Exploring the Link Between Intrinsic Motivation and the Growth Mindset

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Abstract:
Many educators strive for their students to develop a sense of intrinsic motivation, where they enjoy learning for its own sake, rather than for some external reward. Indeed, college teachers in particular tailor their classes (consciously or unconsciously) to the intrinsic learner. The tangible benefit of being an intrinsic learner is unclear. On the other hand, previous research has demonstrated that students who have a growth mindset (hard work over natural ability) do indeed display better performance in the classroom and in the workforce. Unfortunately, the growth mindset is more difficult to teach (not to mention that it is a controversial subject) in the classroom. Previous research has suggested that there is a link between intrinsic motivation and a growth mindset. This study investigates whether such a correlation exists. Results so far indicate that there is not any correlation between intrinsic motivation and a growth mindset.

1 Introduction

Discussions revolving around course content and teaching effectiveness often become discussions about teaching philosophy. While there are certain expectations that are universal, such as a tidy classroom, command of the subject matter, and enthusiastic delivery, there exist no other universal guidelines, even when attention is restricted to a certain age group, such as college teaching. The overarching goal may be for our students to master the material in our course, but there are many, often conflicting, philosophies about how best to do it. Additionally, the material covered in a given course can vary widely, even in a technical field such as engineering, depending on the instructor’s teaching philosophy. Many of these differing opinions on what constitutes effective teaching arise because of philosophical differences surrounding motivation.

Motivation is something that’s personal, and is difficult to consciously change. One can become successful (by any measure), based on any number of motivations. For a student in a college classroom, this really boils down to extrinsic vs. intrinsic motivation. The key statement by Dweck [3] [4], which we seek to further investigate, is the statement that students who are intrinsically motivated are more likely to have a growth mindset. If an individual has a growth mindset, then they believe that success is a result of hard-work, rather than a result of innate ability.

Dweck is able to demonstrate that individuals with a growth-mindset are indeed more likely to have success in school, athletics, and a more gratifying life in general. Since Dweck correlates the intrinsically motivated with a growth mindset, she argues that individuals who are intrinsically motivated are more likely to succeed (by any measure). Conversely, since Dweck correlates the extrinsically motivated with a “fixed” mindset, she argues that individuals who are extrinsically motivated are less likely to succeed. This concept of
student motivation may therefore be more important than once thought, if it can be shown that intrinsic motivation and a "growth" mindset are linked.

2 Extrinsic vs. Intrinsic Motivation in the Classroom

A teacher who is themselves extrinsically motivated or who believes that the majority of their students are extrinsically motivated -- that is, motivated by external rewards -- will perhaps be more likely to grade on a curve in their class. By definition, if a course is graded on a curve, then only a certain number of A's are allotted, which makes them more coveted. We'd all agree that the completion of homework assignments is critical for the student to get the practice necessary to master the subject matter. In addition, we educators believe that our own role in the students learning is vital, so it is essential that they are alert in the classroom, which is assessed through class participation. While we all believe in the importance of homework and class participation, a course catered to the extrinsically motivated student may weight these items more heavily.

An extrinsically motivated teacher or one who believes that the majority of their students are extrinsically motivated may also be more likely to mention the upcoming exam as a motivator during lecture or as a way to encourage students to come to office hours. If you were to read the teaching philosophy of an extrinsically motivated teacher, they may emphasize the professional future success of their students as their primary goal. This last point, in particular, can shape the structure of the entire course.

On the other hand, a course that is catered to the intrinsically motivated learner -- that is, a learner who finds more joy in the learning experience than in the grade -- should not be graded on a curve. With this grading scheme, competition for grades is minimized, since everyone can earn an A. At the intrinsic motivation extreme, homework is not graded, although feedback may be provided, and class participation is expected, but the only reward is the satisfaction that your learning will accelerate through relevant class discussion and questioning.

Exams are essential tools for assessment of learning, but a teacher with only intrinsic motivation in mind would not mention the upcoming exam as a motivator, since it would be assumed that the students are already motivated enough by their interest in the subject matter. If you were to read the teaching philosophy of an intrinsically motivated teacher, they may emphasize “passion” as their overarching goal for their students.
In both instances (extrinsic or intrinsic motivation), “critical thinking” is essential, since this is a fundamental requirement to master the material. However, the kinds of critical thinking skills that are taught can vary greatly. The reasons that the skills vary, is partly due to the structure of the lessons, the manner in which grades are distributed, and the other specifics previously mentioned. Even more important, however, are the topics that may be chosen by the instructor due to their underlying teaching philosophy relating to extrinsic vs. intrinsic motivation.

For example, consider an engineering program where most of the students will become practicing engineers. Since engineers build tangible things, it is reasonable to design a course, or an entire program, that teaches as much specific engineering knowledge as possible. Upon graduation, the students would become engineers and be prepared to obtain professional licensure as soon as permitted by their state. An intrinsically-oriented program may focus on fewer topics, and more academics topics, which the instructors are passionate about. Upon graduation, the students may very well be more likely to continue to learn on their own, albeit perhaps less competent at their first job.

The extent to which extrinsic or intrinsic motivation matters can be debated, and the reality is that most people will be somewhere in the middle, but given that these two categories exist, which is more beneficial? We all know people of both categories who lead seemingly gratifying lives. Can an extrinsically-motivated individual be taught to value learning for its own sake, in college? Any educator will tell you that it is very difficult to challenge a student's motivation. Is there actually a benefit to doing so?

According to Dweck [4], there is a very real benefit to intrinsic motivation, and she isn't the only one. Davis [2] also implies that intrinsic motivation is superior, as he discourages an emphasis on grades. Many education experts discourage grading on a curve (e.x. [6] [5]), suggesting that they believe intrinsic
motivation to be more beneficial. Additionally, experiments such as the "candle experiment," have demonstrated that extrinsic motivators can have an adverse effect on creativity [7].

3 Fixed vs. Growth Mindset

Many people blame their lack of success on lack of talent, and believe that those who are successful have special gifts. This idea of the special "gift" is very pervasive in American culture. Stereotypes about natural abilities (e.x. IQ) within certain groups, as well as a pop culture centered on superheroes, child prodigies, etc. all support the idea of the innate gift. Dweck [4] demonstrates that success (by any measure) is a result of effort and practice.

Not surprisingly, if an individual believes that their goal can be obtained through effort, then they are more likely to put in that effort. If one believes that their goal can only be obtained through innate ability, then they will be more likely to give up as soon as they hit their first obstacle. After all, if there are such drastic differences in innate ability, then failure would indicate lack of ability, and there would be no reason to continue trying.

Thus, it is actually detrimental to place emphasis on innate ability -- a statement that is strongly supported by Dweck's research. While there are certainly opportunities in the college classroom to emphasize the importance of effort over natural ability, a more appropriate setting would be at home. When an individual encounters failure, place the blame on effort rather than on other, unknown, factors.

Thus, there are two mindsets; the "fixed mindset" and the "growth mindset." To support the growth mindset, praise centered on effort is recommended. It is a mistake for teachers to praise a student's intelligence instead of their effort. This was Dweck's conclusion and is supported by her research, using students of all ages. Public praise would be particularly beneficial since it would reinforce the importance of hard work over innate intelligence to all of the students in the class [2] [1].
There are those who oppose the growth mindset (praising effort), but they are in the minority and have not produced any credible evidence to suggest that praising innate gifts (to the extent that they do indeed exist) is beneficial. Interestingly, the individuals that are most often cited as possessing genetic gifts, are some of the strongest proponents of effort. There are well-known quotes relating to the importance of a growth mindset by Albert Einstein and Michael Jordan, or this gem by Football Hall of Famer Jerry Rice: “Today I will do what others won't, so tomorrow I can accomplish what others can't.”

4 Methodology

Dweck argues that there is a correlation between intrinsic motivation and a growth mindset. If this is true, then an educator can perhaps encourage a growth mindset, indirectly, by encouraging intrinsic motivation in the classroom. This is notable because we educators have control over many factors that can encourage intrinsic motivation, while we have relatively fewer means for influencing a growth mindset.

The ways that intrinsic motivation can be encouraged in the classroom were described in section 2. These include a deliberate choice of course topics, the manner in which grades are distributed, and the emphasis on certain graded items over others. These can all be tailored toward the intrinsic learner. Research in education has demonstrated that there is a very real benefit to a growth mindset (see section 3) but other than using precise language in the classroom that emphasizes effort, the encouragement of a growth mindset is more appropriate for parents rather than for teachers.

To investigate whether students who are intrinsically motivated are indeed more likely to have a growth mindset, the following survey was taken by 80 students in a course at the U.S. Military Academy entitled MC300: Fundamentals of Engineering Mechanics and Design. The students in the course were primarily sophomores and juniors, with 80% being engineering majors.
In the first question, students who answer either “a” or “c” demonstrate a fixed mindset, while students who chose “b” presumably have a growth mindset. In the second question, students who chose “normative” are presumed to be extrinsically motivated, while students who chose “criterion” are presumed to be intrinsically motivated. If Dweck (2007) is correct, then students who chose “a” would be more likely to choose “normative,” while students who chose “b” would be more likely to choose “criterion.” In other words, students who are intrinsic learners are expected to also have a growth mindset.

5 Results

Out of the 80 participants, 34 believed that effort is more important than natural ability when it comes to predicting success in their MC300 course. The remaining 46 believed that natural ability was at least as important as effort. Therefore, perhaps one would then expect less than half of the participants to be intrinsically motivated. However, 59 of the 80 participants were intrinsically motivated (according to question 2 on the survey), with the remaining 21 being extrinsically motivated.

Is there a correlation between intrinsic motivation and growth mindset? The participant's answer to the second question on the survey, relative to their answer to the first question, determines whether there is such a trend. Out of the 80 survey participants, 42 demonstrated a correlation between intrinsic motivation and a growth mindset (or extrinsic motivation and a fixed mindset), while 38 had no correlation. Since there are only two possible answers to the second question on the survey, a random selection for this question among the 80 participants would result in 40/40, which is essentially what was observed (42/38). In other words, if a student chose “b” on the first question, which means that they have a growth mindset, they are no more likely to choose “criterion” over “normative” on the second question.
6 Conclusion

Previous researchers have demonstrated that students who have a growth (effort-based) mindset tend to find more success both in and out of the classroom. Some of these researchers have made similar claims regarding the benefits of intrinsic motivation (learning for its own sake) by assuming that intrinsic motivation is correlated to a growth mindset. The present study surveyed 80 students in order to determine if there is indeed a link between students who exhibit intrinsic motivation and students who exhibit a growth mindset.

The results of the survey demonstrate that there is not a link between a growth mindset and intrinsic motivation. Perhaps the tendency for educators to assume that such a link exists stems from our recognition of the importance of effort (growth), and our own passion for the subject area (intrinsic motivation) that we want to pass on to our students. Thus, we want intrinsic motivation to correlate to measurable success, like effort clearly does. Indeed, the survey results do suggest that most students are intrinsically motivated. Further study is needed into quantifying the benefits of intrinsic motivation.

References

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