# DEVELOPING GROWTH MINDSET THROUGH REFLECTIVE WRITING

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## Abstract

Carol Dweck's concept of growth mindset is a "threshold concept" for thinking about student success in college. This article argues that reflective writing assignments focused around process reflection - the intentional, structured or systematic analysis of processes and their outcomes - can contribute to gains in student retention and persistence because they help students develop growth mindset.

**Keywords:** Reflective practice, reflection, process reflection, growth mindset, student success, FYE

## 1. Introduction

Over the last several decades access to higher education has been broadened in large degrees. According to the U.S. Department of Education, in 1983 there were 10.8 million students enrolled in college (US Department of Education 2016); by the spring of 2016 there were 18.3 million students enrolled in Title IV, degree-granting institutions (National Student Clearinghouse Research Center, 2016). This is an astronomical increase in student enrollment. At the same time, the percentage of students who enroll in college who graduate is still woefully low. In 2013, the six-year graduation was 59% (Department of Education, 2015; Eaker & Sells, 2015). Increased access to education is a significant achievement

because of the many positive impacts of higher education (Abel & Dietz, 2014). But, increased access does not mean that students are getting all the benefits that education provides them. Educators concerned with student success need to do a better job of bridging the gap between access to education and degree completion.

Carol Dweck's idea of "Growth Mindset" has become consistent fixture in discussions about Student Success, particularly since the publication of her 2006 monograph entitled *Mindset: The New Psychology of Success*. Dweck differentiates fixed from growth mindset; suggesting that students who understand intelligence to be static have a fixed mindset, whereas students who understand intelligence to be dynamic or malleable are understood to have a growth mindset (Dweck, 2006). The difference of mindset is clearly demonstrated when students face challenges; students who have growth mindset are more likely to see failure and challenge as a momentary setback and an opportunity for personal growth, rather than a demonstration of the firm limit of their knowledge or ability which is how failure is interpreted by those with a fixed mindset. Further, students who have growth mindset are more academically successful than those with fixed mindset (Alpay and Ireson, 2006; Blackwell et al., 2007; Dweck, 2008).

Diane Boyd calls Dweck's notion of Growth mindset, a “threshold concept” for course design, that is “a transformative and irrevocable way of thinking about something, which produces a qualitatively different view of learning” (Boyd 2014: 630). Dweck's concept of Growth Mindset certainly has important implications for effective course design, and in particular, FYE course design. In this article, I will argue that deliberately created and carefully assessed reflective writing assignments can help students develop growth mindset

with students, and consequently increase their retention and persistence.

## 2. **Reflective Thinking**

The term "reflection" is used with surprising ubiquity and variety in scholarly literature (Richardson, 1992; Grimmett & Erickson, 1988; Loughran 2002). Further, reflective practice takes different forms as it is applied into many different fields including medicine, nursing, social work, law, management and human resources, and education (for an overview of these applications see Fook, White, & Gardner, 2006). For this reason, it is important to define reflection carefully from the outset.

From a historical perspective, what we call reflective thinking can be traced back to Socrates, who asserts in Plato's *Apology* 38b that: "the unexamined life is not worth living" (trans., Fowler 1990). More recently reflection has been identified as essential part of the learning process. Learning happens when connections are made between what they already know and any new information they are receiving (Vygotsky 1978; Carey 2014; Brown 2014). By making connections, students engage in a "process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation, and action" (Mezirow, 1990: 1).

Dewey speaks of reflection in much the same way, suggesting that making these connections happens through what he called "reflection," by which he meant "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (1910: 6; 1933:

8).

Carol Rodgers extrapolates Dewey's thoughts on reflection into four steps:

1) Presence to experience;
2) Description of experience;
3) Analysis of experience; and
4) Intelligent action and/or experimentation (Rodgers 2002: 856).

This methodology highlights the central place that Dewey gave to the active, careful consideration of an experience.

Reflective thinking is not all of the same type. Redmond (2004: 9) points out that most reflective theories divide between at least a lower and higher order level of reflection - though these theories do not define lower and higher order reflection in the same way (examples of this variety: Bleakley 1999; Ixer 2000; Leung and Kember 2003; King and Kitchener 1994; and Schön 1983, 1987). For our purposes, the four stages of reflective writing that Hatton and Smith (1995) identify are particularly relevant, and illustrate the difference between higher and lower order reflection that Redmond points out. Hatton and Smith say that reflective writing takes four stages: First, descriptive writing, which is not reflective at all, but simply describes events without offering any justification or reason. Second, reflective description, which provides justification or reasons for the events being described, and includes some reference to alternative explanations. Third, dialogic reflection which is marked by what they call a "'stepping back' from the events or actions" which leads to an analytical and/or integrative reflection (1996: 48). Finally, critical reflection which is marked by awareness of multiple perspectives in various historical and socio-political contexts. The division between higher and lower order reflection occurs between stages

three and four - with critical reflection being the high order reflection, and shares some similarity with the theory of single vs. double loop learning which was identified by Chris Argyris and Donald Schon (1978).

"Reflection" is also applied in a couple of different directions. For some, "reflection" functions as a part of a wider theory of learning (Carey 2014; Brown 2014; Ambrose et. al, 2010). In this usage, students are encouraged to recall information or experiences that they have had previously, and connect information they are trying to learn to those previous bits of information and experience through conscious reflection. It should be borne in mind that connecting new content to previously learned information is not always helpful (Ambrose et. al, 2010). If prior knowledge is inactive, insufficient, inappropriate, or inaccurate, then it will be a hindrance for learning (Ambrose et. al, 2010: 14-27). Reflective thinking provides a way by which students can assess this prior knowledge and marshal it correctly for their learning.

Second, some thinkers speak of "critical reflection," which has been effectively defined by Stein (2000: 1); as "the process by which adults identify the assumptions governing their actions, locate the historical and cultural origins of the assumptions, question the meaning of the assumptions, and develop alternative ways of acting." Similarly, Fook, White, and Gardner (2006) conclude their extensive review of various definitions of reflection by identifying four aspects which they consider constitute a "full view of reflective practice." In their opinion, reflective practice involves

(i) "a process (cognitive, emotional, experiential) of examining assumptions (of many different types and levels) embedded in actions or experience;

(ii) a linking of these assumptions with many different origins (personal,

emotional, social, cultural, historical, political);

(iii) a review and re-evaluation of these according to relevant (depending on context, purpose, etc.) criteria;

(iv) a reworking of concepts and practice based on this re-evaluation" (Fook, White, & Gardener 2006: 12).

Critical reflection is distinguished from other types of reflection by its focus on consciously questioning the assumptions that the thinker makes.

Finally, we can talk about what I would call process reflection. This type of reflection is epitomized in David Kolb's (1984) model of experiential learning which is broken into four steps: Concrete Experience; Reflective observation; Abstract conceptualization; and active experimentation. Kolb understands reflective observation as the search for the meaning of things that happened during the concrete experience that is the basis for the learning experience. Donald Schön's distinction between reflection-in-action, and reflection-on-action also fits here. According to Schön, "reflection-on-action" is the systematic review of the process and outcomes of a situation, whereas "reflection-in-action" is the ability of a professional to notice what is happening and modify their actions instantaneously, essentially thinking on one's feet (Schön 1983, 1987; Hatton & Smith, 1995).

This brief survey of the literature shows why reflection is used with such variety - it has application in many arenas of thought. As it relates to the development of reflective thinking amongst students - the point to be made is that in all of these applications, the same basic method of reflection holds, the difference is in the direction to which reflection is extended. There can be no question that college students benefit from learning to think reflectively in each of these ways. Yet, in this article, I argue that intentionally developing student abilities in process reflection can help them develop growth mindset.

**Reflective Writing**

Due to the fact that reflective thinking is a varied metacognitive process, it is difficult to assign and measure in the classroom. Therefore, reflective writing assignments must be constructed carefully so as to both promote good, high order reflection, but also to accommodate fair and ethical assessment. Reflective writing assignments can be created and tailored for any of the previously mentioned levels of reflection.

Several methodologies exist which aim to both streamline the process of reflective thinking for student acquisition of the concept, and to transfer reflective thinking into assignments that can be used in class. Graham Gibbs (1988) expands on the reflective observation element of David Kolb's (1984) experiential learning model, depicting reflective writing as a cycle made up of the following elements:

- Description - what happened?
- Feelings - What were you thinking and feeling?
- Evaluation - What was good and bad about the experience?
- Analysis - What sense can you make of the situation?
- Conclusion - What else could you have done?
- Action Plan - If it arose again, what would you do?

Bulman and Shultz (2013) have adapted Gibb's model into nursing education. For them, reflective writing takes the following steps:

- What happened?
- What were you thinking and feelings and how did you act?
- Initial Evaluation of the experience: What was good and bad about it?
- Critical Analysis: What sense did you make of the experience?
- Conclusion: What have you learnt from reflecting on this experience?
- Final Evaluation and Action Plan: What would you do differently?

Peters, (1991) suggests a model based on the acronym DATA: Reflective writing ought to first Describe a learning experience, then Analyze that experience, then connect relevant Theory to that experience, and finally reflective writing must identify the way that Action

will change.

Similarly, Rolfe, et al. (2001) suggest the following method:

- What? (description of the situation)
- So What? (Theory and knowledge building)
- Now What? (How to improve the situation).

Ash and Clayton (2009) identify a process of reflective writing summarized by the acronym "DEAL," which includes the following steps;

- Describe a learning experience,
- Examine how this experience coheres with their learning goals,
- Articulate Learning including both the capturing of learning that has been done and drawing out implications of that learning for their future benefit

Three components reappear in each of the aforementioned processes of reflective writing. First, the reflective learning endeavor begins with the description of a specific event - be it a lecture, the content in a textbook chapter, active learning experience, or non-academic experience. Second, connections are made to and from this concrete experience. These connections can be to previous personal experience, following Meizrow's observation that:

> Much of what we learn involves making new interpretations that enable us to elaborate, further differentiate, and reinforce our long-established frames of reference or to create new meaning schemes (Meizrow, 1990: 5).

Connections can also be made between theories being learned as a part of classroom instruction or personal/professional development - this process is typically referred to as integrative thinking (Kallio, 2011). Finally, all these reflective models conclude with some type of application, where the thinker determines what should change as a result of the reflection.

So, the best reflective writing assignments encourage students to think reflectively.

This requires that they think about a specific learning experience, make connections to and from that experience, and strategize as to how their thinking or action will change as a result of the reflective process.

## 3. **Reflection in the First-Year Classroom**

Having now described what is meant by reflection, and the best practices in reflective writing, we can pass on to a description of why reflection matters in a FYE classroom. Certainly all levels of reflective thinking benefit first-year students, but in this section, I want to focus on what I have called process reflection - the intentional, structured or systematic analysis of processes and their outcomes. Helping students to evaluate their processes has numerous benefits, which will become clear below.

The benefit of process reflection for students is well known. Joe Cuseo and colleagues (2007) argue that self-reflection is one of the four key things students need to learn in their first year of college. The reflection that Cuseo et. al advocate is further segmented into four areas: a) Self-Assessment - the intentional evaluation of one's personal characteristics, b) self-monitoring- analysis of the effectiveness of their learning, and the synchronous adjustment of learning strategies to make sure to meet the standards set for them, c) reflection on feedback wherein students determine how to use feedback to improve their performance on academic tasks, and finally d) reflecting on the future, during which look ahead to what they hope to do in the future. In much the same way Ken Bain (2012) suggests that the most successful students learn from their failures and their successes. Also, two of the eleven habits of successful college students that John Bader (2011) articulates relate to

learning from failure.

Why the focus on learning from failure? In part, because college graduation rates typically hover around 50% (Eaker & Sells 2015: 9). In some ways, this low graduation rate implies that nearly half of the students who attend college are unable to cope with the challenge that college provides to them - in some ways they fail (or the university system fails them depending on one's perspective). Studies of student retention demonstrate that students leave school for a variety of reasons, and that the majority (75-80%) are in good academic standing when they choose to leave the institution (Noel, 1985; Tinto, 1993). The emphasis on personal, process, reflection, and the advocation of learning from failure is a response to the low graduation rate. The theory goes that if students were better able to handle challenges, and to learn from their failures, they would be more successful inside and outside of the classroom. After all, concentrating on academics alone has already been shown to have an insignificant impact on student retention (Lotkowski 2004).

This is where Dweck's idea of growth mindset is particularly relevant. In many ways the differences Dweck identifies between fixed and growth mindset are most apparent during times of transition and challenge. In speaking about the transition of a group of students from elementary school to high school, Dweck points out that, while students with a fixed mindset understood the difficult transition to be a threat, and an indication of the limit of their intelligence, whereas "with the threat of failure looming, students with the growth mindset instead mobilized their resources for learning" (Dweck 2006: 58). Dweck is also clear that mindset can be changed. Therefore, in the FYE classroom, one of the central obligations is to help students understand that challenge is just challenge - not the mark of

inability.

Dweck's idea of growth vs. fixed mindset stems from her previous work, in particular, her work with Carol Deiner regarding learned helplessness. Deiner and Dweck (1980) explain that learned helplessness is "when individuals view their actions as irrelevant to subsequent outcomes" (Deiner & Dweck, 1980: 940). Further, viewing failure as insurmountable has "debilitating effects on performance" whereas "perceiving that one is able to avoid or escape from failure can have facilitating effects." These responses are not connected to traditional measures of ability - IQ, reading comprehension (Deiner & Dweck, 1980). Student effort is incredibly relevant to their performance in class and to their fulfillment of their non-academic responsibilities.

In the FYE classroom then, students need to be encouraged to reflect on key aspects of their academic and non-academic lives. This can be accomplished by applying the methodology of reflective thinking to student learning experiences through carefully constructed reflective writing assignments. Training students to think reflectively helps them to learn more efficiently and effectively, and helps them to develop growth mindset. I want to be clear, I am advocating a different way of assigning and assessing learning, and not the lowering of standards for student education. In many ways, I think that the reflective work I am proposing here, when done correctly, requires substantial work (Dweck is also clear that lowering standards cannot be the solution, she suggests "lowering standards just leads to poorly educated students who feel entitled to easy work and lavish praise" (2006: 193).

One example will suffice to illustrate the concept. Consider what happens when a

student has a test. The first step in the reflective writing process is to describe what happened. Certainly there is the obvious experience of taking the test. But, the act of taking the test is the culmination of a learning process that started much earlier in the semester - all of which needs to be described. This process includes attendance and participation in class, the style of notes the student takes, and the attention s/he gives to them, the frequency with which the student reviewed the information, the methods of studying that the student used during these review periods, the extent to which the student read the reading assignments, and the method s/he used to record that information, their ability to identify which content will be covered on the test, the methods they use to prepare for the test, the attention they were able to give to the test while taking it. The list could go on. To this point we have only considered academic tasks, but a large variety of non-academic tasks also affect student performance on exams; for example, how many hours they worked, how many hours they spent with friends, the presence of conflict in their friend group or family, the students emotional state, and many others. Now, after a student has done all of this - they take the test, and it is graded. They now have a definitive point from which to reflect on their performance. Grading is a measure, imperfect though it is, of the students' learning.

The second part of the reflective thinking process asks students to make connections to and from their experience. In the FYE classroom, these connections need to go a couple of directions. First, students can make connections to the theories about student success, learning, and studying that are being taught in the class. Second, students can make connections between aspects of their preparation and their performance on the test. Finally, they can make connections between their effort, their result, and their long-term goals

(educational and otherwise).

Each of these levels of connection is important. When students make connections to student success theory, or memory research they are specifically reflecting on various components of their process. Students can ask general or evaluative questions like: "Did the way I take notes help or hurt me as I prepared for the exam? Were the specific study strategies I used in preparing for this test helpful or harmful?" But, deeper questions that specifically connect to theoretical content are also appropriate - clearly these questions depend on what theory the students know already - but in an FYE class, these theories form the bulk of the content in the course. So, students could ask, "How the choices I made in the week leading up to this exam reflect the Eisenhower decision matrix? Or, how could I have incorporated interleaving into my study strategy?"

Beyond the theoretical connections, students must also make connections to their longer term goals. Some students who make a C+ on a Biology Midterm are perfectly happy - because that is a passing grade in their program. But if the student intended to become a doctor, the grade would be rather alarming, and would indicate that dramatic changes to the students approach to the class would be in order. The skill of process reflection becomes even more significant when we recognize that the work is different in many classes, and that different professors have vastly different expectations.

Finally, reflective writing and thinking concludes with a description of the specific changes the student needs to make to develop their processes going forward. Simply, students need to ask, "what should I do again, and what should I change for the next test?" Leaving the reflective process without this essential step strips it of its benefit.

Dweck outlines several methods by which students can develop growth mindset. The most important strategy she suggests is teaching students directly about neural plasticity, or the fact that the mind changes and grows. Her argument is that student have a hard time understanding that intelligence is fixed and inborn if they understand that the brain changes as a result of experiences. In addition, Dweck suggests that growth mindset can be gained by having authority figures praise the process students engage in while learning rather than the result of learning. She says: "My research has shown that praising students for the process they have engaged in—the effort they applied, the strategies they used, the choices they made, the persistence they displayed, and so on—yields more long-term benefits than telling them they are "smart" when they succeed" (Dweck, 2010: 18).

Recently, Dweck has clarified that she is concerned that her theory of growth mindset has been misunderstood and misapplied. She cautions that effort is not the only part of a growth mindset, but that while "effort is key for students' achievement, but it's not the only thing. Students need to try new strategies and seek input from others when they're stuck. They need this repertoire of approaches—not just sheer effort—to learn and improve" (Dweck 2015). This is a very pertinent observation, and one worth bearing in mind. For reflective writing to help students acquire growth mindset, it must not just push them to effort, it must cause them to examine their effort, and to figure out how to improve their process.

In Dweck's system these process evaluations happen when parents or teachers help students think through their effort, and by selectively praising the things worth repeating, students are encouraged to repeat useful skills, and discontinue the less effective or efficient

practices. However, by training students to reflect on their own practice in a deliberate way, they develop the skills to identify the weaknesses of their process, and correct those weaknesses on their own. This is an essential skill for success generally, and for college success in particular. Students do not always have teachers who care to help them figure out different ways of studying, or taking notes - and so the student must become their own advocate. Learning to think reflectively about their academic processes enables them to make strides towards growth mindset, and towards academic success, without the assistance of others, and so it is an incredibly important skill.

**Assessment of Reflective Writing:**

If designing reflective writing assignments that promote reflective thinking is challenging, assessing them is even more difficult. Assessment of student writing is always tricky, but grading reflective writing assignments presents an additional challenge because it is imperative that the assessment not cut off or stop the process of reflective thinking. Charon and Hermann (2012) have pointed out that transposing reflection from a learning model to an assessment strategy fundamentally changes the type of reflective thinking in which learners engage. The challenge of providing feedback on these reflective assignments is to encourage the process of reflective thinking, and to not reduce these assignments to a product students feel they must produce.

The first step towards assessing reflective writing well is clearly describing what students are expected to accomplish. The relationship of reflective writing assignments to reflective thinking can be conceived in two ways, as either allowing students a chance to represent their reflective thinking, or to guide students towards more thorough reflective

thinking. Roth (1989), in speaking about training productive teachers, observes 24 practices of what he terms the "reflective practitioner," they are:

1) Question what, why, and how one does things; ask what, why, and how others do things.
2) Emphasize inquiry as a tool of learning**.**
3) Suspend judgment, wait for sufficient date, or self-validate.
4) Seek alternatives.
5) Keep an open mind.
6) Compare and contrast.
7) Seek the framework, theoretical basis, underlying rationale (of behaviors, methods, techniques, programs)
8) View from various perspectives.
9) Identify and test assumptions.
10) Put into different/varied contexts.
11) Ask "what if ...?"
12) As for others ideas and viewpoints.
13) Adapt and adjust to instability and change.
14) Function within uncertainty, complexity, and variety.
15) Hypothesize.
16) Consider consequences.
17) Validate what is given or believed.
18) Synthesize and test.
19) Seek, identify, and resolve problems ("problem setting," "problem solving").
20) Initiate after thinking through (alternatives, consequences) or putting into context.
21) Analyze – what makes it work; in what context would it not?
22) Evaluate – what worked, what didn't, and why?
23) Use prescriptive models (behavioral models, protocols) only when adapted to the situation.
24) Make decisions in practice of the profession (knowledge created in use) (pg. 32).

These are the abilities that good reflective thinkers have learned and can demonstrate, and so they are also the abilities that must be measured in the assessment of reflective writing.

Assessment of these measures can be aided by the use of carefully designed Rubrics. Rubrics are helpful in that they clarify expectations and identify for students what should be emphasized. (Miller et al., 2012). However, the usefulness of rubrics as a grading tool is not uniformly agreed upon (Wilson 2006). As it relates to reflective writing specifically, as we

have seen, Reflective thinking and reflective writing are not necessarily the same process. Rubrics, while clarifying expectations, also limit student work in some ways, and could contribute to the separation of reflective thinking from reflective writing that Charon and Hermann (2012) have identified.

Nevertheless, a couple of general rubrics for assessment of reflective writing have been popularized. The REFLECT rubric, made for use in Medical Education, but with some transferability into other reflective writing assignments (Wald et. al. 2012) assesses writing in six areas: Writing spectrum, presence, description of conflict or disorienting dilemma, attending to emotions, analysis and meaning making, and the optional criteria, attendance to the assignment, and categorizes the student work as either Habitual action (non-reflective), thoughtful action or introspection, reflection, or critical reflection. The REFLECT assessment has been evaluated by Moniz and her colleagues (2015), who conclude that individual use of the rubric varies widely, and that the assessment tool does not provide the standardization it promises. Though it is the case that Monitz and her colleagues used the REFLECT rubric for summative assessment, when it was designed for formative assessment, and this undoubtedly has some bearing on their results.

A more extensive rubric has been created Barbara Larrivee (2008) for use in the evaluation of teachers as reflective practitioners. Larrivee identifies sixty-three elements that reflective teachers accomplish which are broken up into four overarching categories: pre-reflection, surface reflection, pedagogical reflection, and critical reflection. The rubric attempts to measure the frequency by which each teacher being evaluated uses each of the sixty-three elements, and they are rated on a simple scale: always, frequently, infrequently.

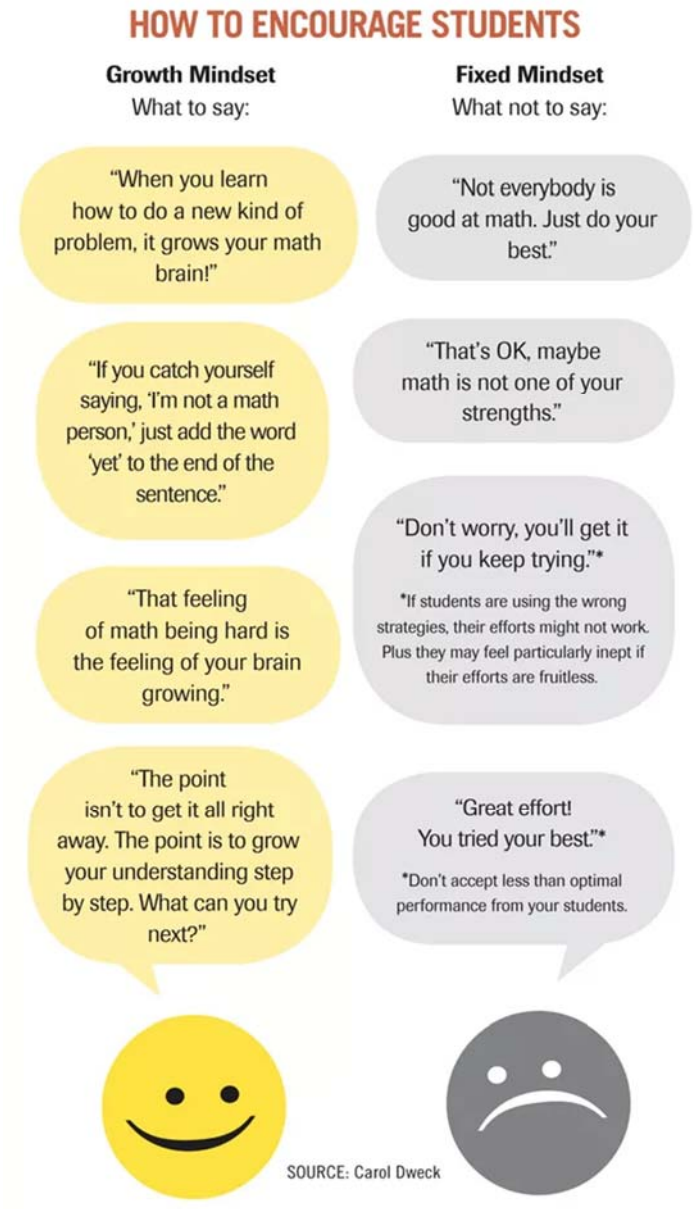
Importantly, Larrivee also advocates that the rubric be given to the evaluator, and to the person being evaluated and administered as a self-evaluation.

At this point, it is helpful to return to Dweck's idea of growth mindset, and in particular her thoughts about how growth mindset can be encouraged by teachers. In her view, feedback that promotes growth mindset cannot primarily address the correctness or incorrectness of the results of the thinking. Rather, it must praise those things students are doing well, and encourage students to think differently about those skills and abilities they have yet to acquire (Dweck, 2006). Of course, effort and process are difficult to assess when what you have to measure is whatever the student managed to write and submit. The realities of grading require that objective, often judgmental statements be imposed onto student work.

One further complication is the reality that each student interprets instructor comments differently. Devers (2015: 3) observes "students with a fixed mindset usually either ignore criticism or take it as an insult to their intelligence. Because they believe intelligence cannot be changed, the criticism of intelligence is perceived as a criticism of the student." Ironically perhaps, this interpretation has both a detrimental effect on the acquisition of growth mindset, and profound impacts on the student's ability to make gains in their understanding of the topic at hand. This discontinuity is more pronounced in the assessment of reflective writing because as soon as a student feels their intelligence has been insulted, their capacity to think reflectively is dramatically diminished.

Dweck addresses both student interpretation of instructor comments, and the necessities of grading what is on the page by what she terms the "power of yet" (2010: 29).

Her argument is that by speaking to students in terms of skills they have developed already and skills they have yet to develop, we do not accidentally stifle growth mindset as we grade. In a later piece, Dweck (2015) contrasts feedback that encourages growth mindset with feedback that encourages a fixed mindset in the following table:




The differences between these feedback examples show clearly the type of encouragement

required to develop growth mindset: Effort is in focus, but it is effort directed towards learning. Continuously learning is the goal. To encourage growth mindset, instructor feedback must encourage students to set their effort, progress, and challenges within the context of lifelong learning - not just passing a class, not just graduating from college. The most effective comments push the students to think deeper about the issues they are discussing and to see learning as a process. In this way, the regular feedback is essential in forcing the students to become better reflective and integrative thinkers.

Practically, for reflective writing assignments to remain helpful for learning I believe that the type of comments and directions made by the instructor need to be rather different from other forms of writing. First, I think that the goal of the interaction ought to be to ask questions more than to give answers. We saw above the 24 skills of the reflective practitioner that Roth (1989), identified. If these skills are the goal - and I suggest that they are - then my comments on student writing need to force them to more wholeheartedly and thoroughly demonstrate these reflective practices.

I suggest a two-stage assessment process. Stage one, after the work has been submitted, go through it quickly, and ask questions. That's it - just questions. At this point the goal is to demonstrate to the student areas where they could, and should think more deeply, or more reflectively. Roth's list of 24 practices of reflective practitioners can form the conceptual backdrop for the type of questions that can be asked. Also in the first stage of the assessment process belongs feedback on the mechanics of writing - sentence structure, word choice, grammar, punctuation, etc, and organization. Again, I think that couching these comments in terms of questions is appropriate. What I want to do is to help students figure

out ways of expressing themselves more clearly, not to simply edit their text for them. After the first stage of assessment, the students are given an opportunity to revise and resubmit their work.

Then, the second stage has to allow the student to amend and alter their assignment. Essentially to answer the questions an instructor asked them, and fix the mistakes they made in writing. This is no doubt cumbersome, and requires a certain amount of extra work on the part of the student and the instructor. However, a lot can be gained. 1) We force students to reflect more deeply, to correct their mistakes and in so doing, subtly promote the benefit of a thoroughgoing revision process. 2) We allow students to proactively address individual points at which they failed (be it grammatical, or conceptual) and in so doing, allow them to engage in the process natural to individuals possessing Dweck's growth mindset.

## 4. **Conclusion**

There are substantial advantages in helping students develop what Carol Dweck calls growth mindset. In this article, I have argued that students can develop growth mindset when they are required to think and write reflectively about their academic and non-academic processes. Constructing reflective writing assignments in such a way as to allow students to start by describing "the effort they applied, the strategies they used, the choices that they made, and the persistence they displayed" (Dweck 2010: 18) **-** the very categories that Dweck suggests we use in our assessment of student learning - will allow students to

make gains towards the development of their own growth mindset, and thus will enable their continued success both in college, and beyond.

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