in an internal or self-determined locus of causality. The self-determined individual has the ability to flexibly manage the interaction between oneself and the environment (Deci & Ryan, 1985).

In addition to the experience of choice and internal locus of causality, self-determination and intrinsic motivation require one to feel competent (Deci & Ryan, 1985). This notion is especially relevant in the classroom because it suggests children need to feel effective and
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successful in order to be motivated. In order to be intrinsically motivating however, the task must be optimally challenging. Activities that are trivial or simple provide no challenge, while tasks that are too difficult undermine competence (Deci & Ryan, 1985). When a task is optimally challenging, the child will be motivated to seek and attempt to conquer challenges.

Harter (1974) explored the extent to which children were intrinsically motivated and experienced feelings of pleasure when given challenging anagrams to solve. She was interested in whether there was a positive relationship between pleasure and cognitive effort on challenging tasks. She found that children expressed greater pleasure when working on moderately challenging anagrams rather than easy or difficult anagrams (Harter, 1974). These findings suggest that the Self-Determination theory is correct in postulating that tasks must be optimally challenging in order to motivate.

As mentioned above, choice is central to intrinsic motivation and self-determination. In order to experience choice, one must also experience autonomy in one’s environment. Autonomy supportive environments allow individuals to regulate their behaviors freely in the environment. The autonomy oriented classroom is a classroom where teachers encourage students to direct their own learning, as well as support the student in finding answers to their questions and exploring topics freely. Harter (1981b) found that children’s preference for independent mastery of tasks and challenge seeking increased in classrooms where teachers reinforced their students’ intrinsic interest in learning, curiosity, and autonomy (Harter, 1981b). Teachers who offer more choice and autonomy in the classroom appear to motivate children to seek out challenge.

Harter’s findings that children prefer to master tasks independently and enjoy challenge were an especially important addition to the study of intrinsic motivation in the classroom. She
proposed that seemingly unmotivated children were simply unchallenged, or in the case of learning disabled students, unable to master the material.

Another motivational theory influenced by the Self-Determination theory (Deci & Ryan, 1985) is based on the social cognitive model (Linnenbrink & Pintrich, 2002). This model, similar to the theories discussed earlier, supports the idea that motivation varies depending on the situation or context of the classroom. Student motivation is inherently variable and sensitive to subject matter, the classroom environment, and teaching methods.

Social cognitive theorists define motivation as a strong personal interest in a particular subject or activity. Linnenbrink and Pintrich (2002) explored this idea further and suggested that student motivation is based on four key families of theory from the social cognitive perspective: academic self-efficacy, attributions, intrinsic motivation, and achievement goals.

One of the key elements in the social cognitive theory is self-efficacy. Self-efficacy refers to one's perception of his or her ability to do a task or activity. In terms of academic motivation, self-efficacy refers to an individual's beliefs about his or her ability to perform well in a particular context or academic domain. Self-efficacy is considered to be dependent on particular situations and contexts, not a general belief about self-concept or self-esteem (Linnenbrink & Pintrich, 2002). For example, a student may have high self-efficacy for writing poetry, but a lower self-efficacy for solving algebra problems.

Self-efficacy has been associated with increased persistence, self-regulation, and cognitive engagement. It has also been positively related to higher levels of achievement and learning (Linnenbrink & Pintrich, 2002). In general, having positive self-efficacy appears to be adaptive for school learning and achievement, suggesting that schools should seek to develop positive self-efficacy beliefs in their students. This is best fostered by providing opportunities for
students to succeed and build new skills within their range of competence as suggested by Harter (1981b).

Adaptive attributions, which focus on attempts to understand why events occur, are also an important aspect of motivation according to Linnenbrink and Pintrich. This is an extension of Deci and Ryan’s (1985) idea of internal locus of causality. In general, attribution theory suggests that when a failure or success occurs, individuals analyze the situation to determine the perceived causes of failure or success. These perceived causes are then categorized based on stability, locus, and controllability. Stability refers to whether the success or failure is transient or permanent, while locus refers to whether the causes are internal or external. Controllability is concerned with whether or not the student believes that he or she can control the perceived cause (Linnenbrink & Pintrich, 2002). Attribution theory suggests that to increase motivation for an activity, it is adaptive to attribute the success to stable or unchanging, internal factors such as ability or skill.

Linnenbrink and Pintrich (2002), like Harter (1974, 1981, 1981b), Deci (1980), and Deci and Ryan (1985), recognized intrinsic motivation as a key element in academic motivation. Linnenbrink and Pintrich continued to describe intrinsic motivation as the desire to engage in an activity for its own sake based on Deci and Ryan (1985). In order to be intrinsically motivated, a student must have an interest in the domain. For teachers and psychologists, this suggests that tapping into students’ interests can increase academic achievement. This can be achieved by allowing students to pursue activities that they have a personal interest in, or presenting material in a way that will increase interest in the topic (Linnenbrink & Pintrich, 2002).

The fourth component of academic motivation according to Linnenbrink and Pintrich is achievement goal theory. Goal theory proposes two general goal orientations, mastery and
performance goals. Mastery goals orient learners to understand their work, improve their level of competence, or achieve a sense of proficiency based on a standard that they set for themselves. Performance goals, orient the learner to focus on their ability by outperforming others in competitions, surpassing others in achievement or grades, and receiving recognition for their performance (Linnenbrink & Pintrich, 2002).

Linnenbrink and Pintrich believe that it is best for academic motivation if students concentrate on mastery goals. The logic of this argument is that when students focus on trying to understand the material and improve their own performance, this will help them to maintain self-efficacy when they face failure, or difficult tasks. This topic was revisited in Linnenbrink and Pintrich after Harter’s (1974) original suggestion that pleasure was derived from mastering optimally challenging tasks, and Deci and Ryan’s (1985) suggestion that tasks have to be optimally challenging in order to be intrinsically motivating.

Linnenbrink and Pintrich offer a plausible construct for motivation in school and expand upon Deci and Ryan’s Self-Determination theory, applying it more specifically to education. They account for the situational differences in motivation, and offer empirical support for each of the four elements of motivation. In addition, they discuss the importance of past experiences and personal interest in motivation. Their framework incorporates many of the same constructs found in other prominent motivational theories.

The most important aspects of intrinsic motivation that have appeared repeatedly in the literature are choice, perceived competency, internal locus of control, and autonomy support. Researchers have begun to investigates whether these theories hold up empirically in the classroom, (Gutman & Sulzby, 2000; Guthrie, Wigfield, & VonSecker, 2000; Patrick, Hisley & Kempler, 2000) and the results suggest these factors support intrinsic motivation.
Gutman and Sulzby (2000) investigated the role of choice and autonomy support in the emergent writing behaviors of kindergarten children. The researchers were interested in whether a difference would exist in the children’s motivation for the task if they were in autonomy-supportive environments versus controlling or directive learning environments. In addition, the researchers sought to investigate if a child’s intrinsic motivation changes with qualitatively different child-adult interactions. For example, do children in autonomy supportive environments demonstrate more interest and competence, and produce better work, than those in the controlling group (Gutman & Sulzby, 2000)?

Autonomy supportive contexts encourage motivation by allowing students to initiate and regulate their own behaviors in the classroom. Gutman and Sulzby (2000) created an autonomy supportive context by allowing children to make choices regarding what they would write about, and what color marker they would use. The teacher or tutor did not offer any unsolicited help, but they answered the child’s questions and provided guidance that was informational. In the controlling or directive context, the teacher or tutor demonstrated how to complete at least one step of the task, corrected the child’s performance, limited the child’s choices, and verbally commanded given courses of action (Gutman & Sulzby, 2000).

The children’s intrinsic motivation was assessed using Harter’s (1981) Scale of Intrinsic versus Extrinsic Orientation in the Classroom and Harter’s (1982) Perceived Competence Scale for Children. These scales measured preference for challenge versus easy work, interest versus teacher approval, independent mastery versus dependence on the teacher, independent judgement versus dependence on the teacher’s judgement, and internal versus external criteria for success or failure.
The results of this study revealed three major findings. The most important finding was that the context of the task influenced the children's motivation. Children demonstrated more interest in the task in the autonomy supportive context than the controlling context. A second finding was that the children who were first in the controlling context and then experienced the autonomy supportive context made more comments of dependent mastery rather than independent mastery in both settings. For example, the children asked the teacher how to write or spell a word or letter, or what he or she should write about. The third finding was that children who were in the autonomy supportive context used more emergent literacy than in the controlling context (Gutman & Sulzby, 2000).

The findings of Gutman and Sulzby (2000) supports previous research (Deci & Ryan, 1985) indicating that autonomy supported contexts have a positive effect on children's intrinsic motivation for tasks. In addition, the context in which children initially learn new skills may affect their intrinsic motivation for that skill in the future. The researchers encourage teachers to offer choice in literacy tasks as much as possible to enhance children's motivation for literacy oriented activities in the future (Gutman & Salzby, 2000).

Guthrie, Wigfield, and VonSecker (2000) also investigated the role of competence support and intrinsic motivation on literacy acquisition. Guthrie et al. (2000) compared traditional reading instruction with concept-oriented reading instruction (CORI), a reading program that included multiple ways to enhance student's intrinsic motivation for reading. CORI integrated reading and language arts with science inquiry to improve motivation and reading mastery.

Guthrie et al. (2000) designed CORI to reflect key concepts in intrinsic motivation. The first concept the researchers incorporated into the program was autonomy support. Autonomy
support was accomplished in CORI through self-directed learning practices such as empowering students to choose specific subtopics and modes of expressing their understanding of the topic. The second key concept reflected in CORI was competence support. Guthrie et al. (2000) suggested that clear goals and contingencies for learning would be viewed as competence supportive, and allow students to feel like they are gaining knowledge, learning skills, and becoming competent at the task thus increasing motivation.

The third concept that Guthrie et al. (2000) included in the CORI program was effective instruction. Effective instruction increases a student’s perception of gaining knowledge and competence, while also increasing a student’s awareness of his or her competence.

The final aspects included in the CORI program to increase intrinsic motivation and reading mastery were relatedness and real-world interactions. These were incorporated into CORI by including opportunities for students to observe tangible objects, manipulate materials, and work with peers (Guthrie et al. 2000).

Guthrie et al. (2000) utilized a quasi experiment design to determine whether CORI would influence students’ intrinsic motivation for reading. There were two instructional conditions: CORI, and traditionally organized basal instruction. CORI was implemented in two third grade and two fifth grade classrooms. The CORI program included instruction based on the intrinsic motivation research discussed earlier, while the four control classrooms used traditional basal readers.

The results indicated that children in CORI classrooms were more intrinsically motivated toward reading, as well as more likely to utilize strategies than the control students. As hypothesized, CORI students and controls did not differ in terms of extrinsic motivation such as recognition or competition. Contrary to their hypothesis however, the authors did not find age-
related differences in motivation between third and fifth graders (Guthrie et al. 2000). These findings have significant implications for educators. They suggest that motivation can be manipulated by changing the context of the learning environment.

Patrick, Hisley, and Kempler (2000) also viewed motivation as a contextual and domain specific construct that is affected by environmental factors. Patrick et al. (2000) investigated teacher behaviors that promote student intrinsic motivation, and explored whether teachers who present material in a dynamic, energetic, and enthusiastic fashion actively promote a student’s intrinsic motivation for the topic.

In this investigation, two studies were utilized to explore the effects of teacher enthusiasm on student’s intrinsic motivation to learn and their psychological vitality. In the first study, the participants were 80 female and 13 male undergraduate psychology students. The students completed a 7-point Likert scale questionnaire designed to assess the students’ perceptions of their own motivations and their teachers’ classroom behaviors and teaching strategies. The questionnaire also assessed vitality, or energy and enthusiasm for living.

In the second study, the authors designed an experiment in which teacher enthusiasm was manipulated to determine its causal relationship on intrinsic motivation. The participants were 30 male and 30 female undergraduate students. Patrick et al. (2000) hypothesized that students who were taught the subject material by a highly enthusiastic teacher would be more intrinsically motivated to learn about the material than students with an apparently unenthusiastic teacher.

This study was carried out in a contrived educational setting in which the participant and a student accomplice were taught about bio-feedback in a seven minute lecture. The teacher engaged in behaviors that were intended to communicate a high level of enthusiasm in one condition and the opposite in a low enthusiasm condition. Patrick et al. (2000) operationalized
their definition of enthusiasm as a set of nonverbal indicators including demonstrative gesturing, dramatic movements, and emotive facial expressions. Following the lecture, the accomplice and student completed a questionnaire assessing their perception of the teacher’s enthusiasm, and self-reported intrinsic motivation regarding bio-feedback. They also completed a second questionnaire assessing vitality.

After the completion of the questionnaires, the experimenter and accomplice left the room and mentioned that there were articles regarding bio-feedback on the table that the participant could look at, as well as some other popular magazines. The participant was then observed through a one-way mirror to see if they were intrinsically motivated to read the literature on bio-feedback.

While the study found that the effect of teacher enthusiasm on the participants’ intrinsic motivation to read literature on bio-feedback was not statistically significant, the means were in the expected direction. The study also found that teacher enthusiasm significantly affected the participants experience of psychological vitality (Patrick et al., 2000).

Patrick et al. (2000) provides evidence that suggests that teacher enthusiasm may be a factor in promoting intrinsic motivation in school. These two studies have important implications in the understanding of intrinsic motivation in the classroom. They suggest that a teacher who exhibits greater enthusiasm in the classroom may be more likely to have students that are energetic and eager to learn.

Skinner, Wellborn, and Connell (1990) also investigated teacher behavior and its effect on intrinsic motivation. They suggested that students are optimally engaged and motivated in the classroom when children’s basic psychological needs are met. Motivation theories propose that
these needs include the need to be competent, autonomous, and related to other people (Deci & Ryan, 1985, Harter, 1981b, Guthrie et al., 2000).

Skinner et al. (1990) examined three dimensions of teacher behavior in the classroom: involvement, structure, and autonomy support. Involvement refers to the quality of the interpersonal relationship with teachers and peers. This is derived from children’s psychological need for relatedness. Teachers who are involved take time out for, express affection toward, enjoy interactions with, and are attuned to their students. It is the opposite of rejection and neglect (Skinner et al., 1990). Structure refers to how well the teacher communicates his or her expectations, responds consistently, predictably, and contingently to situations, offers support, and adjusts teaching strategies to the level of the child. A child’s need for competence is fulfilled when he or she experiences classrooms with an optimal amount of structure (Skinner et al., 1990). Autonomy support is the amount of freedom a child is given to determine his or her own behavior. This can be accomplished by allowing children latitude in learning and providing connections between school activities and children’s interests. Autonomy support is the opposite of coercion, therefore there must be an absence of external rewards, controls, and pressures in the classroom (Skinner et al., 1990).

The study was conducted across one school year to explore the relations among the three dimensions of teacher behavior and children’s active engagement in the classroom. In addition, Skinner et al (1990) examined the reciprocal relationship between children’s engagement and teacher behavior. They hypothesized that the relationship between teacher behavior and motivation was mediated by the children’s perceptions of teacher behavior. Skinner et al (1990) also hypothesized that children would be engaged and motivated to the extent that they felt their psychological needs of competence, autonomy, and relatedness were met.
The participants were 144 third, fourth, and fifth grade students equally divided by gender and grade, and 14 female teachers. Teacher involvement, structure, and autonomy support were assessed through teacher and student reports. Teachers completed a questionnaire of their interactions with each child in the classroom. Students also completed a questionnaire regarding their perceptions of the teacher’s behaviors.

Teacher involvement was measured on the questionnaires by items that tapped teacher affection, attunement, and knowledge of the student. Structure was assessed through items that measured clarity of teacher expectations, contingency, instrumental help and support, and adjustment of teaching strategies. Items that assessed autonomy included measures of teacher coercive behavior, respect, choice, and relevance. Self-reports and teacher reports of behavior and emotion in the classroom were used to assess student engagement and motivation.

The results of the study indicated that teacher involvement was central to children’s experience in the classroom, and that autonomy support and optimal structure predicted student motivation across the school year. Students were more intrinsically motivated or engaged when they perceived the teacher to be involved, provide clear goals and contingencies for learning, and provide choice and autonomy support. Skinner et al. (1990) also found reciprocal effects of student motivation on teacher behavior. Students who showed higher behavioral engagement and motivation received more structure, autonomy support, and teacher involvement (Skinner et al., 1990).

As this review indicates, research in classroom intrinsic motivation has shown that constructs such as autonomy support, choice, teacher enthusiasm, and perceived competence greatly affect student motivation for given tasks (Deci & Ryan, 1985, Harter, 1981b, Guthrie et al., 2000, Patrick et al., 2000). In addition, Harter (1981b) established that there are certain
developmental trends in motivation. She found that a dramatic shift occurs in intrinsic motivation after third grade when students tend to become less intrinsic with regard to preference for challenge, curiosity, and independent mastery.

There has been relatively less research focused on a link between teaching techniques and learning outcomes in intrinsic versus controlling environments. Previous research has established which factors contribute to intrinsically motivating classrooms (Deci & Ryan, 1985, Patrick et al. 2000, Guthrie et al., 2000), and that children become less intrinsically motivated after third grade (Harter, 1981b). The question remains whether the change in motivation is due to a developmental change, or to a shift in teaching techniques from the exploratory and self-determining lessons common in early elementary school, to a more directive style typical in many fourth grade classrooms and beyond (Harter, 1981b). It is also worthwhile to ask whether students retain information longer when lessons are taught in a more intrinsically motivating environment as opposed to a directive one.

The present study explored whether students who participated in intrinsically motivating lessons, with established choices and autonomy supports, learned and retained information better than students who were given more directives. Group differences in intrinsic motivation, previous knowledge of the subject, as well as information retention were assessed. It was hypothesized that the motivational shift discovered by Harter (1981b) was due to a change in teaching techniques rather than a developmental change. It was expected that when fourth grade students were placed in an intrinsically motivating context, that is, they experience choice and autonomy support, they would exhibit more motivation for the task than those in a traditional directive learning context. This would show that an environmental rather than a developmental shift occurs at this age. The second hypothesis was that students would learn and retain
information better in intrinsically motivating environments as opposed to traditional directive classrooms.

Method

Participants

The participants in the study consisted of 56 fourth grade students from a large suburban school district in upstate New York. Three classrooms participated in the study. The majority of the students were Caucasian (96.4%), although there were African-American (2.3%) and Hispanic students (1.3%) in the classes as well. The sample included 32 girls and 24 boys (57.1% and 42.9% respectively) aged 9-10 years. Classes 1 and 2 included 18 participants each, and Class 3 had 20 student participants. All of the children attended a general education program.

The building principal agreed to sponsor the study, and fourth grade teachers were contacted to find classes to participate in a lesson about bullying. The examiner chose the topic of bullying because several staff members had raised concerns about teasing and bullying in their classrooms. Also, it was believed that the children would find the topic more interesting and engaging than an academic subject. Three fourth grade teachers responded and volunteered class time to complete the study. Participating teachers were given the consent letters (see Appendix A) once they volunteered their classes, and the letters were sent home to parents within a week of meeting with the investigator.

Three out of the four fourth grade classes in the school participated in the study to fulfill the required number of participants. Parents were informed about confidentiality, and of the rationale, goals, and procedures of the study through the consent letter sent home with the children (see Appendix A). Parents were asked to return a signed permission form if they agreed
to allow their child to participate in the study. Only those students whose parents returned the form participated (89.9%). Seven students (10.1%) did not receive permission to participate. These children left the classroom and went to the library.

Procedure

The investigator met with each class on three separate occasions. During the first meeting, the topic of bullying was introduced and each class was given identical pre-tests that assessed their prior knowledge of the lesson (see Appendix B).

Confidentiality was also discussed during the first meeting. Students were assured that their responses would remain confidential. They were instructed not to write their names on any materials throughout the study. All responses were coded numerically with an assigned number for each child. Students were told to keep their numbers for use on all of the remaining activities. Confidentiality was briefly touched upon in subsequent meetings as well as children were reminded to use their assigned numbers on each activity rather than their names.

During the second meeting, the classes were taught a 40 minute lesson on bullying (see Appendix C). The same lesson was taught across the classes. Although the classroom teacher was present, the author administered all measures and taught the lesson. The classroom teacher did not participate except to assist with passing out and collecting papers as needed.

After completing the lesson, each class participated in an activity to supplement the lesson. Class 1 engaged in a role-play activity. During this activity, students were given three bullying situations to act out (see Appendix D). The examiner explained how to complete the activity, and allowed the students to select their own groups of three or four students. The children then acted out the scenes as the examiner rotated between groups assisting students.
Class 2 completed an art activity. They were told to draw a picture of a bullying scene that they either experienced or imagined, and then draw how to handle the situation correctly. Once the students finished drawing, they individually explained their situations and solutions to the examiner.

Class 3 was the self-determining and intrinsic motivation group. These students were given a choice of completing either the role-play or the art activity. They were encouraged to direct their own learning and choose the activity that was best for them. The examiner explained the activities but gave as few directives as possible to encourage autonomy.

The third meeting took place one week later. Each class was administered a post-test to determine how much information they learned and retained from the lesson. The post-test was identical to the pre-test previously administered (see Appendix B). Additionally, Harter’s (1981) Scale of Intrinsic versus Extrinsic Orientation in the Classroom (see Appendix E) was administered to each of the three classes. During the administration of the intrinsic motivation instrument, standard instructions and examples were given to all students. The investigator read the examples and demonstrated how to complete the survey. The first two questions also were read aloud to ensure that the students understood how to complete each question. The children completed the remaining questions on their own while the examiner rotated around the classroom to check each student’s paper individually.

Measures

The pre-test and post-test measures were developed by the author to reflect the material taught in the lesson on bullying. It assessed the student’s knowledge on the topic of bullying, and asked questions specific to the lesson (see Appendix B). There were a total of ten possible points, and the students were scored as receiving 0 to 10 points.
Harter’s (1981) Scale of Intrinsic versus Extrinsic Orientation in the Classroom was employed to assess the student’s intrinsic motivation (see Appendix E). The scale yields five sub-scale scores and a total composite score. The total score was utilized for the purpose of this study. The items were scored on an ordinal scale from 1 to 4 where a score of 1 indicated the maximum extrinsic orientation, and a score of 4 indicated a maximum intrinsic orientation. Therefore, high scores on the scale indicate a high degree of intrinsic motivation. Reliabilities ranging from .70 to .84 were reported by Harter (1981). Validity of each scale ranged from .70 to .87 according to Harter (1981).

Results

Descriptive statistics are presented in Table 1 for the pre and post-test measures. The mean score on the pre-test was significantly higher for the Art group (Mean = 7.11) than for the other two classes. This indicates that that Art group had more prior knowledge of the topic. The Role-play and Choice groups had similar means and therefore prior understanding of the topic (Means = 6.11 and 6.10 respectively).

Tables 2 and 3 present group differences on pre and post-test measures. A One-Way Analysis of Variance (ANOVA) indicated that there was a significant main effect on the pre-test measure (F (55)= .035, p< .05). Post-Hoc comparisons employing Least Significant Difference (LSD) tests, were then conducted to examine specific group differences between the Art (Class 1), Role-play (Class 2), and Choice (Class 3) groups (see Table 3).

In general, students participating in the study had some prior knowledge of the topic of bullying. Significant differences existed between the Art group and the other two groups however (F (55) = .026 for Art and Role-play, .021 for Art and Choice, p< .05).
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The ANOVA test detected no significant group differences on the post-test however. The groups ended the study with no significant differences in their acquired knowledge. The Role-play and Choice groups mean scores increased from pre to post-test. The Art group’s mean score stayed essentially the same. This indicated that while the Art group started with more knowledge of the topic, the Role-play and Choice groups learned and retained more information. The Role-play class improved their mean score .83 points, while the Choice class improved their mean score .40 points. The Art class only improved their score .06 points from pre-test to post-test.

This focus of this study was on intrinsic motivation and how it is affected by the classroom environment. It was hypothesized that students in a more self-determining environment would display higher levels of intrinsic motivation. Table 4 displays the group means for intrinsic motivation. ANOVA tests did not detect any significant differences between the groups on intrinsic motivation (see Table 5). Each class, regardless of the activity, displayed similar levels of intrinsic motivation.

Additionally, the examiner sought to determine whether intrinsic motivation is correlated with learning and retention. A bi-variate correlation, seen in Table 6, did not reveal any significant relationships, however a linear regression graph (see Figure 1) indicated that there is a positive relationship between the intrinsic motivation and learning and retention. As intrinsic motivation increased, learning and retention of information increased as well. While the correlation was not significant, a positive relationship does exist between intrinsic motivation and learning.

Discussion

The purpose of this study was to examine intrinsic motivation and how it relates to learning and retention of new information. Previous literature has established that factors such as
choice and autonomy support affect intrinsic motivation in the classroom (Gutman & Sulzby, 2000, Guthrie et al., 2000, Skinner et al., 1990). According to the Self-Determination Theory (Deci & Ryan, 1985), students in these types of environments should be more intrinsically motivated. The present study examined how different learning activities (role-plays, art, and a choice in how to direct one's own learning), affected student's motivation for the task. It also investigated how these different environments affected student's learning and retention a week later.

The results of the study were different than expected. They indicated that students in the Art group started with significantly more knowledge on bullying than did the Role-play and Choice groups. Additionally, while the Art group started with more knowledge, they did not raise their scores from pre to post-test. The Role-play and Choice groups did increase their scores. This indicates that as a group, the Art class learned less than the Role-play or Choice groups.

This difference could be attributed to several factors: For example, the students in the Art class could have had prior exposure to activities about bullying in their classroom. Additionally, perhaps the students in the Art group were higher achievers altogether. It is interesting however that this class did not learn or retain any new information. The investigator purposely chose an activity that included specific terminology that students would most likely never have been exposed to, even if they had participated in another bullying lesson. Given this, it appears that the activity of drawing may have been less effective in helping the students to learn. Drawing a picture independently is much less engaging and active because it lacks interaction and opportunities for informational feedback. This type of activity may have lead to less learning. This idea is similar to findings in Guthrie et al. (2000) where students who participated in the
less engaging reading lessons, were less likely to later utilize the reading strategies taught. Passive learning activities therefore, appear to lead to less learning as well as less internalization of the knowledge.

The Choice group, which was expected to foster intrinsic motivation and therefore learning, learned more than the Art group, but less than the Role-play class. These students were encouraged to be autonomous and direct their own learning. Students were only given the most basic directions on how to complete each task. The children were then encouraged to choose the activity that would help them learn the material the best.

Interestingly, when given a choice, most students chose to participate in the Art activity. It is the opinion of the investigator that these children chose to draw rather than role-play because they were in an unfamiliar situation with an adult they had never met before. Doing a role-play involves more personal risks and requires students to be more actively involved. Even the most outgoing child may feel uncomfortable “performing” in front of a stranger. In unfamiliar situations, most people choose to be in the background rather than take a risk.

The Role-play group increased their scores most from pre to post-test. This indicates that they actually learned and retained more than either the Art or Choice groups. While this may appear to refute the original hypothesis, that in not providing choices for students their intrinsic motivation and learning should decline, it is possible that it could be viewed as support for this hypothesis as well. Role-playing involves a great deal of autonomy and choices in itself. For example, children were able to choose who in their groups would play the characters. They also were in charge of making up any dialogues or actions. Gutman and Sulzby (2000) found that students in autonomy supportive environments had higher levels of intrinsic motivation and were more likely to use knowledge that they learned. Role-playing creates a self-determining
environment because it offers children choices, encourages them to be autonomous and self-directed, and is challenging. Additionally, this activity is very engaging and encourages active learning. As Guthrie et al. (2000) found, more engaging activities lead to better learning. It is not surprising that students who did role-playing showed the most learning and retention since they were required to be the most actively involved in the lesson.

This idea is also related to a balance of structure (fully explaining the task and providing boundaries) and autonomy (providing choices and encouraging creativity). Skinner et al. (1990), found that children were more motivated for tasks when there was an optimal amount of structure as well as autonomy. Skinner et al. determined that students needed to understand the established boundaries and expectations, yet be able to self-direct their learning within them. The role-play activity in this study included established boundaries as well as latitude for students to self-direct. Therefore, the findings of the current study provide additional support to Skinner et al. (1990).

Another related aspect is the engaging nature of the role-play activity. Patrick et al. (2000) found that material presented in a dynamic and enthusiastic fashion promoted intrinsic motivation for the topic as well as influenced students' experience of psychological vitality. The role-play activity is a much more dynamic and engaging activity than art. It is not surprising then that students learned and retained more in the present study given previous findings.

The second hypothesis of the current study was related to student's level of intrinsic motivation across groups. It was expected that students in the Choice group would report higher levels of intrinsic motivation because they were given the least directive activity. These students were encouraged to be self-directed and autonomous. Results indicated that there were not
significant differences in intrinsic motivation across the groups however. The Art, Role-play, and Choice groups had similar levels of intrinsic motivation.

In addition, the investigator expected that learning and retention would be positively related to intrinsic motivation. Previous literature (Gutman & Sulzby, 2000, Guthrie et al., 2000) established that learning and intrinsic motivation were positively correlated. The current study wished to show that not only do children show more learning initially, but that students retain this knowledge over time. That is, that students who report higher levels of intrinsic motivation, later would show larger differences between their pre and post-test measures. While the correlation between the two variables turned out to be non-significant, the relationship was still positive. Had a more sensitive pre and post-test been utilized, a larger range of scores may have been obtained from the sample allowing for a more significant correlation.

Although the present study did not support the original hypotheses, important information has been added to the existing literature on intrinsic motivation in school. It is apparent from this study that while choice and autonomy support are key in increasing motivation and learning, engaging activities and active learning are presumably as important. It is hypothesized that students in the Role-play group learned the most out of the three groups because in addition to being self-determining, children were actively engaged in the learning process.

Several limitations in this study hindered the results however. The pre and post-test measure most impacted the results of the present study. Had the test been longer and more sensitive, the results may have been more significant. Because the test was only ten questions, and not very sensitive to changes in learning, it was not possible to see smaller differences between the three groups. In addition, because the Art group had more prior knowledge of the topic, a more sensitive and lesson-specific pre and post-test might have yielded different results.
The Art group might not have appeared significantly higher on the pre-test than the other groups if the test had been able to detect differences more accurately. Another limitation in this study was the sample size. Each class had 18 to 20 student participants. A larger sample size could have shown differences between the groups that were not statistically significant with smaller classes.

In summary, while the present study did not support the original hypotheses, it provided some evidence that self-determining environments are important in classrooms. Intrinsic motivation is positively related to learning, although it is still not clear if choice and autonomy support alone can affect learning. Additionally, it is apparent that active engagement in activities such as role-playing may have an impact on learning. Further research might explore engaging tasks versus passive tasks and their affects on intrinsic motivation in learning. It may also be useful to explore this phenomenon longitudinally, and investigate how teaching styles (directive versus self-determining) affect students over time. Motivation is clearly an important factor in classrooms. Researchers and educators need to place more emphasis on how to foster intrinsic motivation for learning.
References


Appendix A

Informed Consent Form

Increasing Learning and Retention through Intrinsic Motivation in the Classroom

Dear Parents,

Your child is invited to participate in a research study. The purpose of this study is to provide insight into which types of classroom environments and teaching styles motivate students to learn. It will also provide information indicating whether children learn and retain information better when they are given choices in school.

I will be teaching a lesson about teasing and bullying in your child’s classroom. The class will participate in activities to supplement the lesson such as drawing a picture, or acting out a scene. The students will also fill out two short questionnaires, as well as an assessment of their knowledge of the lesson both before and one week following the less. I expect that this lesson will be of benefit to all the students in the class. There are no foreseeable risks associated with your child’s participation in this research study.

All participants’ names will be coded numerically to maintain confidentiality. Data will be stored securely and will be made available only to persons conducting the study. No reference will be made in oral or written reports that could link your child to the study. Publications related to this work will not make reference to any individuals.

If you have questions at any time about the study or procedures, please feel free to contact me by phone at ____________, or by e-mail at ____________. Participation in this study is voluntary, and your child may decline to participate without penalty. If your child participates, he or she may withdraw from the study at any time without penalty. If your child withdraws from the study before data collection is completed, the data will be destroyed.

Please return the attached consent form to your child’s teacher by ____________. Thank you for your help. Again, if you have any questions about the study, please do not hesitate to contact me.

Sincerely,

Emily Hesek
School Psychology Intern
Rochester Institute of Technology

Consent Form

I have read and understand the above information. I have received a copy of this form and agree to allow my child to participate in this study.

______________________________  __________________________
Parent/Guardian Signature        Date
Appendix B

*Pre/Post Test Measure*

1. True or False: The way you act or what you say can invite someone to bully you.

2. Sometimes kids bully other kids:
   a) Because it makes people like them
   b) Because they don’t feel good about themselves
   c) Because it’s funny

3. What are the four ways that children bully?

4. One way to stop a bully from bothering you is to:
   a) Use your firm, strong words and ask the bully to stop bothering you
   b) Tease them back
   c) Run away

5. True or False: “Egg-On’s” are behaviors that bother other kids and can invite bullies to hurt you.

6. True or False: Bullies are only big kids that are strong.

7. Circle the “Egg On”:
   a) Mike wants Steve to be his friend so he bumps into him and takes his pencil to get Steve’s attention
   b) Mary says that she likes Nick’s new haircut
   c) Susie sits down next to Jill and asks to play
Appendix C

Lesson Plan

What is a bully?

A bully is someone who hurts or scares other people. They can be all ages, they can be big or small, boys or girls.

What are some ways that people bully?

Physical- tripping, pushing, hitting
Social- gossiping, spreading rumors, leaving people out
Verbal- name calling, teasing
Scaring- threatening, taking things from students, copying homework

Why do you think some people bully?

They may see it as a way of being popular or making friends. Some people bully to get attention or make other people afraid of them. Bullying can also make some people feel powerful.

Why do some people get bullied and others don’t? What types of behaviors “invite” bullying?

“Egg On’s are Turn Off’s”- Egg On’s are bothering behaviors that turn people off to liking you. These types of behaviors can lead to bullying. Egg On’s say to the other child that “I’ll keep bothering you until you get rough”. Egg On’s can become a hidden contract between two people that teasing and hurting is allowed.

Examples of Egg On’s:

Jill wants Sally to notice her, so she bumps into her and grabs the book that Sally was reading. Sally gets mad and tells her other friends that Jill is really weird and not to be her friend.
Mike tries to get Jim’s attention by tapping him on the arm over and over. Mike gets so upset that he threatens to beat Jim up if he doesn’t stop. Mike tells all of his friends to be hurtful to Jim too.

What can you do to stop bullying?

When you’re being bullied:

1. Tell the bully to STOP in a firm voice. Speak out!
2. Try to find a friend to be with you for support.
3. Walk away.
4. Tell an adult what happened.

When a bully is hurting someone else:

1. Group together. Bullies have a hard time hurting others when there are more people around.
2. Tell them to STOP in a firm voice.
3. Don’t join in! It can be tempting to join in the teasing so that you won’t become a target. Let the bully know that teasing and hurting others is not tolerated.
4. Walk away.
5. Tell an adult what happened.
Appendix D

**Role-play activity:**

Students were instructed to get into groups of three or four students and act out the following role-play situations:

1. **Characters-** Susie, Jill, Michele, (and Teacher if there is a fourth person).

   Susie is the class bully. She tries to take things from other students and threatens to hurt them if they tell. Michele is new to the school and is very shy. She doesn’t have many friends yet.

   Jill sees Susie picking on Michele and calling her names. Jill wants to help Michele. What should she do? Role play the situation and use the steps we discussed in class.

   1. **Group Together!** Stand next to the person being bullied to support them.
   2. **Don’t join in the teasing.**
   3. **Tell them to stop in a firm voice.**
   4. **Walk away and tell an adult what happened.**

2. **Characters-** Mike, Joe, and Steve

   Mike and Joe are good friends and Steve would like to be friends with them. While Mike and Joe are talking and playing a game, Steve bumps into Mike and ruins the game. Then he tries to join in the conversation and interrupts Joe while he’s talking. Steve starts talking about something totally different! Mike and Joe don’t like Steve now. He seems so weird! They want him to stay away from them so they threaten to beat Steve up if he comes near them again.

   Role play the situation. Discuss how Steve’s behavior is an “Egg-On” and made him open to being bullied. What would have been a better way for Steve to behave? Role play your group’s solution for Steve.
3. Characters- Jane, Bobby, Emily, and Teacher

Jane and Emily are on the playground talking. Bobby is sitting over in the corner by himself.

Jane and Emily made up this rumor that Bobby had a crush on the teacher. Now everyone laughs at him and teases him. No one wants to talk to him. Just when Bobby thought he couldn’t feel any worse, Jane and Emily walk by and teasing him again. They whisper to each other, look over at him, and laugh several times.

Role play the situation. What should Bobby do? Use the steps we discussed in clas
Table 1

**Group Means and Standard Deviations: Pre and Post-Test**

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**Table 2**

*Analysis of Variance for Pre and Post-Test Measure*

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*p < .05

N = 56
Table 3

Post Hoc Test: Differences Between Groups on Pre and Post-Test Measures

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*p < .05

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Table 4

*Group Means: Intrinsic Motivation*

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*Analysis of Variance for Intrinsic Motivation*

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*p < .05

N = 56
Table 6

_Correlation Between Intrinsic Motivation and Pre and Post-Test_

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Figure Caption

*Figure 1.* Linear regression graph showing a positive correlation between intrinsic motivation scores and learning.