

Promoting Higher Level Motivation

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Developing critical thinkers is one of the primary goals of higher education and a key ingredient to developing critical thinkers is motivation[2]. Some of the most basic forms of motivation can be categorized as belonging to the ‘carrot-or-stick’ technique but in order to develop critical thinkers a higher level of motivation is required. An alternative to primitive methods of motivation is offered by Herzberg [3], who proposes a model for developing self-motivated employees. This same model can be extended to the classroom.

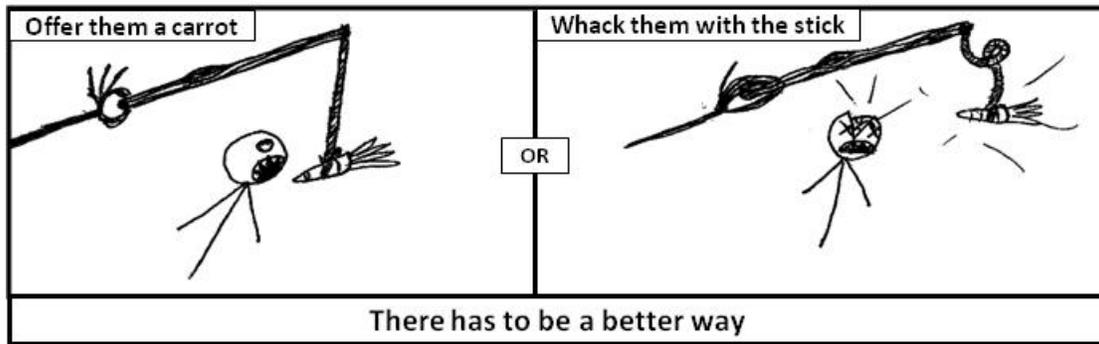


Figure 1 (see[1])

The Carrot and Stick:

One of the more common forms of motivation used in the classroom is the ‘carrot-and-stick’ approach[4]. This technique is primarily characterized by creatively combining the usage of two methods. In the first method, the teacher dangles a carrot from the end of a stick and holds it out in front of the student hoping the student moves forward in his education. For example the teacher promises to the student that “if they study hard they will receive the ultimate of all grades that of an A+”. The second method involves the teacher whacking the student in the head with the stick (experienced teacher can even do this without removing the carrot from the end.) The classic example of this is making a student sit in the corner wearing a dunce cap or some equivalent punishment. No matter how artistically a teacher combines these methods they ultimately fail to produce critical thinkers in sufficient quantities [2, 5]. The carrot and the stick remain extrinsic motivators; with the presence of these motivators a student is unlikely to accomplish much more than learning how to avoid the stick and how to reach the carrot. This commonly manifests itself in the form of a student who cannot recall course material immediately after they have just passed an examination on the material. There are better ways of motivating students and even in the most restrictive environments any teacher can apply better forms of motivation than the ‘carrot and stick’. (Include inner city example here)

Research has been conducted on motivating students using the ‘carrot and stick’ method. Geoffrey and Renate Caine [4] discuss how the brain “downshifts” in threatening environments and the emotions take over effectively shutting down higher order thinking. Their research is critical of the focus on competition and rewards found in the American school system. Caine’s criticism of the ‘carrot-and-stick’ approach to teaching is echoed by Herzberg [3] who takes a scientific look at various forms of motivation in employee’s. Much of this work transfers easily to the classroom. Herzberg talks of several methods of applying the ‘Kick in the pants’ form of motivation or what he calls ‘KITA’. He discuss how this form of motivation can be effective in producing quick short term results but fails to produce long term results. When using these forms of motivation a person will be motivated just enough to avoid the next kick in the pants. With this form of motivation the employer ends up spending a lot of resources and time producing the ‘KITA’ and the employees spend a lot of time and effort avoiding the ‘KITA’[3]. Herzberg does offer an alternative that results in self-motivated employees. He discusses two sets of factors one that leads to ‘job satisfaction’ or ‘motivators’ and another set that leads to ‘job dissatisfaction’ or ‘hygeine’. He proposes that these sets are two separate disjointed sets. The reduction of ‘job dissatisfaction’ factors does not lead to job satisfaction and vice versa. The factors that he claims produce job satisfaction should be encouraged and the factors that produce job dissatisfaction need to be limited. By doing this he states you can develop self-motivated employees who go beyond doing the minimum.

Herzberg’s idea of motivation:

All the factors Herzberg[3] lists as causing **job satisfaction** also apply in the classroom. These factors are: achievement, recognition, the work itself, responsibility, advancement, and growth. The top three contributing factors to motivation are further examined in the following sections.

Achievement: By providing a student with a sense of achievement and recognition for the work/study done especially if a teacher creates an environment that promotes the student’s feeling of self-achievement. One form of this achievement occurs when a student learns the material for themselves, usually just ahead of the teacher presenting. A teacher can promote this by using a technique I refer to as ‘talking around the subject’. By describing a topic without naming it, by approaching the topic from a unique direction, or using a story that calls for the topic as the solution, the students are afford the opportunity to discover the topic before the teacher must present it to the entire class. When communicated properly, an attentive teacher can see the students light up one at a time as they discover the concepts. If a teacher is not careful, occasionally a student who cannot control himself will shout out the answer in excitement, stealing the opportunity from the rest of the class, but also passing the excitement on like a contagious disease.

An example Arrays: I am describing the concept of iteration (the idea of needing to do things more than once in computer program). The in class exercise requires the student to enter multiple test scores in a program that returns the average for all scores. The exercise is structured

in a manner that once a new grade is entered then the previous grade is erased but a running total is kept for computing the average. The testable material in this lesson is how to iterate and how to keep a running total. But as I am discussing this in a subtle manner I planted the question of “What if I need to keep track of each test score?” Most of the students filter this out as they struggle to understand the basic principles that I am obviously focusing on. At the end of class a student who cannot hold his curiosity in check asks how they can change the variable name each time a grade is entered so that the previous grade is not lost. I counted this as a great victory, because he did not repeat back to me the question I planted earlier in the lesson, but he had a partial working solution. In fact after questioning him some more on this he had discovered the concept of an ‘array’ (a method of storing lists in a computer program). He had the idea that such a thing should exist but was not sure how to implement it. After class I joked with him that he had made a great invention just that it was 40 years too late for him to claim credit for it.

Recognition: Bringing recognition for achievement into the classroom is commonly done in many forms. But the most effective appears to be direct feedback[3] that is timely. Returning an assignment to a student with nothing more than a grade does not provide adequate feedback. Accurate and immediate feedback has proven to produce effective results. Aside from offering recognition in the form of grades, immediacy can serve as a proven means of motivating students. Many studies have been conducted on the effects of immediacy in the classroom [6-8]. Rodriguez [9] lists more than a dozen studies that show immediacy has a positive effect on learning. He states: “No other teacher communication variable has been so consistently associated with increases in both students' affective and cognitive learning in the classroom.” He ascribes the success of an immediate teacher to ‘affective learning’, that is through immediacy the teacher inspires the student to appreciate the material and desire to learn cognitively[9]. Mehrabian [10] defines immediacy as “the degree of perceived physical and/or psychological closeness between people”, which can include the students liking for the teacher or course. Immediacy can also be attributed to what Lohman[11] on page 141, describes as not speaking ‘to’ or ‘at’ the students but ‘with’ them. What better way to offer recognition to students than with immediacy. A head nod, or knowing look at a student as they come up with some great realization does far more for the student than a grade on an assignment that they completed a few days ago.

Advancement: Another one of Herzberg’s motivators is advancement[3]. The students must see the material that they are learning as useful, as advancing their knowledge or abilities in some meaningful way. There are few educational crimes that are worse than wasting a semester of a student’s time, but some teachers and institutions insist on it. From the teacher’s perspective, every class measures should be taken to avoid this crime occurring even on the smallest of scales. The teacher needs to encourage a forward momentum in all their students learning. In a classroom of diverse students this can be challenging when you have students that understand the material quicker than the teacher can present it, and they are sitting with students struggling to understand the material in its simplest form, perhaps lagging one or two classes

behind in understanding the material. It is the teacher's job to encourage them all to advance, to learn new material, to obtain a greater understanding of how the course relates to the world. A technique I commonly use to achieve this is mentioned in my Array Example. I make passing comments aimed at challenging the students that are rapidly learning the material, comments that offer them a glimpse of the depth of the material being covered, a depth typically beyond the scope of the course or another direction the course could have gone in. I offer well measured passing comments, with the intent that struggling student will filter out. When a struggling student bites on these comments I attempt to first discuss with them the concepts that are struggling to understand and relate them to the more advanced topic. I paint a picture of understanding the basic concepts as a pathway to understanding the more advanced topic. I always attempt to redirect them back to the basics first, but offer them the assistance needed to reach the more advanced topics.

Herzberg then shows ten factors that contribute to **job dissatisfaction** listed in order from strongest contributor to weakest are: policy/administration, supervision, relationship with supervisor, work conditions, salary, relationship with peers, personal life, relationship with subordinates, status, and security[3]. The top three contributors to job-dissatisfaction are examined in the below sections.

Policy and administration: Policy and administration can be related to organization and structure of the class, class room and teacher policies. The student dissatisfaction caused by poorly administered classes is captured very well by Michael Wesch [12], he study showed that students perceived that only 26% of their assigned readings were relevant to their life. He draws on John Dewey's notion that 'we are what we do' and compares it to the standard lecture hall where students are expected to sit in rows of chairs and defer to the teacher's authority. To him it appears obvious why Universities fail to produce large numbers of critical thinkers. To avoid these obstacles to critical thinking he has each student become a 'resident expert' on some aspect the world and he has the students tell him how the world works, instead of him telling the students. He calls this anti-teaching because he states 'teaching' can be a hindrance to learning.

Wesch takes an atypical approach to counter some of the dissatisfaction caused by typical classroom policy/administration but not all teachers have this freedom. However, they can control many in-class policies such as classroom discipline, and behavior. Do they allow students to complete work from other classes during their class, or sit in the front row and watch videos on their laptop. Some level of discipline and order is expected to promote learning. Renate and Geoffrey Caine [4] state it more precisely when they the "one aspect of the learning atmosphere seems to be indispensable in establishing relaxed alertness, it is orderliness". They describe orderliness as a "pervasive sense of acceptable behavior." It creates an environment where a student can take risk in expressing their creative ideas. The students can act spontaneously and they can get excited over the material.

Supervision: Herzberg talks of “employee-centered” style of supervision. In the classroom it is “learner centered teaching” with much research being conducted by the learning sciences [13, 14]. The teacher cannot afford to be the ‘fountain of knowledge’ in front of the classroom and cannot afford to be the sole authority in the classroom if the goal is to produce critical thinkers. The incentive to analyze a problem and develop a solution is much less when the student knows the teacher is going to provide the “right answer”. The teacher’s activities must all revolve around the student as a learner. Ken Bain’s [15] discusses some techniques that a teacher can use in section on Intellectual Development. He mentions that when a student comes to conclusion based on incomplete information the teacher needs to be tolerant. The teacher should provide probing questions and help the student find any false assumptions, review established facts and help the students develop some meta-skills concerning their reasoning process. The teacher should encourage the student to become their own authority and develop in the student an ability to recognize the abilities and limits of that authority.

Relationship with supervisor: The hygiene factor of ‘relationship with supervisor’ easily transfers into the ‘student-teacher relationship’. This relationship between student and teacher is often times discussed in terms of establishing immediacy[4, 7-9]. Some teacher behaviors that encourage establishing immediacy include asking for student’s opinion, asking them how they are doing and calling them by name. Non-verbal immediacy includes making eye-contact, a head nod, or smiling at a student. In Frymier and Houser’s [7] conclusions they state that as personal relationships form individuals learn to trust each other more and that: “When trust develops it is much easier to ask ‘stupid questions,’ or ask for feedback and clarification.”

To successfully motivate students the teacher needs to feed the students intrinsic motivations. Shift the focus from learning the material in order to pass the next graded event to learning the concepts behind the material, to becoming capable of applying the concepts in unique ways. Receiving high marks on the next graded event should be reduced to a byproduct of the student fully grasping the concepts. For students to become critical thinkers they must go far beyond learning to pass graded events.

An Example Discovery - In the classroom, a student stays a few minutes after class furiously finishing up an exercise. He closes his computer up and heads toward the door looking a little bit relieved. As he passes me, he comments about the difficulty of an assignment that I allowed the last half of the class for the students to work on. He stated that he was very frustrated by the problem but finally figured it out by the end of the class. I suspected he did not realize he was one of the few lucky ones. Most of the other students will be robbed of the opportunity to ‘figure out’ when I go over the solution to the problem at the start of the next class. I commented back to him that “it was far more valuable for him to have figured it out on his own then for me to have told him, as I could have told the whole class the solution in the last 10 minutes, but that is not what this education is about.” He looked at me with a confused look, but I suspect he started to understand what I said. There is more to being a student then achieving a good grade.

Conclusion:

The 'carrot-or-stick' form of motivation is a primitive technique that produces limited results. For students to become critical thinkers they must develop intrinsic motivation and an effective teacher is in the best position to develop intrinsic motivators. Teachers need to learn to establish an environment that offers students the opportunity to achieve, and they offer students both recognition and advancement, while limiting the factors that cause dissatisfaction in education. When we have moved our style of motivating away from the 'carrot-or-stick' technique, students will become self-motivated and develop critical thinking skills.

1. Larkin, D.A., *Carrot or Stick - There must be a better way*. 2010: West Point, NY.
2. Kerksen-Griep, J., *Teacher communication activities relevant to student motivation: Classroom facework and instructional communication competence*. Communication Education, 2001. **50**(3): p. 256 - 273.
3. Herzberg, F., *One More Time: How Do You Motivate Employees?* Harvard Business Review, 1987. **65**(5): p. 109-120.
4. Caine, R.N. and G. Caine, *Making Connections: Teaching and the Human Brain*. 1991, Wheaton, MD: Association for Supervision and Curriculum Development.
5. Postman, N. and C. Weingartner, *Teaching As a Subversive Activity*. 1969, 750 3rd Ave., New York, N.Y. 10017: Delacorte Press, Dell Publishing Co. 229.
6. Myers, S.A. and R.L. Knox, *The relationship between college student information-seeking behaviors and perceived instructor verbal behaviors*. Communication Education, 2001. **50**(4): p. 343 - 356.
7. Frymier, A.B. and M.L. Houser, *The teacher-student relationship as an interpersonal relationship*. Communication Education, 2000. **49**(3): p. 207 - 219.
8. Hess, J.A., M.J. Smythe, and Communication, *Is teacher immediacy actually related to student cognitive learning?* Communication Studies, 2001. **52**(3): p. 197 - 219.
9. Rodriguez, J.I., T.G. Plax, and P. Kearney, *Clarifying the relationship between teacher nonverbal immediacy and student cognitive learning: Affective learning as the central causal mediator*. Communication Education, 1996. **45**(4): p. 293 - 305.
10. Mehrabian, A., *Attitudes inferred from non-immediacy of verbal communications*. Journal of Verbal Learning and Verbal Behavior, 1967. **6**(2): p. 294-295.
11. Lowman, J., *Mastering the Techniques of Teaching*. Second ed. Higher and Adult Education Series. 1995, San Francisco, CA: Jossey-Bass. 344.
12. Wesch, M., *Anti-Teaching: Confronting the Crisis of Significance*. Education Canada Spring 2008: p. 4-7.
13. Collins, A., *Cognitive Apprenticeship*, in *The Cambridge Handbook of The Learning Science*, K.R. Sawyer, Editor. 2006, Cambridge University Press: New York, NY. p. 47-60.
14. Kafai, Y.B., *Constructionism*, in *The Cambridge Handbook of The Learning Science*, K.R. Sawyer, Editor. 2006, Cambridge University Press: New York, NY. p. 35-46.
15. Bain, K., *What the best college teachers do*. 2004, Cambridge, Massachusetts: Harvard University Press. 207.

Annotated readings:

Dubrow, H. and J. Wilkinson, *The Theory and Practice of Lectures*, in *The Art and Craft of Teaching*, M. Gullette, Editor. 1984, Harvard University Press: Cambridge, MA. p. 25-37.

This paper discusses some of the essential ingredients for a good lecture. He discusses good preparation and tying in the material across lessons while periodically covering the broad view. He goes on to state “that the expert who cannot communicate what he or she knows is useless as a teacher.” Some factors that he mentions that create good communications are: speaking more slowly to allow your words to sink in, communicating enthusiasm for the material and presenting the material with clarity.

Davis, J., *Dialogue, Monologue and Soliloquy in the Large Lecture Class*. *International Journal of Teaching and Learning in Higher Education*, 2007. 19(2): p. 178-182.

This paper suggests a solution to teaching in front of a large audience. The author states that teachers must always remember that lecturing is oratory and above all “we must first successfully communicate with our students.” To prevent the lecture from being impersonal the author suggests using directed pronouns like “you”, “I”, and “we”. He presents the idea of lecturing as a monologue (as opposed to soliloquy) in which the actor verbalizes his or her reasoning. The author uses the analogy of the monologue because a monologue is directed to another actor, another participant in the play. When lecturing the other actor/participant becomes the group of students, they are participating and the teacher is reacting to their participation.

Wesch, M., *Anti-Teaching: Confronting the Crisis of Significance*. Education Canada Spring 2008: p. 4-7.

This very thought provoking article has a focus on developing critical thinking. The author states; “I have toyed with the idea of calling what I do ‘Anti-Teaching’, as I have come to the conclusion that ‘Teaching’ can actually be a hindrance to learning.” He talks of how ‘good questions’ from the students serve as the driving force behind developing critical thinking. He proposes that the answer to a ‘good question’ is irrelevant but the insight in itself is important. He suggests the only good answer to a ‘good question’ is another question. He talks of spending less time providing students with good information and more time trying to get students to ask better questions. This article is also accompanied by an insightful video found on Youtube: <http://www.youtube.com/watch?v=dGCJ46vyR9o>

Sweller, J., *Cognitive load theory, learning difficulty, and instructional design*. *Learning and Instruction*, 1994. 4(4): p. 295-312.

This paper discusses the concept of Cognitive Load Theory. Intrinsic cognitive load is characterized by the amount of interaction between elements that must be learned. This is constant for a given domain and some domains have inherently high intrinsic cognitive loads. When teaching in these domains this paper suggests that a focus on schema acquisition is more

productive than means-end-analysis. Means-end-analysis serves as a better method for problem solving but is less beneficial when trying to learn complex concepts. This article also provides a clear discussion of the learning process. It provides the best answer I have found to the question of “What is learned?”

Bereiter, C., Our Oldest Unchallenged Folk theory as Last Faces Its Days of Reckoning, in *Education and Mind in the Knowledge Age*. 2002, Lawrence Erlbaum Associates: Mahwah, NJ.

This chapter(Chapter 1) challenges some of the current beliefs about the mind. It examines the belief that the mind is a container to be filled and suggests that a better model for the mind is required by educators in the current age. It discusses how the concept of knowledge as the contents of a mental filing cabinet fails. It suggests that much of the problems in modern education are caused by the application of this false assumption.

Malt, B.C., Word Meaning, in *A Companion to Cognitive Science*, W. Bechtel and G. Graham, Editors. 1999, Blackwell Publishing: Victoria, Australia. p. 331-338.

This paper provides a broad overview of the concept of ‘word meaning’ and a summary of the state of current research on ‘word meaning’. It states that dictionary definitions do not tell us everything we need to know about a word or its nature. It presents three views on the meaning of words: Meaning belongs to individuals, Meaning is publicly held, and Meaning as a relation between a word and the world. The article suggests that ‘word meaning’ cannot be understood by these three approaches in isolation and suggests that a better understanding of word meaning is yet to be found.

Kafai, Y.B., Constructionism, in *The Cambridge Handbook of The Learning Science*, K.R. Sawyer, Editor. 2006, Cambridge University Press: New York, NY. p. 35-46.

This article summarizes some of the key elements of Constructionism as a theory of learning initially developed by Seymour Papert. Constructionism provides an interesting perspective on how one learns. It is based on the concept that we construct new knowledge on top of old knowledge, we connect the new knowledge to what we already know. It states that a key aspect of Constructionism is appropriation, that process of making the knowledge your own, taking ownership in the knowledge. Also discuss the concept of syntonic learning where the learner identifies with computational object in multiple ways.

Collins, A., Cognitive Apprenticeship, in *The Cambridge Handbook of The Learning Science*, K.R. Sawyer, Editor. 2006, Cambridge University Press: New York, NY. p. 47-60.

This article presents the concept of Cognitive Apprenticeship which is divided into the four dimensions: content, method, sequencing, and sociology. Of particular interest are the section on content and methods.

In the content dimension the author talks about types of “strategic knowledge” that enable the student to solve problems. This strategic knowledge should be taught and is discussed as being one of three kinds:”heuristic strategies” are tricks of the trade, “meta-cognitive strategies” which include assessment and analysis tools, and “learning strategies” which cover

how to learn domain knowledge.

In method dimension the author divides Cognitive Apprenticeship's teaching methods into six teaching methods. The first one 'modeling' is when the teacher models an expert in the field and they verbalize the thought process of the expert. This is done to allow the learner to construct their own model of the process. The second one 'coaching' the instructor observes the student and offers hints, feedback, reminders, or additional challenges while the student accomplishes a task. The third method is 'scaffolding', which refers to the teacher providing support that allows the student to accomplish a task that they would otherwise be unable to accomplish. Scaffolding is meant to provide temporary support. The last three methods articulation, reflection, and exploration encourage the student to use their won problem solving skills and apply them autonomously.

Herzberg, F., One More Time: How Do You Motivate Employees? Harvard Business Review, 1987. 65(5): p. 109-120.

This article discusses forms of motivation and starts by discussing the limitations of using a "Kick in the Pants" (KITA) approach to motivation. The article states this form of motivation is effective but has a limited range. Both positive and negative KITA will only motivate a person far enough for them to either avoid or obtain another KITA. The article then goes on to look at factors that encourage self-motivation. One key point of this article is that job satisfaction is not the opposite of job dissatisfaction. This article looks at factors that affect job attitudes and claims that a lack of factors that lead to job satisfaction leads to lack of job satisfaction but not necessarily dissatisfaction and vis-a-versa. The article discusses the difference between motion which is what happens when you use KITA and motivation which is the result of limiting the factors that cause job dissatisfaction and promote the factors that cause job satisfaction. With some thought this article is very relevant to motivating students in the classroom.

Papert, S., Situating Constructionism, in Constructionism, S. Papert and I. Harel, Editors. 1991, Ablex Publishing Corporation: Norwood, NJ.

This essay summarizes the concept of Constructionism in words of Seymour Papert. Constructionism builds on Jean Piaget's theory of constructivism, the idea that learning is the process of "building knowledge structures." Constructionism adds the idea that learning is encouraged when the knowledge building is conducted while constructing a physical entity. The strength of this method of teaching is that it is less intrusive to the thoughts of the learner. They are free to construct the knowledge in the manner that fits them as opposed to instructionist approaches which force the student to accept the knowledge as it is structured by the teacher. Constructionism allows for different styles of thinking and provides the learner with the freedom to think "what they please to think it in their own ways"

Rodriguez, J.I., T.G. Plax, and P. Kearney, Clarifying the relationship between teacher nonverbal immediacy and student cognitive learning: Affective learning as the central causal mediator. Communication Education, 1996. 45(4): p. 293 - 305.

This paper discusses a study done to determine the effects of communication skills on

teaching. It also addressed the effects of some communication skills based on gender. They found that immediacy and comforting skills were rated as being slightly more important by females than males but that both genders were equally affected by them. This paper claims that the teacher communication skills need to be both content focused and relational focused. The two most important communication skills identified by students were referential skills (being able to clearly explain things) and ego support (skills that help students believe in themselves).