# Optimizing Learning in Class

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*Abstract*— Teaching and learning are inextricable. Ergo, a deeper understanding of how they affect each other leads to a larger insight on pedagogy. Assimilation of information entails cognitive prowess from both ends of the learning process. However, discerning personality and learning style of learners is a cornerstone for optimized learning. In this research, a model for molding the compatible teaching approach according to these variables is presented. Another problem is that popular teaching approaches expect focus from the learners without adopting any attention-grabbing routines. The study encompasses various measures, which employ psychological science, to maintain engagement throughout information input. Learning is initiated by learners and varies in intensity according to each one's aptitudes. In all cases, it is required to apply certain methods for more efficient knowledge acquirement. Using Bloom's Taxonomy and laws of learning, this investigation sets up strategies and techniques to facilitate autonomous learning.

*Keywords*— engagement, learning style, personality, strategies, teaching approach.

## I. Introduction

"By learning you will teach, by teaching you will learn"-Latin Proverb. Not only does the learner rely on the teacher, but the other way around also represents a huge part of the learning process. Ergo, they are inextricable and a deeper understanding of how both of the two extremities affect each other leads to improvements to today's schooling. Individualization of instructional methods does not contribute significantly to learning outcomes although it is known that students have differing learning styles. Hence, in order to maximally enhance learning, one must try to use a mixed method approach. In order to boost the effectiveness of teachers in class, there are many relevant factors that are taken into consideration. To discern personality and learning style of each learner is imperative for a more effective teaching and learning relationship. "If a child doesn't learn the way we teach, maybe we should teach the way they learn"- Ignacio Estrada. Accommodating the most suitable approach for a teacher is no easy task. He deals with a large number of easily overlooked variables that require experience to discern and deal with effectively. In this research, a model for shaping the compatible teaching approach according to these aspects of learners, especially the negative ones, is presented along with a few tips on how to detect them. By the same token, to have all students engaged with the course in class is very rare. Therefore, it is critical to adopt a few attention-grabbing

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routines. In psychological science, there are various studies that employ applicable tactics in class. In this case, emphasis is put on playfulness and motivational thrust along with other methods to avoid apathy and students phasing out during information inputs. Of course, the learner is central to learning. That is why it is important for him to be aware of how crucial his individual work is. When it comes to this particular side of learning, there are many techniques and methods that help students be more efficient in acquiring knowledge.

## II. Findings

### A. Getting started:

1.1. Know your students: to find out what their interests and concerns are. To learn about who you're working with by doing activities that are interactive. You will learn more about your students and discover what they are comfortable with. This will Make them feel safe and cared for and gives you the ability to show them you have a lot to give and that they are able to improve with you.

1.2. Observation: Observation may be the most important characteristic a teacher can possess. In order to be flexible, he has to be aware of the lacunas in his methods by noticing the students' reactions and their development. This is a way to keep improving through time and accommodate the methods more and more to the students' needs.

1.3. Motivation: There are many types of motivations, but they all start with the student himself. Nevertheless, the teacher has to inform his students about the importance of the course and what consequences will align if they do not succeed. This will affect them by both will and fear (i.e. reward and punishment), which are two powerful motivators, but, represent only the extrinsic part of motivation. On the other hand, the teacher also must transmit his love of the matter in hand by showing positivity, enthusiasm and professionalism. 'Passion is contagious' – Blake Fleischacker This will awaken the intrinsic motivation of the students, which is the more important type of motivation according to psychology, Consequently, laying the foundation of 'effect' which is one of the principles of learning.

### B. Model:

After getting to know his students, the teacher should be able to deal with each and every learner accordingly. There are already diverse approaches for teachers to adopt in class, from which many have proven to be effective such as the mixed approach, the eclectic approach or personalized learning. However, these approaches are very difficult to employ, if not impossible, because of the wide range of variables which are not taken into consideration and the time consumption they

require. It is like 'going to a shoemaker and he tells you that it's not that the shoes should fit your feet but your feet to fit the shoes'. This model eliminates the notion of approach and suggests the best ways to deal with many variables individually for a more meticulous approach. When it comes to learning styles, there are many different models that compete with each other and have different perspectives on learning styles. A few non-contrasting styles are used in this model:

### 2.1. Perceptual Learning Styles (Reid 1987):

#### A. Visual:

Teaching Strategies:
• Seat your visual learners close to the front, where they can see the presenter clearly
• Include meaningful visual aids to support your verbal instruction
• Use colors to cue important information
• Encourage note taking
• Use Computer Assisted Learning (CAL)
Learning Strategies
• Recopy notes while studying. This can be done several times if necessary.
• Visualize the information or how to solve a problem
• Look at the words, visualize the words in your mind, repeat them to yourself.

#### B. Auditory:

Teaching Strategies
• Seat auditory learners away from distractions
• Use good expression when speaking- don't be monotonous!
• Have students repeat important information
• Incorporate songs or catchy phrases into your presentation
Learning Strategies
• Repeat facts or information aloud while studying
• Explain or teach information to others
• Brainstorm or study aloud with others
• Say words inside your head to remember them

#### C. Kinesthetic and tactile:

Teaching Strategies
• Seat them towards the back of the room so their motion does not distract others
• Have frequent movement breaks
• Incorporate role play into your instruction
• Use models and real objects for visual aids and pass them around to the students

Learning Strategies
• Take frequent breaks when studying to get up and move around
• Pace back and forth while studying
• Eliminate distracting objects from your desk
• Draw information while learning it

Most likely you will have a good mix of all three learning styles in your class. It is highly encouraged to incorporate teaching methods that will benefit each type of learner. Instead of just orally presenting use role play, audience participation and even music to convey information. Give the students guided notes to fill in the blanks and use visuals in the slides. Have the students reteach the information to their neighbor or a small group of people. Not only will the training session be more interesting, the audience will probably learn better.

### 2.2. Cognitive Learning Styles:

#### A. Analytical and logical (more active left hemisphere):

Teaching Strategies
• Problem solving exercises.
• Explaining concepts step by step and chronologically
• Use flipped classroom and let them explain things to their classmates
• Self-explanation: Generate an explanation of the processes used to solve the problem

#### B. Artistic Learning Style (more active right hemisphere):

Teaching Strategies
• Teach them the use of mind maps, it is the best note taking method for them
• Use story telling more often
• Teacher feedback is very important
• Explain things in a more global way and mention the relevance behind the particular lessons

### 2.3. Personality:

Dealing with personality is not as technical as it is in dealing with learning style. The goal for the teacher is to identify and stimulate what drives the student, to guide, encourage and boost his self-confidence properly and positively for a fruitful student-teacher relationship, hence, a better learning.

*A. Shy*

Shy students can be great to have from a behavioral standpoint because they rarely cause any problems. Actually, they can easily fall into the educator's "blind spots" and go unnoticed. That is why it is important to give these students some attention but be careful not to focus too much on them as this may cause more withdrawal than previously experienced. However, all shy students are not created equally, and handling them requires different strategies.
• Lack of Confidence and High Inhibition: These students may not actually be shy, but their lack of confidence causes them to pull back and become uncomfortable with participating in class.

**How to help**

o Give individual attention to the student. Walk by and check their work and give praise for doing well and encouragement when not meeting expectations.
o Make mental notes about correct answers that have been checked and call on the student for an answer in front of the class, but first make sure to have communicated the answer is correct beforehand. This can help decrease any anxiety the student may have and allow confidence in participating.
o Be careful not to call on the student too much at first. Gently provide more attention as weeks turn into months. Use the

analogy of boiling a frog. If you place a frog in boiling water he will jump out, but if you place him in lukewarm water and gently turn up the heat he will stay.

• **Social Awkwardness:** Social aspects may influence a student's ability to interact in class. There is a couple of situations where students may be categorized in this way: 1) they are loners without friends for various reasons. 2) they have transferred into the class and are new with no friends.

**How to help**

o If the student is a loner then try to talk to him before or during class. Try to build a connection with the student while praising him for his good qualities. Normally, these students may have a negative view of themselves which causes them to be closed off.
o If the student is a loner, try to pair him with another student who is not as judgmental and works well with everyone.
o Above all, protect the student and don't let other students bully or mistreat.
o If the student has just transferred into class, normally providing group activities where the students inner mingle will solve this problem. This is where seating in groups and group work activities can benefit the student.
o University and adult students normally fall into the number two category, so the first day of class when students don't know each other, try ice breaker activities to give everyone a chance to make connections.

### B.  Naturally Introverted

Naturally introverted students have the personality where they prefer to work by themselves. They are normally soft spoken and are closed in appearance (sitting with shoulders sloped forward, avoiding eye contact, arms folded across the body). These students can seldom come out of their shell as there is no causal factor except inherent personality.

**How to help:**

o Provide individual attention and encouragement to the student.
o Try to build a bridge to communication with the student outside of the lesson by asking a simple question periodically. If they answer, smile and encourage, then let them have space.
o Do not force a lot of attention onto the student as it will be extremely uncomfortable.
o Do not get angry for not answering in class. Instead, encourage and comfort, and discuss an agreement that they will participate if a promise is made not to shine too much attention on them.
  Shy students are tricky to handle and can take a lot of asserted time and effort to get them active in class. The real keys to all areas of shyness are not to overload the student with attention, gradually focus more attention on them, and provide lots of encouragement. Don't try to change them overnight but provide a balanced and appropriate amount of attention to allow them to grow. This can be difficult to gauge, so be vigilant when working with these types of students.

### C. Mischievous

Mischievous students tend to cause problems or disruptions in classroom. They are normally the "fun" students in the classroom but have to properly managed to ensure they do not become a huge disruption to the class. These students are commonly referred to as class clowns, and if handled properly, can provide a fun element to the class.

• **Attention Seeker:** This student likes the attention he receives from making the class laugh. Whether or not it is a substitute for a mother's lack of affection is not relevant here. Normally these students are very vocal making jokes all the time. Sometimes they may cause havoc with throwing items or something similar, but mostly try to make everyone laugh through language. The key point is they love the attention and in speaking class they can become a lightning rod for interaction.

**How to handle**

o Allow them to talk and laugh if they say something funny.
o Do not tolerate negative talk towards other students or disrespectful language.
o If they step out of bounds, pull them aside and explain there is a time to have fun and a time to study. To learn those times.
o Provide classroom rules and consequences so they understand how far they can take their joking.
o Involve them in class whenever possible as they love the attention (ask them questions, have them demonstrate things, etc.)

• **Bored Mischievous:** Some students cause problems because they are bored. The material may be too low or too high for them, so they may resort to playful but more devious behavior.

**How to handle**

o If the material is too low, use groups and make them a group leader where they become mini-teachers. This can provide responsibility to the student.
o If material is too low, provide additional instruction through individual conversation and require them to produce at a higher standard.
o If the material is too high, use groups and provide a higher level student to help with the material.
o Set classroom rules and consequences for the student to follow. It is very likely they will test the rules; therefore, they must suffer the consequences when breaking rules.
o Set down with them outside of class and discuss why some of the problems are happening. Make sure they know you understand them, but they have to maintain a certain level of responsibility in class.

### D. The Boss

  The boss student is the student that likes to answer every question and is commonly found in younger learners, but not as much as students get older. However, it does happen with older students from time to time. These are the students that want to answer everything and are too eager to show they know all the answers. They are very happy when allowed to

answer but get very upset or sulk when that opportunity is given to someone else. These students can be so strong that they will defy instructions to show they know the answers such as standing up and writing on the board when asked to sit down or blurting out answers when asked to be quiet.

**How to Control**

o First explain about allowing others to answer. Talk to them nicely on eye level and recognize their "great" ability, but others need a chance.

o Bring them to the front to be a mini-teacher and have them ask other students the answers. If other students do not know, then they can answer.

o If they blurt out answers then do not acknowledge the answers and accept another student's answer. Then on eye level, explain how there are classroom rules and he needs to follow the rules and allow other people to answer.

o When other students answer a question, ask the boss student from time to time if they put the same answer.

o Do not discourage answering but have them understand that everyone should be given a free chance.

### *E. Unmotivated*

These students have no desire to learn or study. This can be a real challenge to handle inside the classroom. Most of the time, the students are unmotivated because they do not see the relevancy of what is being studied, not interested in the topics, or the material is far above their level. Regardless, the educator needs to find some means to motivate these students and have them learn.

• **Unmotivated Relevance:**

o The educator needs to make the student understand how the subject is relative to their lives. For example, for a Japanese student studying English, the educator can talk about how English will allow him to travel the world, how it will enable him to potentially acquire better jobs or go to school in other countries.

o Find out what the student's aspirations are and connect them with the subject.

o The subject might not be relevant to his future, but it is relevant to his grades.

• **Unmotivated Topics:**

o Try to provide topics for the class that match the student level and interest.

o Try to incorporate interesting activities to allow the students to engage the information.

o Use grades or other consequences as motivational tools for not doing work.

• **Unmotivated Level:**

o Try to provide individual assistance or peer assistance to help with learning.

o Be vigilant of progress the student makes and provide encouragement.

o Talk to the student about not penalizing his grades if he shows more motivation to study and do his work.

### III. MAINTAINING ENGAGEMENT

"Attention and time are the two most fundamental resources in the history of mankind" Idriss Aberkane. So, the goal for a teacher is to keep the attention of his students as long as possible. But it is no easy task because it is impossible to force someone's attention, a teacher has to seduce the listeners by his methods.

In order to get someone's attention, it is preferable to give him something first. The introduction to a lecture is the best moment to do so. Use empathy when communicating with the students in order to motivate and orient them to the topic at hand. The best way to start is by telling a captivating story that may inspire the audience. By doing so, the student becomes 'ready' to learn, employing yet another step from the laws of learning. It is also very important to take advantage of 'primacy' to lay the foundation of the course, as a result, creating a long and durable first impression.

Turning play into work and work into play represents one of the best ways to keep the student's attention. Enjoying learning is the best way to keep learning for the long term and reach a high level in whatever the individual is trying to learn. According to Idris Aberkane, successful people with a high IQ perceive learning as something fun and would rather learn something than waste their time on other irrelevant activities to their knowledge. He gave the example of Wim Klein who likes spacing numbers in his brain. By the same token, it has been found that video games improve the engagement level of the students. Meaning that productive videogames, and games in general, can be included into curricula for an improved learning technique because they are very neuroergonomic. Games use many other techniques which tie to the principles of learning.

Also, throughout the lectures, the teacher can use humour to catch his students' attention again when lost, ask them direct questions or give them problems to solve to encourage interaction. Once the students start interacting, this means there is attention that can be turned into engagement by raising the complexity of the problems they try solving to stimulate their thinking even more and challenge them.

### IV. STUDENT STRATEGIES FOR BETTER LEARNING

Numerous strategies have been put in place for the students to apply, but, they generally do not stimulate the learner's critical thinking and are not based on solid scientific backgrounds.

"Tell me and I forget. Teach me and I remember. Involve me and I learn." This quotation by Benjamin Franklin has been proven to be accurate according to a research made in the 5th World Conference on Educational Sciences - WCES 2013. Researchers published a paper in which they confirmed that experimentation can maximize the learning of the abstract concepts and theories of science.

Memory is the worst enemy for a student. Since memory chips for the brain are not available yet to acquire new knowledge, we have to adopt suitable techniques

(requirements) that help us remember more easily and learn. We are best positioned to optimize memory through "desirable difficulties." In this sense, learning is about challenge, failure, understanding why something is wrong before getting it right.

Study for a little bit every day (distributed practice): One of the most robust findings in all of cognitive psychology research is the spacing effect, which shows that learning material over several study sessions that are spaced out over time is more effective than cramming everything into one session. This consolidates 'exercise' one of the principles of learning.

Read, Recite and Review: Take 5 minutes to write a summary of a chapter's big ideas after finishing the reading (aka practicing retrieval), rather than summarizing as you go. Then, check what is right and what was missed before moving on. Make sure to use it for revision shortly before exams since it is easier to recall recently learned things.

Take notes by hand rather than on a laptop: Students will be less prone to distractions with various apps and website and the act of writing by hand may even help remember better.

Test yourself on key ideas: To test themselves will help them practice retrieving information from memory and is one of the best ways to learn, understand on a deeper level and use it in different contexts.

Experiment, research, and create: This is the final step to truly learning something according to Bloom's Taxonomy. By combining the parts which you understood and applied, you make a new whole. To create is the ultimate phase in learning and is a representation of pure understanding.

## V. RESULTS AND CONCLUSIONS

"Study without desire spoils the memory, and it retains nothing that it takes in." -Leonardo Da Vinci. When we love something, we learn it more easily. By doing something with passion, a substantial amount of time is given to the task at hand without boredom or wear and gives a boost to competitiveness. No matter what project you are conducting, you will quit when reaching a certain threshold of difficulty if you do not love what you're doing.

There are so many personalities in a class of students that it is very improbable to give everyone the individual attention they need. However, this does not mean the educator cannot take special interests in certain students who could benefit from being a bit more centred. The key ingredients with helping balance all personality types is encouragement, understanding, and a structure of rules. Once these things are in place, it is just managing certain aspects of the students to help them overcome certain problems. This may not be in the educator's job description, but it is a characteristic every great educator possesses.

The idea that without suffering there is no learning is false. A good teacher is a pleasant teacher. When students enjoy learning, they will perceive it more as fun rather than a chore and inevitably excel in it.

Neuroergonomcs is central to learning and represents a cornerstone for the development of education. The more our brain is comfortable with learning, the better it acquires knowledge.

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