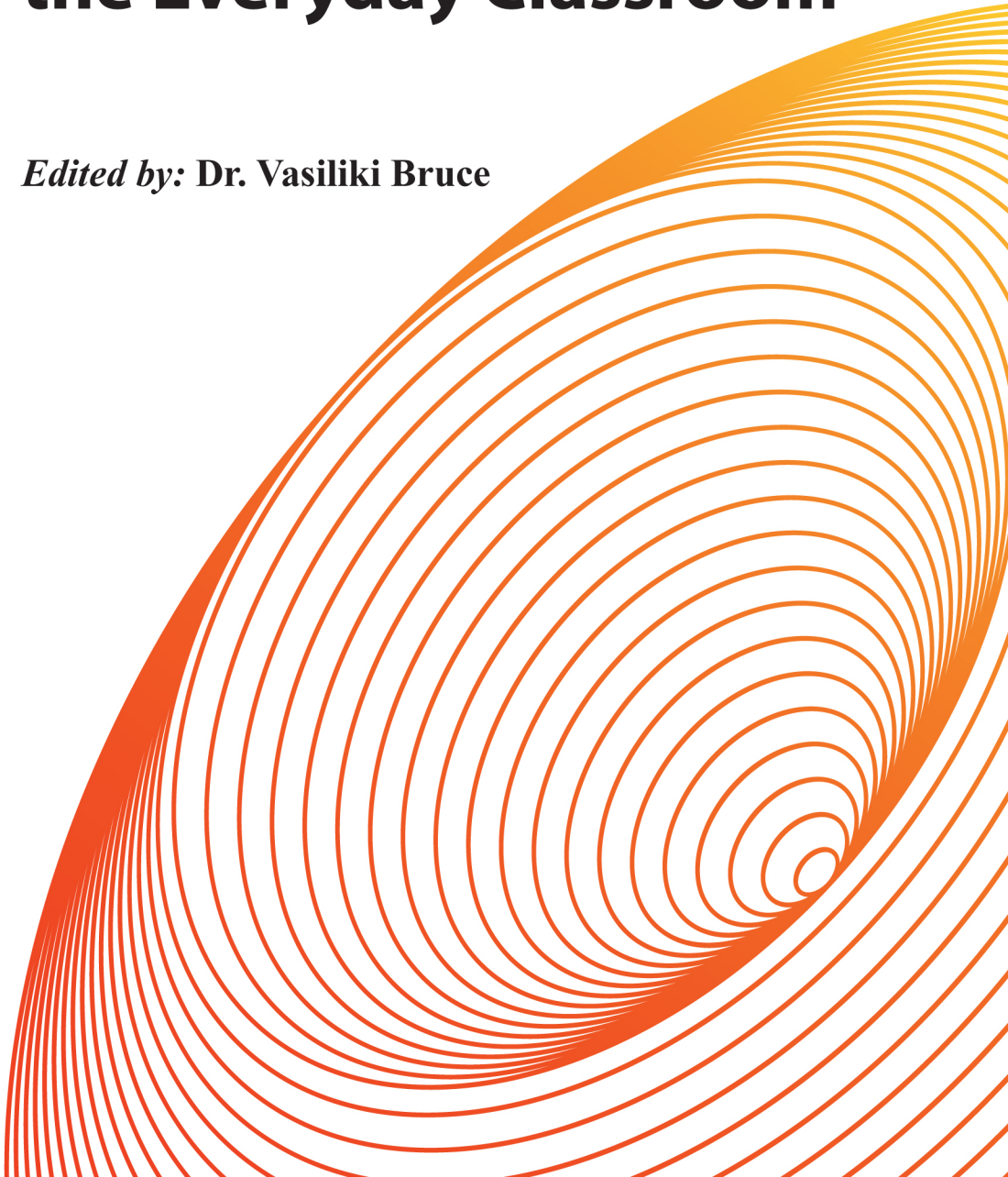


Critical Pedagogy and the Everyday Classroom

Edited by: Dr. Vasiliki Bruce



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TABLE OF CONTENTS

Preface.....xi

Chapter 1 Critical Pedagogy in the Everyday Classroom 1

Introduction.....	1
1.1 Power Games.....	3
1.2 Teacher Movies.....	5
1.3 The Banking System of Education	8
1.4 Teacher against Student, Student Against Teacher.....	11
1.5 Problem-Posing Education.....	14
1.6 Themes in the Academic Classroom.....	18
1.7 Neocolonialism in Teachers’ Movies	23
1.8 Teacher–Student Mutuality	26
1.9 Authority Versus Authoritarianism.....	30
1.10 Conscientization and Consciousness.....	36
1.11 Critical Pedagogy and Math.....	39
1.12 Critical Multiculturalism in the Everyday Classroom	41
References	46

Chapter 2 Critical Pedagogy for Physical Science 49

Introduction.....	49
2.1 Methods of Teaching	50

2.1.1 Lecture method	50
2.1.2 Demonstration Method	55
2.1.3 Lecture-demonstration Method	58
2.1.4 Historical Method	59
2.1.5 Heuristic Method	61
2.1.6 Problem Method	63
2.1.7 Project Method	65
2.1.8 Developmental Method	68
2.1.9 Individualized Laboratory Method	69
2.1.10 Supervised Study	72
2.1.11 Dalton Plan	74
2.1.12 Differential teaching	76
2.1.13 Cooperative Learning	77
2.2 Types of cooperative learning	80
2.2.1 Steps involved in cooperative learning	82
2.2.2 Requisites of an effective cooperative learning situation	85
2.3 Techniques of Teaching	86
2.3.1 Buzz Session	87
2.3.2 Brainstorming	88
2.3.3 Stages in brainstorming	89
2.3.4 Principles of Brainstorming	89
2.3.5 Steps in brain storming	90
2.3.6 Advantages of brainstorming	91
2.4 Models of Teaching	91
2.4.1 Characteristics of a teaching model	92
2.4.2 Methods of teaching and models of teaching	92
2.4.3 Types of teaching models	93
2.4.4 Modern models of teaching	93
2.4.5 Description of fundamental elements of a teaching model	95
2.4.6 Functions and applications of teaching models	97
2.4.7 Description of selected teaching models	98
References	102

Chapter 3 Critical Pedagogy for Sociology 105

Introduction..... 105

3.1 Socialization: Meaning, Types and Examples, Overview 107

 3.1.1 Types of Socialization 108

 3.1.2 Characteristics of Socialization Process..... 109

 3.1.3 Socialization Process and Conditions for Identification 111

3.2 Theoretical Foundations of Critical Pedagogy 113

 3.2.1 Class and Culture 114

 3.2.2 The Social Construction of Knowledge 116

3.3 Sociology of Education and Critical Pedagogy 118

 3.3.1 The Frankfurt School..... 120

 3.3.2 Critical Theory, Pedagogy, and Consciousness 122

3.4 Schools as Sites of Cultural & Social Reproduction..... 125

 3.4.1 The School as a Cultural and Political Enterprise..... 125

 3.4.2 Defining Social Reproduction..... 126

 3.4.3 Social and Cultural Capital 128

 3.4.4 Student Resistance..... 129

3.5 Teaching Issues of Inequality Through a Critical Pedagogy of Place 131

3.6 Culturally Relevant Pedagogy: Making Critical Education Work in Urban Schools..... 142

 3.6.1 Culturally Relevant Instruction: An Additive Model 142

 3.6.2 Critical Praxis 143

 3.6.3 Challenges to Realizing Critical Pedagogy in Urban Education..... 146

References 151

Chapter 4 Critical Pedagogy for Physiology 153

Introduction..... 153

4.1 Critical Pedagogy..... 154

 4.1.1 Different Types of Pedagogical Skills 156

 4.1.2 Critical Pedagogy in the Classroom..... 158

 4.1.3 How to Implement Critical Pedagogy into Your Classroom 161

 4.1.4 Critical Pedagogy of Teaching 164

6.4 Method and Pedagogy in Language Teaching	260
6.4.1 Language-teaching Method	260
6.4.2 A post-method era?	262
6.4.3 'Method' in Professional Discourse Today	263
6.4.4 Problems with Task-based Instruction	264
6.4.5 An alternative: Language Pedagogy	265
6.4.6 Rethinking Pedagogy	267
6.5 A Framework for Mobile Assisted Language Teaching And Learning	272
References	277

Chapter 7 Critical Pedagogy for Science 281

Introduction	281
7.1 Science	283
7.1.1 Nature of Science	284
7.2 Science Education: Types of Validity	287
7.2.1 Fields of science education	289
7.3 Different Approaches to Teaching of Science	292
7.3.1 Expository Approaches or Transmission Approach	293
7.3.2 Discovery Approaches	297
7.3.3 Inquiry Approaches or Process Skills	301
7.4 Methods for Teaching Science	307
7.5 Classroom Climate in Science Teaching Based on Critical Pedagogy	312
7.6 Role of a Science Teacher	314
7.7 Implement Critical Pedagogy into Classroom	317
References	320

INDEX 323



PREFACE

Critical pedagogy is not a prescriptive set of practices – it is a continuous moral project that enables young people to develop a social awareness of freedom. This pedagogy connects classroom learning with the experiences, histories and resources that every student brings to their school. The classroom is a unique discursive space for the enactment of critical pedagogy. In some ways, all classroom discourse is critical because it is inherently political, and at the heart of critical pedagogy is an implicit understanding that power is negotiated daily by teachers and students. Historically, critical pedagogy is rooted in schools of thought that have emphasized the individual and the self in relation and in contrast to society, sociocultural and ideological forces, and economic factors and social progress.

This book is intended to present the applications of Critical Pedagogy to actual classroom situations. Critical pedagogy is a teaching philosophy that invites educators to encourage students to critique structures of power and oppression. In critical pedagogy, a teacher uses his or her own enlightenment to encourage students to question and challenge inequalities that exist in families, schools, and societies. The book also explores enactments of critical pedagogy within an elementary social studies methods. Critical scholars urge teacher educators to commit to practices that promote equity and social justice for an ever-diversifying student population. Theoretically, critical

pedagogy in classroom discourse embodies the practice of engaging students in the social construction of knowledge, which grounds its pillars on power relations. In utilizing critical pedagogy in the classroom, teachers must question their own practices in the process to construct knowledge and why the main knowledge is legitimized by the dominant culture. Moreover, through emancipatory knowledge educators draw practical and technical knowledge together, creating a space for understanding the relations of power and privilege that manipulate and distort social relationships. The book also addresses the shortcomings of mainstream educational theory and practice and promotes the humanization of teacher and student.

A photograph of a desk setup. In the foreground, a blue ceramic coffee cup filled with coffee sits on a matching saucer with a silver spoon. To the left, an open calendar for the year 2021 is visible, showing the months of January and February. In the background, a laptop is open, and a bright pink water bottle stands on the desk. The scene is lit with soft, natural light, suggesting a workspace or study area.

CHAPTER

1

CRITICAL PEDAGOGY IN THE EVERYDAY CLASSROOM

INTRODUCTION

Critical pedagogy is a philosophy of education and social movement that developed and applied concepts from critical theory and related traditions to the field of education and the study of culture. It insists that issues of social justice and democracy are not distinct from acts of teaching and learning. The goal of critical pedagogy is emancipation from oppression through an awakening of the critical consciousness, based on the Portuguese term *conscientização*. When achieved, critical consciousness encourages individuals to effect change in their world through social critique and political action in order to self-actualize.

Critical pedagogy was founded by the Brazilian philosopher and educator Paulo Freire, who promoted it through his 1968 book,

Pedagogy of the Oppressed. It subsequently spread internationally, developing a particularly strong base in the United States, where proponents sought to develop means of using teaching to combat racism, sexism, and oppression. As it grew, it incorporated elements from fields like the Human rights movement, Civil rights movement, Disability rights movement, Indigenous rights movement, postmodern theory, feminist theory, postcolonial theory, and queer theory.

Ira Shor, a professor at the City University of New York, provides for an example of how critical pedagogy is used in the classroom. He develops these themes in looking at the use of Freirean teaching methods in the context of the everyday life of classrooms, in particular, institutional settings. He suggests that the whole curriculum of the classroom must be re-examined and reconstructed. He favors a change of role of the student from object to active, critical subject. In doing so, he suggests that students undergo a struggle for ownership of themselves. He states that students have previously been lulled into a sense of complacency by the circumstances of everyday life and that through the processes of the classroom, they can begin to envision and strive for something different for themselves.

Of course, achieving such a goal is not automatic nor easy, as he suggests that the role of the teacher is critical to this process. Students need to be helped by teachers to separate themselves from unconditional acceptance of the conditions of their own existence. Once this separation is achieved, then students may be prepared for critical re-entry into an examination of everyday life. In a classroom environment that achieves such liberating intent, one of the potential outcomes is that the students themselves assume more responsibility for the class. Power is thus distributed amongst the group and the role of the teacher becomes much more mobile, not to mention more challenging. This encourages the growth of each student's intellectual character rather than a mere "mimicry of the professorial style."

1.1 POWER GAMES

Imagine your favorite pastime is baseball. You love the sport, watch it on television religiously, attend an occasional stadium game when you can, and get out on the field Wednesdays and on weekends to play in an adult league for fun. Now imagine you meet a professional baseball player—someone you have heard about and know to be a master of the game. Though you might both play the same sport, there is a vast difference between what you do and what the pro does.

How would you feel if you looked to this pro for some tips and instruction on the finer points of hitting or fielding and he quickly lost patience with you or, worse, wouldn't deign to work with you in the first place because of your amateur status? Probably wouldn't feel very good right? How might such an attitude on the part of the professional ball player make you feel about the game of baseball itself? Could it conceivably dampen your enthusiasm for the sport?

Further imagine that you don't know much about baseball to begin with but have no choice and are being forced to play. On top of this you don't take to it at once and maybe the interest really isn't there. Again, the pro looks at you with disdain, makes derogatory comments, and showers his attention on the better players. Yet here you are forced to stick it out, showing up practice after practice, game after game. What effect might this have on your self-esteem? If a love for the sport wasn't there to begin with, what are the chances this situation will engender it?

What has baseball got to do with teaching and critical pedagogy? Okay, well now imagine you're a different type of pro, say, for instance, a math teacher. You enter your classroom in September and there are 30 somewhat bright-eyed and bushy-tailed kids waiting for you. Some of them have excelled at mathematics in previous grades while others have learned to rue the subject. How will you treat each type of kid? How will you treat the kid who just "gets it" and is able to solve complex equations after being shown

how to do so but once? How will you treat the kid who practices it two-three-four times, but still doesn't get it? How will you react when that kid sees his peers succeed while she doesn't and she starts to get frustrated and upset? Part of the reason you became a math teacher is probably that you like math and are good at it. Will the message you strive to send your kids be that mathematics is an esoteric field, one some will just understand and others won't? If so, what effect do you think this will have on the kid who has come to see math as an obstacle in his educational path? Or will the message you send be that although not everyone can be math whizzes everyone can improve their mathematical abilities? Will the examples used in your classroom to teach concepts be tied to the lives of your students? If students on the fence about mathematics don't see the value and applicability of tangents, cotangents, and cosines to their lives, what are the chances they'll remember anything about them after the exam?

The Brazilian educator Paulo Freire was visiting a Chilean farming community where he engaged in an impromptu dialogue with a group of peasant farmers. Freire remembers how at first the conversation was just that, a back and forth, a give and take between himself and the farmers. But Freire had been in situations just like this in other parts of the world and he knew what was coming up. A silence descended among the farmers, a silence Freire did not challenge. Finally one farmer spoke up. He asked for Freire's forgiveness, explaining that he and his neighbors were mere peasant farmers, that they should be the ones listening while Freire, a cosmopolitan university-trained Ph.D., did the talking. "You're the one who should have been talking, sir," they told him. "You know things sir, we don't".

Freire replied by asking the farmers to play a little game with him. They would ask each other questions, he of they and they of he, and each time one or the other could not answer, Freire or the farmers would get a point. They proceeded to alternate questions. Freire asked academic questions such as "What importance did Hegel play in Marx's thought?" and "What is an intransitive verb?" The farmers asked Freire questions about their work and things

of importance to their daily lives like “What’s green fertilizer?” and “What’s a contour curve got to do with erosion?” The farmers couldn’t answer Freire’s questions and Freire couldn’t answer theirs. The game ended in a tie, ten to ten.

What was the point of Freire’s game? What did this game teach the farmers about Freire and Freire about the farmers? What did this game show about the nature of knowledge, about education and learning? How did this game reveal the machinations of power? What did his willingness to engage in this game say about Freire the man, his philosophical stance, and his view of education? As I hope to show, this beautiful anecdote encapsulates a good deal of what critical pedagogy in the everyday classroom should strive to be about.

1.2 TEACHER MOVIES

This section will present and dissect “teacher movies.” I’m going to be very critical of these films at times, so I should state up front that despite flaws—including the messages conveyed about teaching—there are several of these films I really enjoy. *Mr. Holland’s Opus* and *To Be and To Have* come to mind as favorites, as well as *The 400 Blows*, though none is spared criticism if the criticism helps me make a point.

Take *Mr. Holland’s Opus*. In the film Richard Dreyfuss plays Glenn Holland, a musician who aspires to compose a symphony. The real world intrudes, as it often does, and Holland, who’s last employment was as an itinerant musician playing bars, clubs, and bar mitzvahs, has to find a job-job to pay the bills. Glad he got that teacher’s certificate “to fall back upon,” Holland lands a “gig” teaching music theory and orchestra at the fictional John F. Kennedy High School in 1965. Teaching isn’t what he thought it would be—“I made thirty two kids sleep with their eyes open [today]” he tells his wife early on—nor is it the cushy job with lots of free time he’d expected.

Composing the great American symphony remains his avocation as events con-spire to rob Holland of the time and energy necessary for creativity. From having to teach driver's ed over the summer for mortgage money to being volunteered to lead the high school marching band, from thousands of hours spent studying sign language in order to communicate with his hearing-impaired son to staying before and after school to help individual students with their music, Holland never gets to composing the way he'd hoped. The job takes a toll on his personal life. Early on Holland just isn't there for his family. He misses his son's science fair. When John Lennon is killed Holland derisively and dismissively tells his deaf son Cole that the teenager wouldn't understand why Lennon's death has upset him so. At one point Holland is tempted by an attractive and talented high school senior who wants to hear his music and invites him to move to New York with her where she is intent on pursuing her singing career, of following her dream where Holland feels he has forfeited his.

At the end of the movie, when the high school's music, art, and drama programs don't survive the latest round of budget cuts and Holland is forced to retire, he is surprised on his last day of work by an assembly celebration where thousands of his colleagues, students past and present, and his family celebrate his years of dedicated service. A former student who has gone on to become governor of their state announces "We are your symphony, Mr. Holland." Holland conducts the school's orchestra as they play his long-worked upon masterpiece.

Teachers who suffer personally for their students and their teaching is a recurring theme of teacher movies like *Mr. Holland's Opus*. In *Freedom Writers*, Hilary Swank's Erin Gruwell teaches high school, sells bras at a department store, and works as a hotel concierge to buy her students books and take them to the movies. Her personal life suffers and her marriage fails. The real life Gruwell spent less than 5 years in the high school classroom before leaving to teach college, write books, and start her own educational foundation. In *Dead Poets Society* John Keating's unorthodox teaching methods are one of the reasons he is scapegoated for a student's suicide

and sacked at the end of the film. We don't see it on-screen but in the movie *Lean on Me* principal Joe Clark's divorce is alluded to, possibly due to his commitment to his job or maybe just his intense-bordering-on-berserk personality. In *Stand and Deliver*, Jamie Escalante's wife complains her teacher husband is not home to spend time with her and their children. Indeed, how could Escalante be when he's (according to the film) working 60 hours a week, teaching night school for free to immigrants, and visiting junior high schools in his free time. Escalante suffers a heart attack in the film 2 weeks before the statewide AP calculus exam. Michele Pfeifer's Louanne Johnson pays for her class' trip to an amusement park and takes class winners of her Thomas Dylan–Bob Dylan contest out to eat at a fancy restaurant in *Dangerous Minds*. On his deathbed after 58 years of teaching at the Brookfield School, Robert Donat's character in *Goodbye, Mr. Chips* overhears his colleagues discussing how sad his life must have been, the tragedy that befell it when his beloved wife died, and the pity that he never re-married or had any children. Mr. Chips musters up enough life to assure his fellow teachers that his has indeed been a very blessed life, that he has had thousands of children, "And all boys" – the thousands of young men who attended the school. Teachers in movies suffering for their students and their jobs . . . Believe me, I could go on.

There *are* teachers who regularly go above and beyond. Given their relatively low pay and lack of institutional support it is easy for teachers to want to do so or to just so do without even wanting to. But what does it say about Hollywood that so many films depict teachers suffering personally to deliver professionally? Is this the message *audiences* want to see? Crucifixion is not a part of the job description. You don't need a martyr complex to enter the teaching profession. In fact, if you do enter the field because you want to "save" people I'd suggest you re-examine your presumptions and read on about the teacher–student relationship. An ethic of care encompasses the self, and despite systemic factors that often make teaching more demanding than rewarding, you should never make it a situation where it's you or the job, teaching or your family. Teaching, like any work, should complement who you are,

make you more of a human being, not less. You shouldn't expect to come to your golden years and find that your marriage and family have fallen by the wayside, that you never wrote that novel or symphony you always wanted to, or that the job itself has left you impecunious. If you don't care about yourself and making your life enjoyable and worth living, how can you expect to adequately care for other people, including your students? This is the gist of Emma Goldman's quip that "If I can't dance I don't want to be part of your revolution."

1.3 THE BANKING SYSTEM OF EDUCATION

Institutional, personal, financial, and other barriers facing teachers, schools, and students are very real and cannot be discounted. No amount of personal sacrifice will make them disappear. These barriers constitute "limit situations," conditions that stand in the way of greater humanization. Limit situations are the "concrete historical dimensions of a given reality". We live our lives in realities that appear to us predetermined, as given. Rarely are we aware of our own socio-historical role in making and remaking history. What *is* appears as what *always has been*. Part of the trouble is we often don't recognize that what *is* someone's *ought*, that situations and circumstances limiting us *benefit* others. Oftentimes we inhabit limit situations without being aware of them. Limit situations confront us as static realities. Even when we recognize situations that negatively impact us we often feel there is no alternative, that this is just the way things are. This is a form of fatalistic thinking.

The everyday classroom is the site of innumerable limit situations. One of the biggest limit situations confronting teachers and students on a daily basis in the everyday classroom is what Freire called "the banking system of education." The banking system is aptly named and well known to everyone involved in formal, institutionalized schooling. This model of education sees students as empty vessels waiting to be filled with information by knowledgeable teachers. Students are viewed as passive sponges

waiting to soak up facts, and the more facts they soak up and the more passively they do so the better. Students are seen as deficits waiting to be filled. Freire referred to teachers in this model as “bank-clerks” who make deposits into otherwise empty students. Students “thirst for knowledge” as if such were Kool-Aid concocted by teachers. The pitcher is tipped by teachers through narration, through lectures, sating student hunger. The banking system of education is a mechanistic conception of education. It fits well with the assumptions of behaviorist learning theories.

Freire provides a list of “attitudes and practices” indicative of the banking concept of education. For example, in the banking concept “the teacher knows everything and the student knows nothing” and “the teacher talks and the students listen—meekly.” It was exactly these attitudes and practices that Freire’s tenquestion game with the Chilean farmers challenged. Freire wanted to show them that yes, he knows things, but *they* know things too. The things they know are no less important to their lives working the land as the things he knows are to his work in academia. Freire was encouraging the farmers to value their knowledge and to actively take part in their conversation.

There are a lot of good teachers who really care for their students, their subject matter, and the art of teaching but in their daily practice perpetuate the banking concept of education. Freire notes that “there are innumerable well-intentioned bank-clerk teachers who do not realize that they are serving only to dehumanize”. Glenn Holland chews his students out when they fail his music theory test. He’s as angry at himself as he is at them, knowing that his methods of teaching theory up to that point—usually one-sided discussions of textbook readings—just aren’t working. In *The History Boys* the headmaster of the prestigious boys prep school assures the temporary contract teacher Irwin that he is “corseted by the curriculum.”

Given everything it *doesn’t* have going for it, given that we as teachers see it fail day in and day out in our classrooms, why is it that the banking system of education persists? Several reasons help explain its perseverance. First and foremost, the banking concept

of education is usually the model we teachers were exposed to as students. We learn that it's the "right" way to teach and we teach the same way. Further, in the classroom the traditional lecture format rooted in the banking concept of education provides teachers "a safer, more reassuring way to teach". We all have had or have known teachers who hammer out a lesson plan and stick to it year after year with little revision.

Because enough students accommodate themselves to the banking concept this further legitimizes it. Curriculums and lesson plans are developed taking for granted that a transfer-of-facts banking concept of education will be the means of dissemination. Teachers, "corseted by the curriculum," often have their hands tied and find institutional mandates infringing on and limiting their creativity. "The curriculum here is set," the headmaster of Welton Academy tells Mr. Keating in *Dead Poets Society*, "It's proven. It works. If you question it, what's to prevent them [students] from doing the same?" "I always thought the idea of education was to lean to think for yourself," says Robin Williams' Keating, a teacher who encourages his students at one point to climb atop their desks for the sake of a new perspective. "At these boys' age, not on your life," is the headmaster's reply, telling Keating that "tradition" and "discipline" are the most important things for young men.

Students themselves are socialized from their earliest experiences in school to expect some manifestation of the banking concept of education in their classrooms. This is why Freire faced farmers and peasants and other people who told him things like, "You're the one who should have been talking, sir. You know things sir, we don't." Teachers that attempt to bring more democratic methods to the classroom may face not only institutional but *student* resistance. If education is *supposed* to look a certain way but doesn't, students can get antsy. I think this applies more to the upper grades including college and graduate school than to the lower. If you're a child in kindergarten or elementary school you're probably going to trust that the way the teacher is running the class is the way the teacher is supposed to run the class, whether that's in an authoritarian manner or an open, democratic style. When you've been in school

for many years, say by the time you reach middle and high school, you've got an idea of how education should be done and if it isn't being done that way the teacher can be viewed as incompetent, or, hopefully, innovative and humane. By college and graduate school, when you're paying to go to school, any form of education that deviates from "the norm" is suspect as it is a possible waste of your own and your parent's money.

1.4 TEACHER AGAINST STUDENT, STUDENT AGAINST TEACHER

The banking system of education pits teacher against student and both against the joys that education can and should bring. It fosters antagonistic relationships between teachers and students. Teachers know stuff worth knowing and students don't. In this way "the teacher presents himself to his students as their necessary opposite; by considering their ignorance absolute, he justifies his own existence". Cognition is denied students in a banking concept of education. A teacher "cognizes a cognizable object while he prepares his lesson in his study or his laboratory" after which "he expounds to his students about that object". Students don't have to explore, investigate, and learn themselves. They need to show up and memorize whatever it is the teacher tells them is worth knowing and memorizing.

Students have to accept the epistemological certainty of the teacher, the subject matter, and the curriculum. It should come as no surprise when the subject matter of schooling is reduced to an "alienating intellectualism" for these students, what with the things they learn in school and the ways they learn them divorced from their everyday lives. Student resistance often manifests as disruptive behavior in class. Students may file in, heading for the areas of the room where they think the teacher is least likely to visit. Ira Shor calls these areas "Siberia" and makes it a point in his college classes to circulate his physical presence around the classroom, sometimes sitting in the back of the room, sometimes off to the sides. A "culture of silence" may descend upon a

classroom as passive students who have had it drummed into their heads that teachers are the source of all knowledge in the classroom expect teachers to teach. Students may adopt a form of false conscious-ness, thinking this the only or best way to learn.

Having taught in America and other countries I have seen the different attitudes students in various cultures bring to school. A common lament of American teachers I know is how *bad* their kids are, they don't listen, they don't respect anyone, they misbehave. I've had rowdy students. Fortunately I have found with most if you set limits and boundaries and are consistent with those while you're according the student respect, almost all can be brought into line. I do wonder if students today are somehow different than students when I was a kid. My students use language and talk about things I never would have imagined using or talking about in front of adults, *especially* my teachers. I've seen students who walk around with perpetual bad attitudes from whatever is going on in their home lives, students who go at it verbally with teachers and a few who, when pushed, have gone after them physically. Maybe I was sheltered in a Catholic school in my elementary years but if a teacher raised her voice to me I remember getting all upset, on the verge of tears even. I don't see that with the kids I work with today. Where students once seemed to respect and defer to authority figures like their teachers or principals the attitude I see today is one of "show-me," as in show me you're worthy of my respect and deference and then *maybe* I'll respect and defer to you. This is an attitude I am ambivalent about. On the other, I think this needs to be done in a respectful, non-belligerent way. Most of the kids I know who challenge authority today do so in a loud, abrasive, disrespectful manner.

Compare these kids to the students I taught in South Korea. There it's the exact opposite problem. I had Korean students who were so deferential to authority and so passive they bordered on catonic. They were in school to have education done to them. School and hogwan (after-school private institutes for English conversation, math, and computer study) were ways of preparing for competitive entrance to university. I had students who were "well behaved"

to the *n*th degree. Even here in America I'll have students born of traditional Korean parents who sit quietly and sometimes meekly in class. I'm not complaining. I don't want a bunch of unruly, pugnacious punks who make education impossible in my classroom. But I don't want students who respect me solely because I am an adult. There are adults unworthy of respect. Respect me because I respect you, because I know my stuff and treat you as a fellow human being, not just because of my age or title or some degree.

The banking concept of education supports the structural status quo. It works to change the *consciousness* of the oppressed, not the concrete *situations* that op-press them. For example, in *Dangerous Minds*, a well-intentioned teacher like Pfeifer's Louanne Johnson tells her class that "There are no victims in this classroom!" when in fact hers is a classroom *full* of students victimized by socio-economic and gender inequality. Johnson's message—she let's her high school students know she is a former Marine and teaches them to hip toss one another her second day of English class in order to get their attention—amounts to *toughen up, don't whine, stop making excuses*. A banking concept of education ignores the structural realities that give rise to inequalities in our lives, treating students as individual cases, as "marginal persons" when in fact what usually happens is we find ourselves on the outside looking in as no one *asks* to be marginalized. The banking concept of education is not humanizing or liberatory. It is a dehumanizing and reactionary pedagogy that domesticates students.

There is an ontological position implicit in the banking concept of education well worth considering. The banking concept of education sees people *in* the world, not *with* the world. Knowledge is out there, knowable, immutable, independent of the knower. Such knowledge manifests itself in canons and curriculums and is not contestable. Students are objects of the educational process, not subjects. They are objectified, *thingified*. When Freire wrote *Pedagogy of the Op-pressed* in 1970 he criticized the banking concept of education in which "the teacher is the Subject of the learning process" because the teacher creates lessons and explores

topics “while the pupils are mere objects”. With a proliferation of “teacher-proofed” materials including scripted lesson plans and lockstep official curriculums, teachers are increasingly objects in the learning process as well. Freire remained adamant that the banking concept of education, this “standard, transfer curriculum . . . implies above all a tremendous lack of confidence in the creativity of the students and in the ability of the teachers!”.

Critical pedagogy’s chief concern is the humanization of students and teachers. As Ira Shor always points out critical pedagogy is a liberatory pedagogy through critical education and action. All forms of critical pedagogy respect the context in which knowledge creation and transmission occurs. Knowledge in critical pedagogy is situated and context specific. Thus Freire’s culture circles with illiterate Brazilian peasants will look different than Shor’s composition classes at a working class college on Staten Island, but both are examples of critical pedagogies that start with students’ lived realities. When possible, critical pedagogy attempts to organize the program content of education *with* the people, not *for* them. I have been a student in Shor’s graduate-level classes where he has come into class with a syllabus and by the end of the class a whole new syllabus had been negotiated between him and we students.

At the graduate and even college level critical teachers like Ira may have opportunities of negotiating syllabi and curriculums with their students that high school and primary teachers may lack. But don’t get the wrong idea. The institutional setting, be it kindergarten or college, presents teachers with limit situations that threaten to dampen critical practices. So where an elementary teacher may find himself spending hours a week decorating bulletin boards as per principal orders when he could be planning, a college teacher may have a department- or university-approved reading list she *has* to work from.

1.5 PROBLEM-POSING EDUCATION

One form critical pedagogy can take is problem-posing education.

In such an education “people develop their power to perceive critically *the way they exist* in the world *with which* and *in which* they find themselves” where “they come to see the world not as a static reality, but as a reality in process, in transformation”. A problem-posing education encourages critical learning. Such learning “aids people in knowing what holds them back” and imagining “a social order which supports their full humanity”. One of the teachers’ roles in a problem-posing education is to “problematize situations” by presenting to students situations with which they are familiar but in a manner that gets them thinking about those situations in new ways. Ira Shor describes this as “extraordinarily re-experiencing the ordinary” where students “re-perceive” the reality they know.

Freire gives an example of this from his work with the same group of Chilean farmers mentioned earlier. One need not be religious to appreciate how the Christian Freire encourages the Christian farmers to “extraordinarily re-experience” and “re-perceive” their daily lives. Shortly after the farmer apologizes to him — “You’re the one who should be talking, sir. You know things, sir. We don’t” — and their ten-questions game, Freire, for the sake of argument says, okay, “I know. You don’t. But *why* do I know and you don’t?” “You know because you’re a doctor, sir, and we’re not” he is told. To which he replies:

“Right, I’m a doctor and you’re not. But *why* am I a doctor and you’re not?”

“Because you’ve gone to school, you’ve read things, studied things, and we haven’t.”

“And why have I been to school?”

“Because your dad could send you to school. Ours couldn’t.” “And why couldn’t your parents send you to school?” “Because they were peasants like us.” “And what is being a peasant?”

“It’s not having an education . . . not owning anything . . . working from sun to sun . . . having no rights . . . having no hope.”

“And why doesn’t a peasant have any of this?”

“The will of God.”

“And who is God?”

“The Father of us all.”

“And who is a father here this evening?”

Almost all raised their hands, and said they were.

[Freire asks one of the farmers how many children he has and the man answers three]. “Would you be willing to sacrifice two of them, and make them suffer so that the other one could go to school, and have a good life . . . ? Could you love your children that

way?”

“No!”

“Well, if you . . . a person of flesh and bones, could not commit an injustice like that—how could God commit it? Could God really be the cause of these things?”

A different kind of silence [ensued]A silence in which something began to be shared. Then:

“No. God isn’t the cause of all this. It’s the boss!”.

Freire’s example is illuminating. In one conversation the farmers go from a fatalistic acceptance of reality to questioning the necessity of that reality and who it benefits. Freire engages in dialogue with the farmers, letting them draw their own conclusions, believing what they will. He poses as problems worth considering the facts that he is a university-trained professor while they toil on the land. What does this example have to do with the everyday classroom? There are students and teachers who don’t like aspects of school but accept that this is the way school is. The ways our schools work, what it means to be a *family* or a *man* or a *woman*, the structure and function of economies and political systems, these all work the way they do because some people benefit from them the way they are. None of their current manifestations were inevitable. The only ones who say it is so and encourage fatalistic thinking are those who benefit or those who have been clobbered

into submission. When and where possible in our classrooms we should problematize situations and encourage our students to extraordinarily re-experience the ordinary. This is a skill, an ability we want them to take out of the classroom and into their lives, much as we must in our own.

The Chilean farmers attributed their status in life to a supernatural deity. I hear a lot of this kind of talk in America as well, with people noting that everything from success or failure in school and life is “all part of God’s plan,” a “test” from “the Lord.” Sometimes they wear their religion or denomination openly, other times re-course to an unnamed higher power or causal mechanism is invoked, as in “I believe everything happens for a reason.” Still more often, however, I hear people ascribe success or failure to their individual selves or other individuals. They succeeded or they failed because of something *inside them*, to opportunities they did or did not pursue. Structural inequalities are taken as givens, beyond cognition or criticism. Things are the way they are and we are told we must learn to deal with them.

That’s my biggest gripe with “teacher movies.” Aside from the fact that many of them are interminably long, nearly all of them preach a gospel of self-help and rugged individualism. “If you do not succeed in life,” *Lean on Me’s* principal Joe Clark (played by Morgan Freeman) tells his assembled high school students, “I do not want you to blame your parents. I do not want you to blame the white man. I want you to blame yourselves.” This right after expelling from the assembly and the school 300 of the worst behaved students, young men and women smoking cigarettes and marijuana and free-style rapping on the stage in the middle of the school day. Individuals in classes and individual classes in schools usually succeed in these films, be they *The History Boys’* Oxford and Cambridge scholarship recipients or all 18 students in Jamie Escalante’s AP calculus class. Again, the notion that success or failure is rooted in the individual is one of the messages driven home by these films. It’s not that this *isn’t* an accurate reflection of the reality facing us, but come on directors, let’s dare to dream as you ask us to suspend disbelief anywhere from an hour and a half to two and a half hours or more.

I do not mean to discount the place of individual agency. But crack-smoking high school rejects like *Lean on Me's* character Sams have the deck stacked against them from birth. All their lives kids like these are surrounded by circumstances and situations that work to bring out the worst in them and then they get to us for 6 hours a day and we expect they're going to make good decisions. Of course, understanding where these kids are coming from and how they get to us does is not making excuses for them or for bad behavior.

When possible our subject material should be rooted in the lives of the students. I know this sounds like a tough order, maybe not as easy in fifth grade as in graduate school, maybe not as easy in a state university as in a non-formal literacy circle. I know you're thinking this might be easier to do in English and social studies classes and harder to do in mathematics and physics classes. I know I did and I have thought so but I am realizing more and more from my reading that any limitations I perceive are mostly those of my imagination stemming from my lack of knowledge in the content area and my lack of creativity, both on my part. Not that I'm blaming this individual, mind you.

1.6 THEMES IN THE ACADEMIC CLASSROOM

Critical pedagogy demands a lot of teachers. Once you get your credentials, land a spot in a good school and get tenure, it's easy to go along and get along. Critical pedagogy demands engaged and imaginative teachers who aren't afraid of leaving their "comfort zones" and taking risks in the classroom. Critical pedagogy demands teachers who are committed to their fields, teachers who will follow developments inside and outside their subject matter. Critical pedagogy demands teachers who will not knowingly fool themselves and their students, teachers who will face the relations of power in their classrooms, their schools, and their societies.

At the same time critical pedagogy provides teachers with many tools with which to work. I should rephrase that. It's not so much that critical pedagogy creates these tools and gives them

to teachers to use. These things are there by dint of our being human. Theorists and practitioners of critical pedagogy merely suggest how these things can be used in favor of the humanization of student and teacher.

What kind of “things” am I talking about? Well, for one, the topics we discuss, explore, and study in our classrooms. Ira Shor differentiates between generative, topical, and academic themes. Their suitability in our classrooms will depend on the specific contexts of our classrooms, including grade level, subject matter, and other institutional constraints. Yet it is my belief that some or all of these can be used in the everyday classroom some of the time.

Generative themes are probably most often associated with Freirian literacy circles in Latin America. Generative themes are “provocative themes discovered as unresolved social problems in the community, good for generating discussion in class on the relation of personal life to larger issues”. Freire called these *generative* themes because “they contain the possibility of unfolding into again as many themes, which in their turn call for new tasks to be fulfilled,” new avenues of study, reflection, and action to be explored. Shor clarifies that generative themes are to be found “in the unsettled intersections of personal life and society”. Generative themes are contextual, drawn from the everyday lives of students. Such is one of their main strengths for a critical pedagogy, as generative themes serve as “student-centered foundations for problem-posing”.

Generative themes are introduced as codifications to the class. Freire and his colleagues used sketches and photographs of everyday experiences familiar to the lives of their students (often illiterate farmers) as codifications. For example, a codification Freire may have started with might show a farmer with a book in one hand and a farming tool in another in a field. In the background a woman and child stand near a well before a house as birds fly overhead. In the “decoding” process that ensued between teacher and students, the differences between the natural world and culture, the concept of necessity and that of work, the relationships

of human beings one to another as subjects emerge. Freire was pretty clear that codifications be made visually. However, I think it's entirely plausible that codifications can be presented in other forms, from drama to rap. The idea of the codification is to present a lived situation to students, a situation they inhabit but rarely question critically. The codification of generative themes should be pretty straightforward to students. There's a difference between a picture of a farmer under a tree with nature and the tools of culture about him versus a metaphorical poem or an abstract painting.

Topical themes are "social question[s] of key importance locally, nationally, or globally". Topical themes are not generated by student discussion in class. The teacher brings topical themes to the students. They then, all together, discuss the particular topical theme and how it impacts their lives and the subject matter of the class itself. The idiom in which it is introduced needs to be something the students can grasp. For example, once I was teaching a class of adults in the special education field in the West Indies. I brought in a reading I thought was interesting and pertinent from a weekly magazine (*The Nation*). I don't know if the students found the reading not interesting, not relevant, or—as I suspected at the time—too dense and wordy. Either way, this attempt at a topical theme flopped.

But I have had other experiences where topical themes have worked, as both student and teacher. In graduate classes I took with Shor for instance, Ira always comes in at the beginning of the class with stacks of photocopied articles from newspapers and journals. He'd pass the clippings around and we'd discuss their pertinence to what we'd been studying in class or what was coming up for study that day.

Unlike generative themes, topical themes often bring students to uncharted territory—uncharted by the students that is. (Actually a more apt metaphor is that of topical themes bringing the uncharted territory to the students.) Generative themes, on the other hand, add "*critical* discussion about things students already know and talk about *uncritically* every day". If I bring a graph comparing US government expenditures on the Iraq war, health care, and

education to one of my classes there will be kids in that class who had no idea the amounts of money spent on these things. They know about the war, they know about Michael Moore's film *Sicko*, and they know of schools where programs have been cut, but they haven't put it all together.

Academic themes are also introduced in class by the teacher. Academic themes are what we as students are most used to being exposed to in schools. The academic theme is "a scholastic, professional, or technical body of knowledge which the teacher wants to introduce or has to introduce as a requirement". Academic themes are structured knowledge in specific academic disciplines. Their political import may not be apparent. And any possible political significance may not be the guiding reason teachers introduce academic themes in class. Nevertheless, a creative, critical teacher can tie together academic and topical themes. For example, Jessica Klonsky (2007) uses the Iraq War to prepare her high school students in Brooklyn for the NY State Regents exam.

The question arises, can a teacher committed to critical pedagogy, to the humanization of her students, herself, and her world, can this teacher ever use the methods of a banking concept of education *against* a banking concept of education?

Can the forms and techniques of banking education be used for liberation? At one point Freire is adamant that such methods cannot be so used. Elsewhere, however, he and others draw distinctions. Lecturing, for example, would appear to be the epitome of the banking concept of education. In the Charlie-Brown animated specials Charlie's teachers are always presented as droning indecipherable *blah-blah-blah* adults whose heads are never seen. Despite such stereotypes, Freire and Shor maintain that critical lecturing is possible. "The question is the content and dynamism of the lecture, the approach to the object to be known," specifies Freire. "Does it critically reorient students to society? Does it animate their critical thinking or not?". A critical lecture should be eye-opening and thought-provoking for students where, Freire only half jokingly describes, "they listen to you as if you were singing to them!". I remember my freshman year at

Queens College, John Gerassi pacing the classroom with one hand in his shirt lecturing on US foreign policy and his experiences at *Newsweek* and the *Times*. These class sessions were *never* boring. Almost all the time they were incredibly informative and even entertaining. Critical pedagogy can make use of the lecturing format *so long as* the teacher remains critical while lecturing.

Critical pedagogy is wary of existing canons in any field. Who decided which works belong in the canon? For example, what makes the so-called *great books* great books? Who's points of view are expressed in a canon? Who's interests are served? For example, are the characters in a literary canon all upper middle class heterosexual white males? Which works aren't represented in a canon and why? For instance, in economics departments why are neoclassical approaches favored over political economy? Why has quantification trumped theory? These are all concerns of critical pedagogy. Yet canons can—and sometimes, when dictated from above in institutional settings, *must*—be used as part of a critical education. Students can approach the texts in a canon and the canon itself critically, seeking to ask and where possible answer the very questions raised above and to formulate others.

Contextual skill-development is a must for liberatory teaching. Contextual skill-development stresses that cognitive skills like reading and writing be developed through problematic study of real contexts. Reading primers with stories of Dick and Jane and Spot aren't going to be as interesting and thought-provoking to students as selections that bear on their everyday lives. Things get done in a classroom where critical pedagogy is going on. It's *not* a gripe session with the teacher airing a laundry list of societal grievances to his students. That's an abuse of the authority of the teacher in the classroom. Critical pedagogy is an approach to education that doesn't take anything (including itself) as hallowed but examines even our everyday assumptions critically with an eye to the ways any subject matters to our lives.

1.7 NEOCOLONIALISM IN TEACHERS' MOVIES

How can the relationship between teacher and student in critical pedagogy be de-scribed? Progressive education gets a rap for being permissive, as too warm and fuzzy, with teachers coddling students and wanting to be their friends. This often seems like an easy way for critics to attack the field. In fact, critical pedagogy recognizes differences between students and teachers. Perhaps the largest difference is that the teacher is an authority figure in the classroom and must use that authority in her subject area and for classroom management. We will talk below of critical pedagogy's conception of teachers and students being partners, but this partnership doesn't mitigate the responsibility of teachers as power wielders and authority figures in classrooms. The idea, as Shor and Freire make clear, is not to allow very real differences between teachers and students to become antagonistic.

In a banking concept of education these differences are exactly that, antagonistic. The banking concept of education conceives of teachers who know and students who don't, of teachers who think while students are thought about, of teachers who act and students who comply. Partnership is not possible in a banking concept of education. What is possible is a form of condescending charity, what Freire called "assistencialism."

These films often evoke neocolonial themes centering as they often do on white females teaching classes of non-white students. In *Dangerous Minds* Louanne Johnson walks into a class of students chattering loudly one to another and rap-ping. "White bread!" someone yells at her from the back of the classroom. In-stead of showing anger when an Hispanic student, Emilio (who just so happens to be the lightest skinned of the Latinos in the class), menaces her sexually — "I'll eat you," he tells his teacher — Pfeifer's character makes light of the situation, laughing and drawling on in her bad southern accent. Erin Gruwell shows up for class in *Freedom Writers* with a lesson about the rapper Tupac Shakur and the kids call her on it, "White girl gonna teach us about rap?" Instead of situating their education in generative themes drawn

from her student's lives, Gruwell introduces the class to the Jewish Holocaust, which no one in class knows anything about except the sole white kid who throughout the first third of the movie begs Gruwell at every turn to get him out of the class. "What are you doing in here that makes a goddamn difference in my life?" an Hispanic female student demands of Gruwell. The message of the film is that Gruwell is doing a heck of a lot, that it's the students who don't see it at first but eventually come around and appreciate the good intentioned, hard-working little Caucasian girl. Hilary Swank is an amazing actress, but personally I prefer her chewing her tongue off in *Million Dollar Baby* to the bright-eyed, bushy-tailed masochistic eager beaver of this film.

Even when it's not a white female teacher the neocolonial taint is often there. The director of *Lean on Me* makes sure we see that Joe Clark was a *real* radical complete with an afro in the 1960s, willing to go down for the teacher's union. In effect he does, transferred from the mostly white high school to an elementary school. During the film's opening credits *Guns and Roses'* "Welcome to the Jungle" plays as the camera shows us how Eastside High School changes once Clark leaves. We cut between graffitied hallways; a fight breaking out in school; trash strewn throughout the corridors; a girl jumped in the bathroom, her shirt torn off; drug dealers in suits visiting the high school during school hours to deliver narcotics; a gun-sale in the building; a teacher getting brutally beaten; and a student stuffed and sealed inside a locker as a security guard walks by ignoring his pleas. Of course almost all the students are non-white. Welcome to the jungle indeed.

Returning to Eastside, Clark refutes any radicalism he may have once harbored and is accused of being a race traitor by some parents at an emergency parent meeting following his expulsion of the 300 trouble makers and his demotion of the black football coach to assistant coach. "[I]f you want to help us fine," Clark tells the parents, "Sit down with your kids and make them study at night. Go get their fathers off welfare." When a student pulls a switchblade on him in the cafeteria, Principal Clarke kicks his ass and disarms him. Sometimes savages just have to be dealt with that way.

The Substitute ups the neocolonial violence as white substitute teacher Shale (Tom Berenger) beats, pummels, and blasts all the bad non-white students in his school. Shale is a mercenary filling in for his girlfriend, a teacher who has been kneecapped on the orders of Juan Lacas (singer/actor Marc Anthony), leader of the Kings of Destruction gang. "I'm in charge of this class," booms Shale. "I'm the warrior chief. I'm the merciless god of anything that stirs in my universe. Fuck with me and you will suffer my wrath." Fuck with him they do, and within the next minute of the film Shale has caught a soda can thrown at the back of his head in mid-air, pitching it back and nailing the kid who threw it in the face. He then bodily disarms another student of an ice pick. In its defense, *The Substitute* is first and foremost a B-action movie. It wasn't contending for Oscar glory as a feel-good teacher movie. The climatic nighttime battle in the school halls with bazookas and submachine guns erases any doubt as to what *The Substitute* was going for as a film.

Now, it's not that there aren't white female or white male teachers who teach classes of majority non-white students. There are plenty; teaching is still a very white profession. Are there non-white (and white for that matter) kids who act terribly in schools? Of course there are. My wife can tell you horror stories of her days teaching in the South Bronx straight from Korea. Myoungmee was a New York City teaching fellow and jumped at the first job opportunity available to her even though everyone (including me) told her not to go and teach in the South Bronx. Children are children wherever you go, she replied and despite the nobility of the sentiment Myoungmee soon found how badly behaved many of the children in her impoverished urban middle school were. Needless to say, these kids were unlike any she'd taught in South Korea. Unlike a Hollywood teacher movie, my wife didn't stick it out at that school and single-handedly turn its misbehaved children around. When one seventh grader attempted to expose himself to her the district transferred Myoungmee to a different school, a high school that was tough in its own ways but better than the middle school. Stories like my wife's and others aside, there are also studious and diligent non-white (and white) kids

who put their noses to the books, who *want* to do well and *do* do well in school.

One fault of these films is that even when they show you the environmental factors influencing these “bad” kids, the message is still that the kid has a chance to make it out of this, to bootstrap herself to proper behavior and superior academic performance. Do such things happen? Certainly. But as the drop-out and other attrition statistics attest, we lose a lot of these kids in these environments. These films are condescending and paternalistic. They often demean minorities and smack of racism, subtle or otherwise. They present problems and solutions in individualistic terms when in reality the problems we face are systemic in nature though they often manifest themselves individually. The solutions to such are collective but rarely presented as such.

1.8 TEACHER-STUDENT MUTUALITY

Whether it’s fantasizing about blowing bad students away with automatic weapons or condescending put downs like the teacher grading papers in *Dangerous Minds* remarking as he goes, “What a fuckin’ idiot. Another fuckin’ idiot,” none of this has a place in critical pedagogy or, for that matter, in any daily classroom. Critical pedagogy demands of teachers that we be confident practitioners and theorists of subject matter while at the same time remaining humble enough to know we don’t know all things, that our students are going to know things that we do not, that the path of exploration and knowledge is laid and traveled alongside our students with them and with our own teachers (whether we’re in graduate classes ourselves or keeping up with the literature on a topic). A banking concept of education cannot conceive of student–teacher mutuality, of a partnership between teacher and students.

I always like to think of Socrates in this context and where he went wrong. The oracle at Delphi told Socrates he was the wisest man of his time and he couldn’t believe it. Socrates was one of those guys who, the more he learned and knew, the more he realized he had

more to learn and know. Now, on the one hand this is something of a humble attitude and one that any scholar would do well to adopt within reason. But Socrates grew irritated with people around him, especially the well-regarded scholars and statesmen of his time who were self-assured of an ultimate knowledge he knew they lacked. Instead of keeping quiet and taking satisfaction with the thought that the gods had him pegged as the brightest cat in Athens, Socrates used his knowledge and his second-to-none skills as an interlocutor to unmask the ignorance of these supposed intelligent men, humiliating them publicly along the way. Socrates made many enemies and was eventually put to death. Refusing to flee prison when he had the chance so as not to undermine the Athenian state is another bad idea on his part, but one beyond the scope of this discussion.

Here's one way to think about the bond critical pedagogy promotes between teacher and student. Contrasting the relationship of elites to the people versus revolutionary leaders to the people, Freire explains that the leaders of revolutions "give of themselves to the thinking of the people"; that the thinking of the elite "is the thinking of the master" whereas the thinking of the revolutionary to the people is "the thinking of the comrade". This "thinking of the comrade" is the attitude teachers in the critical pedagogy tradition should have of our students. The thinking that recognizes we're all in this thing together, whether by "this thing" we mean life in general or life under structures of dehumanization like schools and economic systems and positivist science that condition and limit us. The thinking that understands we all get in our pants one leg at a time. The thinking that recognizes where you *are* I once *was* and where I am you may one day be. It's not a self-flagellating or self-deprecating mindset. It's a recognition and respect for the accomplishments that have gotten us where we are (jobs teaching, mastery of subject content, advanced degrees, etc.) and the potential of our students and ourselves to grow together as human beings and reshape the structures we all inhabit.

In this vein Freire speaks of the transcendence of the "teacher-of-the-students" and the "students-of-the-teacher" to "teacher-students" and "student-teachers." Through dialogue with his students, "the

teacher is no longer merely the one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach". There are several meanings to this. For one, teachers often come from different neighborhoods or socio-economic conditions than their students. Exploring subject matter together allows the teacher to see how it effects her students' lives, the ways it is relevant to their experiences. Maybe you're a middle class teacher in a school with mostly middle class students. Or you could be in my position, a middle class teacher in a school with many students from upper middle class and wealthy homes. When you grow up one way you quickly learn others live differently than you do. If you're middle class you realize the lifestyles of the rich and the poor both differ from yours. I remember one student in a class I was in wearing an Antigua baseball cap. "Antigua, nice island," I remarked to the kid, having spent time there as a Peace Corps volunteer. "Yeah, my family has a house there," replied the student matter of factly. He wasn't showing off or rubbing it in. Second homes on tropical islands are just a part of his life. Where I grew up only a few people had "second homes," usually time share condos in the sometimes tropical clime of South Carolina's Hilton Head or Myrtle Beach.

More likely you're a middle class teacher in a school where children come from impoverished neighborhoods and poor families. If you didn't grow up this way you might not understand things like the monthly renting of furniture and appliances, lay-away plans, and spending your tax refund check *before* you get it back. My point is our students have lives outside of the school building and these lives may be radically different than anything we can imagine.

Students can become aware of their teachers as journeymen in school and life, as ones who walked the path they are walking now *with* them *before* them. Further, certain subject matter is more often made and remade in the classroom than others. For example, the same poem or piece of literature may mean different things to the teacher and students in a class, just as the same poem or literature may mean different things at different times to the same individual at different points of his or her life. Understandably, the goal of a high school science class may not be to "rethink"

evolution in the sense of proving it or disproving it, but in a critical class-room the religious, political, and existential stakes around evolution can be studied across cultures and historical periods. The everyday classroom is the site of “mutual effort” between teacher and student.

Dialogue is key to the implementation of critical pedagogy in the everyday classroom. Dialogue implies an I–Thou relationship, mutuality between teachers and students. Dialogical education reflects an epistemological position, “the sealing together of the teacher and the students in the joint act of knowing and re-knowing the object of study”. The traditional lecture format represents a transmission of knowledge from the teacher to the students. Dialogue represents a give and take, a creation and re-creation, a process of risk and reward. Further, dialogue is an existential necessity between beings who are first and foremost social. Dialogue and the willingness of the teacher to engage in dialogue with the students bespeaks a horizontal relationship between teacher and students grounded in empathy whereas lectures and uncritical teacher-talk are mere authoritarian communiques’.

Because we are “corseted by the curriculum” much of what we introduce to students in the everyday classroom are academic themes reflecting existing knowledge and opinion on a subject. One might think the lecture format lends itself better to such an education than dialogue. To boot, dialogue is risky. It’s easier to develop a lecture on a certain subject, deliver it semester after semester, year after year, all the while honing your delivery. The amount of “stuff” teachers need to teach during a course or year is overwhelming and dialogue may seem an unaffordable extravagance. Nevertheless, dialogue is *always* possible, though it may call upon the creative powers of the teacher to determine where and how it can be used in class. That said, dialogue is not some catchy technique or tactic. Recall from our discussion of Vygotsky the ways in which language and communication contribute to our development as humans beings. Dialogue is an ontological and ontogenic *necessity*.

Dialogue reflects a democratic commitment to our fellow human beings as it occurs *between* people. It bespeaks a love of our world

and the people in it. Dialogue reveals the love “of responsible Subjects and cannot exist in a relation of domination”. Dialogue bespeaks humility on the part of its participants as no one attempts to dictate for all. Dialogue allows for the free exchange of opinions, the airing of differences, the reaching of consensus, and reflection upon action. An ethic of care stresses the need for teachers to be attentive. In part this means teachers must be active listeners who take what their students say seriously, are able to read between the lines, and hear what is not said.

In oppressive classrooms dominated by a banking concept of education a “culture of silence” prevails. In these classrooms students feel what they have to say isn’t or won’t be considered important. These are classrooms where voicing an opinion or answer that is not parroting the teacher can carry dire consequences. This may lead to the “mutism” Freire refers to where students in classrooms “denied dialogue in favor of decrees become predominantly ‘silent’”. Mutism and a culture of silence signify oppression and dehumanization in classrooms.

1.9 AUTHORITY VERSUS AUTHORITARIANISM

In the 1974 musical *Mame* (d. Saks), Lucille Ball stars as that “peculiar duck,” the eccentric Mame Dennis. When her estranged brother dies, Manhattanite Mame becomes guardian of her orphaned nephew Patrick. Mame enrolls Patrick in head-master Ralph DeVine’s “School of Life.” The school of life is everything progressive education was accused and vilified of being if it seldom actually ever was. Visiting the school for the first time, Patrick (though not his aunt) is nonplussed by the going-ons: students in various states of undress as Indians chase one another around; paint each other and depart and battle one another with toy swords; a mannequin has dress and breasts painted on; students drop water-filled bags out the window onto passersby on the street below; headmaster DeVine himself, naked, sits amongst the ruckus oblivious to the cacophony, reading a broadsheet newspaper which he uses to cover his genitals as he stands to greet

Mame and his new student. A commitment to democratic forms in our classrooms, to problem-posing education and dialogue, to teacher–student mutuality and co-exploration of themes, none of this lessens the authority of the teacher in the classroom. Let me be clear: the teacher *is* and *has to be* the authority figure in the classroom. To abrogate her authority in favor of permissiveness is a dereliction of duty. Why is this necessarily so? For one, the teacher has spent more years in school than her students and has a specialized working knowledge of one or more academic subjects. Further, the teacher must be a master of classroom management able to “lay the smack down” when necessary to create a climate where all students feel safe and where pedagogy is possible. A teacher must enforce discipline when it is required, but always in a humane way that doesn’t seek to embarrass or demean an offending student. The teacher must constantly walk the line between authority and authoritarianism and always strive to stay on the side of the former even when the temptations of the later beckon.

Where and what is the difference between authority and authoritarianism? Consider the depiction of Principal Joe Clark in *Lean on Me*. Noting that “discipline is not the enemy of enthusiasm,” Clark is clear when he scolds teachers and students that they should “forget about the way it used to be. This is not a damned democracy.” Clark refers to himself as the H-N-I-C (the head nigger in charge) at staff meetings where he chews out staff over “the task which you have failed to do—to educate our damned children” and introduces the new head of security as “my avenging angel.” When crack-smoking student Sams begs Clark to be allowed back into school after being expelled with the 300, the principal takes him up on the roof of the building and tells him, “Now I say if you want to kill yourself don’t fuck around, go ahead and do it expeditiously. Now go and jump.” Sams promises to do his best should Clark give him a second chance and Clark reluctantly does, promising Sams he’ll be looking for him to mess up, noting “you still a baby and you don’t know shit.” Nice way to talk to students, huh?

It gets better (worse). Clark takes to parading around the school halls with a bullhorn and then a baseball bat. He pulls hats from heads, publicly humiliates students including Sams (as an “example of how not to dress”) and forces students to sing the school song on the spot, telling them, “You will sing the school song upon demand or you will suffer dire consequences.” Clark berates staff in front of students, suspending the former football coach (who he’d already demoted) for picking up trash in the cafeteria after ordering that no one move, and fires the choir teacher when she stands up to him over his decision to cancel the choir’s New York City concert. The Clark portrayed in the film is an out-of-control nut, an effective but authoritarian autocrat. The film depicts formerly unruly students warming to Clark’s methods—“Mr. Clark don’t play” they say admiringly—and even the former football coach comes around to view Clark as more a force for good than bad. But just because we acquiesce to our abuse doesn’t legitimize it.

In the film Joe Clark crosses the line between authority and authoritarianism. Authority *needs* to make itself respected in our classrooms and schools. Respected does not mean *feared*, although the very Machiavellian Clark seems to think it does. Freire felt that authority is an invention of freedom that makes pedagogy possible. There wasn’t much learning going on in Paterson, New Jersey’s Eastside High School before Joe Clark took control. But were Clark and his authoritarian methods the only means of winning respect for authority and ensuring education could follow? If it seems so this is because sometimes limit situations within dehumanizing structures *make it appear* there are no alternatives. Clark’s rebuking the teachers when he first arrives in the building was way out of line. These people were part of a dysfunctional setting seemingly impervious to change on their parts. Their hands were tied by higher ups and the institutional structure. Clark came in with his fire and brimstone and bullhorn and took steps that could have (should have?) seen him dismissed. That these steps proved effective may be beside the point when one considers that once a semblance of order had been restored to Eastside Clark’s authoritarian ways continued, albeit with a slightly sweeter edge.

Authoritarianism is immoral because it denies freedom. Because of his bullheadedness over the choir teacher's daring to question him, Clark loses one of the best staff members in the school. This means that *all the kids* in Eastside lost one of the best teachers, and all the kids who come to that school lost the opportunity to study with that teacher.

Although a healthy questioning of authority is one of the skills critical pedagogy hopes students develop, such questioning that undermines legitimate authority cannot be put up with. For example, there will be times when a teacher has to say in effect, "That's enough of that," and doesn't have the time or the inclination to embark on a drawn-out discussion over the *whys* of such a decision. There are times in class where I have to tell students who pepper their speech with "nigger," "bitch," and "fag" that those are words I do not want in our classroom or school. I can't get into a debate with a student each and every time about why those words are inappropriate for our classrooms and school and how they work against everyone's feeling safe and valued. Students who want to push the issue will and should face consequences, from being asked to stay after class to talk to me to being written up to being removed from the class, all depending on the situation and how it plays out. There have been times I have had to say to a kid, "Listen, I need you to understand that I am willing to talk to you about this, but not here right now" and the student has persisted and punishment of one sort or another has followed.

Seating charts might not sound like such a big deal but they're an effective way for teachers to assert their authority. Unfortunately, my experience teaching in high school has shown me they're an effective means that is often overlooked. Seating charts are a great way of structuring your class. There are students who should not be allowed to sit near one another. They make pedagogy impossible, which means they interfere with the education of all the students in that class. These students *need* to be separated. I usually implement a seating chart after I've gotten to know the students a bit. This could be after a day or week of class, but there have also been situations where I have had to introduce a seating arrangement to a class half way through or several times

throughout the year. Students will arrive to class and as they come in the door I try to be in the hall greeting all, asking each one to find his or her seat which I have labeled with a sticky pad or index card. As a precaution, I always keep an extra copy of the seating arrangement for myself in my Squibbs ledger, because some kids will try and switch sticky pads or index cards to sit closer to someone I inevitably didn't want them next to. Maybe I've just been lucky, but having the desks labeled this way when students come into class has worked well. Aside from the student who purposefully sits where he isn't supposed to and has to be asked to move, the most student resistance I've faced on this matter is a whining "Why do we have to sit like this?" to which I reply "Do me a favor and give it a try. If I see everyone's doing what they're supposed to be doing we can adjust the seating arrangement later on. Okay?"

An easy way for teachers to assert their authority in a classroom is the manner in which they dress. My first or second semester in college when I met Tito Gerassi the guy came waltzing into class with jeans and a plaid shirt looking like the maintenance man or a dislocated lumber jack. As he started to talk some of us looked at one another, *was this our professor?* He was. Gerassi taught us (through his example) that authority and command of a subject don't have to come packaged in a Brooks Brothers suit. At the same time, that was college. I teach in a high school where it's a different story. Professional dress, whether it's a shirt and tie or a suit, marks the teacher as distinct and different from the students. Many students have been taught to respect and defer to suits and ties, so dressing accordingly for at least the first few weeks of school is a must. Then, after students have come to respect me as a person and as an authority on our subject matter, that's when the tie comes off and the short sleeves and tattoos are seen.

Another example of the difference between authority and authoritarianism manifests itself in how we address our students when some form of punishment need be meted out. If we're gloating and rubbing our hands in sadistic glee as we inform the student of the consequences of her action we're going about it the wrong way. Don't laugh—I've seen teachers write students

up, assign detentions, call in security, and sometimes they've appeared to *savor* the experience. It's not necessarily that these are sadistic people—although there have been a few. What's usually happened is the situation has escalated out of control. What started out as a student disagreeing with the teacher has exploded into a rancorous back and forth that ends when the teacher flexes those authority muscles for everyone to see. By this point the teacher is usually frustrated and fed up and feeling vindictive and maybe even spiteful. Some teachers feel bad afterwards for harboring such emotions. Other teachers will try and blame the whole thing on the student, re-creating the situation when describing what happened, conveniently blind to what actually transpired.

I've let myself be sucked into these situations a few times in the past and they're *never* pretty. Again, we're there to be *with* the students, to help them help them-selves and help ourselves along the way. Bitter arguments and vindictive punishment kills the spirit of mutuality. Try not to get into arguments with your students. You never win. Even when you have the last word, or the kid shuts up/gets detention/gets suspended, how do you feel? The times it has happened to me I've felt bad. Am I a big man because I can win an argument against a middle or high school kid?

That said, there will be times when you will have to tell students to stop doing something. The extreme examples are when they're posing a threat to them-selves or other students or when their disruptions are such that they are making pedagogy impossible. Almost always, however, these situations don't just present themselves full-blown. They start out small and escalate. A good teacher, like a good parent or spouse or friend, will see what's coming and work to head it off.

One way I try to do this is by offering students choices. Let's face it, when you *tell* someone not to do something they're going to think about doing it to spite you. If you're ordering a kid not to do something in a classroom setting where he's surrounded by his classmates, he isn't going to want to lose face. Standing up to the teacher and taking his lumps may even increase his cachet in that class. So, instead of ordering and demanding students do something I want, I usually try and dress it up as a couple

of different choices, steering the kid to do what I want while allowing her to save face and look like it was her decision. Instead of ordering a student to change her seat *or else*, try saying to her, "Okay, look, you've got a couple of things you can do here. You can change your seat because you can't sit there, you're being too disruptive, or I'm going to have to make a phone call home today that I really don't want to have to make." This example will not work in every situation obviously. You may get a kid who refuses, no matter how you present it, to move her seat. But I'm 100% certain you'll be more successful in getting what you want done if you present it as a choice to the student instead of commanding it.

Another strategy I've used that has proven effective is to throw it back at the student in the context of their peers and make them want to do what I'm asking rather than look bad to their fellow students. So, for example, I might ask Johnny to turn down or turn off his iPod (if they're working individually personal stereos and the like don't bother me) so that others aren't distracted. Johnny sees it as a choice then. Do what I'm politely asking him to do, which will make it look like he's doing the right thing, or continue to blast his iPod, impinging on the education of his fellow students, which makes him look like a jerk. I've also phrased my re-quests so they look like personal favors, like the kid is being noble in granting *me* something. This puts them in the position of looking bad if they *don't* follow suit. I don't think I am being manipulative. I think I am being creative in avoiding conflict and getting something done that is best for the student and the class. I'm going to draw a paycheck every 2 weeks either way it goes.

1.10 CONSCIENTIZATION AND CONSCIOUSNESS

Part of the goal of the teacher–student relationship is to model democracy. Participatory in form, democracy acknowledges the place for expertise while respecting everyone's right to a voice. Dialogue between teachers and students is part of the democratic form we wish to model for our students. Only through dialogue and critical thought will our students and ourselves arrive at

conscientization. Conscientization “represents the *development* of the awakening of critical awareness”. Conscientization differs from consciousness. Human beings are conscious but only critical reflection and action allow for conscientization.

Freire distinguishes between three levels of consciousness. The intransitive consciousness lacks structural perception and is not able to objectify the conditions of its existence. Many of the fatalistic perceptions of reality (e.g., “that’s just the way it is,” “God wants it to be this way”) stem from an intransitive consciousness. The intransitive consciousness attributes phenomena outside of objective reality to a supernatural cause or something that inheres within the self. “I’m just not good at school” or “I’m not very smart” are refrains of the intransitive consciousness. This is a consciousness of inaction, a “static condition of fatalism which rejects human agency” as the person of this consciousness reflects on his own perceived shortcomings or placating the supernatural entities he feels responsible for his lot in life. A culture of silence tends to mark classrooms and societies where the intransitive consciousness holds sway. The intransitive consciousness gets up and goes to work or school every morning, throwing up her hands in the face of seemingly inexplicable adversity, hoping for the best or at least for as little suffering as possible.

A second level of consciousness discussed by Freire is the naive transitive or semi-intransitive consciousness. This is also a dominated consciousness but one that has some recognition of the external forces behind its domination. This is the kid who goes to school in a poor neighborhood and knows because his school is in a poor neighborhood he’s receiving an education markedly different from his more affluent peers elsewhere. However, divorced from action that seeks to change objective structures of dehumanization, the naive transitive consciousness can be an extremely frustrating position to be in. When Louanne Johnson’s students in *Dangerous Minds* ask her who’s footing the bill for their amusement park trip and she lies to them, knowing *she* will pay but telling them the board of education is, one student asks, “Since when has the board of education done anything for us?”

The naive transitive consciousness may be cynical, but it is not critical. Naive transitive consciousness views causality as a static fact, not recognizing that the cause of something today may not be its cause tomorrow. If causality is an unchanging fact of life, action to transform reality is ultimately futile. As Shor describes it, such consciousness “is one-dimensional, short-term thinking that leads to acting on an isolated problem, ignoring root causes and long-term solutions, and often creating other problems because the social system underlying a problem is not addressed”.

Freire hoped that through a critical pedagogy based on dialogue and a problem-posing education, students would achieve conscientization. Critical consciousness allows students to “better able . . . see any subject as a thing in itself whose parts influence each other, as something related to and conditioned by other dimensions in the curriculum and society, as something with a historical context, and as some-thing related to the students’ personal context”. Such “critical consciousness” is aware of the structural inequalities that condition our lives, implying “the critical insertion of the conscientized person into a demythologized reality”. Such a consciousness refuses to fatalistically accept the finality of these structures, recognizing that these structures, *made*, can be *remade*. Critical consciousness represents the fruition of individual agency, although the individual knows her actions alone cannot reconstitute reality that her actions must be in accord with those of others.

I know if you’re preparing to walk into a math or social studies class this sounds kind of “heavy.” It may, on the surface, appear to have little to do with what goes on in our classrooms. But truthfully it has everything to do with what we do in our classrooms. To return briefly to a discussion of philosophy, the ontology of critical pedagogy sees the self and society as creating and re-creating each other. We are in and with the world. Unlike other animals, we are capable of objectifying our world and our place in it, of critically examining it in the service of transformation. Our aspirations, our motives, and our objectives are embodied. As such, they’re as historical as we are. In other words, the hopes and objects we have differ from individual to individual from time to time. We are

because we are born into situations. But we are always unfinished beings capable of socialization to more.

The implications of this for our classroom are such: unfinished, capable of greater humanization, we and our students need to understand reality and our places in it. We need to critically comprehend the systemic and structural relationships that infringe on this humanization and collectively dream and pursue alternative humanizing relationships. In our classrooms this means we accord dignity and respect to our students and we expect it of them for each other and for ourselves. Through our actions and discipline we model democratic forms, making it clear that our classrooms—no matter what the subject matter taught therein—are safe places of growth and transformation. Critical teachers must every day strive to balance authority with humaneness and professional competence with humility.

1.11 CRITICAL PEDAGOGY AND MATH

In my experience as both student and teacher there seems no other subject that perplexes those in schools the way math does. Those who *get it* *get it* while those who don't often view math as worse than any foreign language with none of the allure. I'd like to discuss a few ways where mathematics education goes wrong and then look at how teachers working in the critical pedagogy tradition can and have taught the subject.

A major problem with math education in the everyday classroom is the manner in which math is approached. Instead of exploring the underlying ideas and patterns of mathematics, the subject is taught as a form of mere puzzle-solving. A student approaches a problem, figures out what kind of problem it is, decides what skill in her repertoire of math facts and formulas is applicable, applies such, and gets an answer. For example, a student reads a problem on a test about a light pole placed 10 feet from a wall on a street and if they recognize the puzzle they go "Ah, the Pythagorean Theorem" and plug in the numbers they have. Some students don't get past step one. They don't know what the problem is

asking them to do. That was my problem with math in school. Day by day I'd do well in math class, but when I sat down for a test by myself and had to figure how to solve a problem, had to discern what it involved, I'd get stuck. My mind would draw a blank. It isn't that math *doesn't* involve solving problems and puzzles, it does, but there is much more to mathematics than this capacity which schools seem to dwell on.

Bob Peterson blames mathematics education in the United States for "number-numbness in students." Number-numbness is marked by "rote calculations, drill and practice ad nauseum, endless reams of worksheets, and a fetish for the 'right answer' ". The back-to-basics movement promotes a form of mathematics instruction that results in this number-numbness, with advocates decrying students' inability to memorize multiplication tables. Back-to-basics supporters often deride as "fuzzy mathematics" approaches that do not emphasize rote memorization of facts and skills. They paint a biased picture of "the new math," *any* new math, as one in which "children learn what they want to learn when they're ready to learn it". This criticism of mathematics instruction resembles criticisms of "whole language" instruction in reading as it is often the same people and organizations leveling these arguments.

The back-to-basics folks often look to Asia for inspiration, deriding American schoolchildren, teachers, and mathematics education in favor of the Japanese way or the "Singapore style". Their criticisms usually mask a conservative agenda, a regressive, domesticating ideology. Knowing your multiplication tables is a great thing, but that's what they make calculators for. While we should encourage students to have a grasp of things like the multiplication tables, we shouldn't penalize them for not. Calculators and similar tools are there so we can get beyond the basics and into the deeper stuff. Sometimes students don't master their basic math facts because they did not study and were not encouraged to do so at home. Other times organic reasons interfere with the rote memorization of facts. Whatever the cause, by the time a student reaches high school, shouldn't we stop beating him up and provide him with the tools so he can continue to pursue higher mathematics? Though I

can add and subtract with facility I use a calculator to balance my checkbook so I can spend more time doing other things in life. I also regularly use my fingers when I count aloud or in my head and I am not ashamed to admit it.

Mathematics is a subject that is usually segregated in schools today. Students learn math in math classes. describes several of the undesirable messages this conveys. Students learn that math does not matter unless you're concerned with success in math classes or becoming a mathematician or someone else who needs math for their work. Segregating math in math class results in math being divorced in student's minds from their social realities. Math becomes an abstract endeavor. It appears we don't use math in our everyday lives, that math isn't at play all around us at all times. And if students see math this way and can't use math in their daily lives that's one less cultural tool that can help them participate fully in their societies, one less tool that can help humanize them.

1.12 CRITICAL MULTICULTURALISM IN THE EVERYDAY CLASSROOM

Governments *should* be responsive to the needs of their people. To some extent democratic governments *have* to be. But to the extent that it is responsive to the needs of its people the US government reflects the interests of some citizens more than others. Institutions like schools mirror this responsiveness in the fact of "white privilege," Ruth Anne Olson differentiates privilege from prejudice and defines privilege as a "passive advantage that *accrues* to an individual or group". Olson provides numerous ways white privilege benefits white students in schools even when they are not aware of it. For example, when white students pick a topic of study they're going to find resources that link white people to accomplishments in that field; white students can expect to open textbooks and look upon classroom posters and decorations and movies that feature white faces; white kids know that "flesh"-colored crayons, paints, and bandages are the color of *their* skin; white kids never have to listen to school critics complain

that problems of a school are due to the large number of white students in it.

Racism and sexism are in the English language we encounter in the everyday classroom. Enid Lee describes how universal concepts are affixed positive and negative connotations corresponding to race and gender. Thus shepherd in the Scottish hills live in "cottages" whereas African villagers live in "huts," when cottages and huts are pretty much both the same things, small dwellings. Europeans and Americans have "religion" but Africans and Asians and others have "superstitions." Male executives who are forceful are "assertive" and confident whereas forceful female executives are "aggressive" and bitchy. We refer to the United States as a *developed* nation, an adjective that "paints pictures of a social or economic process that is somehow complete," whereas *developing* and *underdeveloped* "implies only a deficit status". Teachers and students use these words and make these distinctions without realizing it. It just seems "natural" to refer to a peasant Irish dwelling as a cottage in a developed first-world town and a Zimbabwean dwelling as a hut in a village in an underdeveloped third-world country. But this kind of language use reinforces racism and stereotypes, validating some at the expense of others.

Power plays itself out in the everyday classroom in the forms of the language allowable there. "Standard" English is privileged as "proper" or "correct English" over "black English" and other non-standard forms of the tongue. College-tracked foreign language education classes enjoy a status and respect bilingual education classes do not.

Critical pedagogy in social studies and language arts classes should work to deconstruct texts and textbooks, with a text understood as "any entity open to analysis and interpretation". For instance, language is a text, films and TV shows and commercials are texts, accepted canons in English and other classes are texts, and the layout and seating arrangement of a classroom is a text. Students can be encouraged to think about the words they use and the meanings behind those words. Ask students which word they would use to describe the simple clothing of an American woman, *clothing* or *costume*. Then ask them which word would be used to

describe the simple clothing of an Indian woman. Any guess what they'll say? Discuss with them why they think the words used are attributed to the ethnicities they are. What does this say about the power of language to name and portray? Why is it so unnatural for us to describe an American woman's dress as a "costume"? When American women wear "costumes" they do so for dramas and pageants, to represent someone they are not or some time long ago. When Indian or African or Asian women wear "costumes" they're wearing the clothes of their contemporary lives, clothes that define who they are now. Language is never neutral.

We mentioned earlier how canons in a field can be critically examined with an eye to who and what is included, who is excluded and why. Critical pedagogy also examines the texts of students' lives and the everyday classroom to uncover privilege. What does it mean that heroic characters in Japanese anime have very Euro-American features including round eyes and light skin? What message does it send when the good guys in Disney movies sound like white people even when characters like *Aladdin* are not white or Simba *The Lion King* is not human and the bad guys in these films speak with heavily accented English? What do little boys and girls learn when their parents lie to them about Santa Claus and the tooth fairy and they read fairy tales and watch cartoons where women wait around looking pretty for royalty (usually a prince) to arrive? How do school mascots with names like the Redskins, Braves, and Red Storm effect students' thinking about Indians? How would they and their communities feel if their school team was the "fighting whities"? Why is the idea of the "fighting whities" so absurd to us but the Washington Redskins and Atlanta Braves don't strike us so? When cartoons and movies like *Pocahontas* and *The Patriot* take history and historical figures and re-write and revise them for entertainment purposes how might this effect children's historical literacy? What effect does it have on a non-white child's self-esteem and self-image when all her dolls are white?

A critical multiculturalism needs to be part of social studies and language arts classes. Unlike other forms of multiculturalism, critical multiculturalism goes beyond paying lip service to non-

dominant cultures and ethnicities in throwing these cultures a sop. Black history isn't relegated to February in a critical multiculturalism, nor women's history to March. Critical multiculturalism "is concerned with the contextualization of what gives rise to race, class and gender inequalities" and champions "equality and democracy in the economic sphere of society" as in all others. Critical multiculturalism asks students to study the ways power in the classroom and society shapes their consciousness. When other forms of multiculturalism study black contributions to American history or literature, it often seems for white students that blacks are being separated out for special consideration and treatment, much the same way—not incidentally—that these white students and their families often view affirmative action programs. A critical multiculturalism helps these students see that such a separation is only cognizable against the totality of an all-encompassing white privilege. This broad backdrop is examined as the power evasion it is. Critically studying it helps these students understand that white privilege even serves white people differently. Working class white folks like my grandmother who grew up in Queens saying "terlet" for "toilet" speak a different dialect and live different lives than the Astors.

Multiculturalism as it is practiced in the everyday classroom today is largely a self-serving failure. It's self-serving in that it allows staff and community members who consider themselves "liberal" to feel good about themselves by not excluding blacks, Hispanics, women, and other minority groups in American society. It looks inclusive in fact. But it's a failure for two reasons. For one it marks minority groups out for distinctions and honors that often backfire and feed into racist resentment. Secondly, such multiculturalism fails to bridge the gap between minorities and the dominant culture, leaving students unaware of the systemic nature of oppression and the ways we all suffer in different kind and measure. In short, multiculturalism as it is usually implemented often makes it look like white people have it made and everyone else doesn't. Try asking a working class or poor white kid to swallow this. Are we asking him to assume white guilt?

A critical multiculturalism exposes power at work. It not only shines

a light on any privilege accompanying race and gender but also critically examines class relationships. A critical multiculturalism teaches Mumia Abu Jamal alongside Leonard Peltier and Sacco and Venzetti and makes explicit that these are all examples of oppression and domination.

Just as critical multiculturalism seeks to expose the ways dominant culture shapes the discourse of our everyday lives, it does not hesitate to expose and condemn features of other cultures that are dehumanizing. For example, female genital mutilation (sometimes discussed under the euphemism female circumcision) is denounced for what it is, a barbaric practice, a crime against women and humanity. Arranged marriages and the forced veiling of women and girls among immigrant groups are exposed as limitations on personal autonomy. Critical multiculturalism looks to other cultures for inspiration where it is deserved but does not unquestioningly reify other cultures. A critical multiculturalism recognizes there is much in the American social tradition to be lauded and looks to expand these positives while addressing and correcting the negatives.

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CHAPTER 2

CRITICAL PEDAGOGY FOR PHYSICAL SCIENCE

INTRODUCTION

The teaching of physical science employs a number of strategies. We define teaching strategy as “a generalized plan for a lesson which includes structure, desired learning behavior in terms of the goals of instruction and an outline of planned tactics necessary to implement the strategy”. A physical science teacher can adopt several methods, techniques and models as teaching strategies.

2.1 METHODS OF TEACHING

The method of teaching refers to regular ways or orderly procedure employed by the teacher in guiding pupils in order to accomplish the objectives of learning situations. In other words, method is a series of related and progressive acts performed by the teacher and pupils to accomplish the general and specific aims of a lesson. In the teaching of science, method refers to the transaction of scientific knowledge and skills by the teacher to students so that they can use them further.

There are several methods for teaching physical science. These methods have been classified into different categories such as oral methods, observation methods and practical methods. It is possible to classify method by referring to educational philosophies. There are several other classifications such as individualized methods and group methods, child-centered methods and teacher-centered methods. A classification system helps the teacher to be aware of his/her line of action in the teaching learning process.

There is a huge body of research literature available on the effectiveness of teaching methods. However, it is very difficult to single out one method as the best that will prove equally successful with every teacher, classroom and content area. The choice of a method is important taking into account the pupil, the content area, the facilities available in the school and more importantly what objectives the teacher is trying to achieve through instruction. A strong knowledge base of the content area is not a guarantee that the teacher will be successful in the process of teaching. Therefore, every science teacher should know the various methodological possibilities and their limitations.

A few important methods are given as follows:

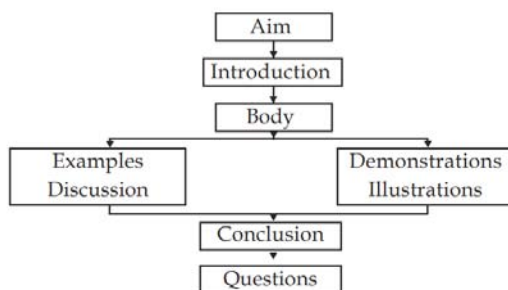
2.1.1 Lecture method

Lecture method is one of the oldest and most basic pedagogic tool. It is mostly a teacher-centered and expository method involving

one-way communication and transmitting a good quantum of knowledge or subject matter to a large number of individuals.

In this method, the teacher delivers the content to be studied while the pupils listen. In our classroom teaching, the lecture method dominates largely since the teachers have been using this method for years. It is convenient for the teacher, as no practical preparation is needed. According to James Michael Lee, “the lecture is a pedagogical method whereby the teacher formally delivers a carefully planned expository address on some particular topic or problem”.

In lecture method, the teacher is the only active participant and the pupils are passive listeners. They are spoon-fed and their power of observation and reasoning, the exercise of which are so essential in the learning process are not stimulated. However, a teacher can use the lecture very effectively by suitably organizing the content to be presented. Mohan presents a schematic organization of a good lecture.



Characteristics of a good lecture

There are following characteristics associated with good lecturing:

1. An enthusiastic presenter who is well organized, challenging and clear in his/her presentation
2. The presentation includes an overview, logical organization and closure
3. The organization of the lecture is made explicit to the audience such that they understand the relationship between the various components and parts

4. Verbal and visual clues are provided to emphasize and smooth transitions between elements of the lecture
5. Attention is maintained through appropriate anecdotes, physical activity, humor and especially enthusiasm for the topic
6. The audience is challenged to become intellectually involved with the topic being presented

How to make lecture effective

With a view to make the lecture method more effective, lecturers should consider the following guidelines meant for necessary activities at three distinctive phases.

That is

- preparation
- presentation and
- evaluation

1. Preparation

The first step in the process of preparing the lecture is to define the objectives in clear and specific terms. The lecturer should be able to answer the four basic questions:

- (1) Who is your audience?
- (2) What is the purpose of your talk?
- (3) What is the time available? and
- (4) What is the subject matter?

The lecturer should be clear about the nature of audience or the students, their background, needs, interests and so on. He should know the duration of the period that his lecture will be delivered. He should also prepare sufficient subject matter or teaching points for dealing with the students. It is advisable to develop a synopsis of the lecture giving the important teaching points at various steps along with a list of reference materials.

This can be done by using the following structure –

- (a) introduction,
- (b) body of the talk, and
- (c) conclusion.

Relevant audio visual aids can be thought of while preparing, and adequate preparation for their use in right time and place be made earlier to presentation.

2. Presentation

The written word can only be of limited help when it comes to advise on speaking technique. What is needed is constructive criticism.

Some of the essential points to keep in mind are set forth as follows:

- setting the scene
- covering the material
- time for questions at the end
- finish on time
- good posture
- proper gestures
- fine appearance
- suitable manner
- courteousness
- sincerity
- voice and tone modulation
- vocabulary

3. Evaluation

Evaluation can be done throughout the process of lecturing; it will help the lecturer understand whether the ideas being presented are properly conveyed. S/he can get informal feedbacks from the eyes of the audience. Proper questions and feedbacks obtained through

evaluation can help the lecturer to be on track and improve upon the methods and techniques followed. S/he can develop a preform or a small questionnaire for formal evaluation by collecting views of reaction of the students on the lecture. Evaluation can also be done more systematically with the help of a tape recorder or video recorder as in microteaching.

Merits of lecture method

1. The method is economic
2. The method helps the teacher to cover a lengthy syllabus within a short period of time
3. The method is concise and the teacher always feels secure and satisfied with his/her progress
4. The method is useful in special situations like following:
 - While introducing a topic
 - While summarizing the subject matter
 - While giving instruction before performing an experiment in the laboratory
 - While explaining complicated and difficult experiments
 - While giving historical accounts of scientific events, scientific discoveries and inventions
 - While describing the life of great scientists and their achievements

Demerits of lecture method

1. The method is against the principle of learning by doing
2. It does not provide training in scientific method
3. There is no assurance for the teacher whether the students have understood what he/she had taught in the class
4. This method presupposes a class of intelligent pupils who can understand and grasp the lecture with the same speed as they are delivered by the teacher. This is practically impossible in our circumstances

2.1.2 Demonstration Method

Demonstration is a method, designed to show or illustrate a procedure, process, or phenomenon. In demonstration method, the teacher demonstrates and illustrates certain fundamental phenomena and the application of various principles. A demonstration should not be confused with an experiment because in a demonstration the various variables impinging on the phenomena are not rigidly controlled and varied.

Demonstration means 'to show'. For example, showing the setting up of an apparatus, the various properties of substances, electrolysis of water, the working of models, etc., can be included in demonstration. This method is in accordance with the maxim of learning - from concrete to abstract. Successful demonstration in the hands of a teacher provides first-hand experience to his/her pupils and through them, s/he can link his/her lessons to major ideas, principles, theories, etc. Demonstration can be best used as a motivating device while introducing a lesson. The demonstration method is usually employed when the apparatus is costly and sensitive and there is chance of damage if allowed to be handled by the pupils.

Functions of demonstrations

Through careful selection, planning and execution of various types of demonstrations, a teacher can achieve the following purposes in the teaching-learning process:

1. The teacher can introduce experiences unknown to the children, which can become a starting point for their thinking
2. The teacher can provide worthwhile, rich and significant learning experiences through which the learner can improve the powers of observation and reasoning
3. The teacher can illustrate an abstract idea
4. The teacher can provide concrete experiences for solving a problem

Characteristics of a good demonstration

1. A demonstration should be visible in most of its significant detail to all the members of the class
2. A demonstration should show only one major idea at a time
3. The demonstration should be striking, clear-cut and convincing
4. The aim and purpose of demonstration must be clear to the teacher and the learner
5. The apparatus for demonstration should be arranged in the proper order

Requisites of a good demonstration

1. A good lecture-cum-demonstration room is necessary in which the demonstration table should be visible to all students
2. A good black board for writing important facts and drawing diagrams should be provided
3. Thought-provoking questions should be asked while demonstration is in progress
4. The teacher should be well-versed in the handling of the apparatus

Guidance for demonstration

Demonstration is a means for the pupil to see how certain things are done. It is important that the teacher should prepare for the demonstration to make it effective. Novice and experienced teachers will need to practice the demonstration.

The important guidelines for demonstration are listed as follows:

1. Remember that the teacher is the chief actor in a demonstration

2. Every step should be planned in advance with necessary checklist of items and materials needed
Rehearse the demonstration to understand the possible limitations and deviations which are not usually dealt in theory books
4. During demonstrations, it is desirable to outline the steps on the black board
5. The demonstrations should be made simple, assuming the appropriate pre-requisites of the students
6. Do not deviate from the main idea while explanations are given. The explanation in a classroom situation should be addressed to the whole class and not to a single student
7. Make sure that the demonstration is being followed by the students (through questions)
8. Make sure that every member of the class sees the demonstration for which class rearrangement or change in seating arrangement may become necessary
9. Do not hurry through the demonstration. Too much of practice and rehearsal may speed up the demonstration to give the effect of a magic show
10. Do not drag out the demonstration. Unnecessary delay in carrying out the demonstration will adversely affect the demonstration.

Merits of demonstration method

1. It is economical in terms of time and expenditure
2. Pupils see actual things and this helps to retain in the memory what they have seen
3. Helps to develop scientific attitude among pupils
4. This method is appropriate for experiments involving hazardous chemicals/costly apparatus

Demerits of demonstration method

1. This method is teacher-centered in which the students are passive listeners
2. There is no scope for developing practical skills as the teacher alone performs the experiment in this method
3. This method does not cater individual differences
4. There is no scope for 'learning by doing' in this method

2.1.3 Lecture-demonstration Method

Lecture-demonstration method is a great improvement over lecture method and demonstration method. In this method, in addition to lecturing, the teacher provides some concrete experiences by performing certain experiments or by demonstrating some models.

In the lecture method, the medium of instruction is verbal whereas, in the lecture-demonstration method, there are chances for pupils to observe and draw inferences. The spoken facts and principles are supplemented and reinforced by a series of activities by the teacher and these enable pupils to understand those items more clearly. It is a multi-sensory approach and this method was described as the official method in our schools.

Besides experiments, pictures, diagrams, charts, models, slides, etc., may also be used as illustrative materials, which will help to arouse interest in pupils and make the teaching impressive. Teaching by this method has been shown to be as valuable as those of the laboratory method. However, the method demands careful preparation and judicious presentation on the part of the teacher not only in what s/he has to say but also in what s/he has to do.

Merits of lecture-demonstration method

1. Multi-sensory approach is followed in this method
2. The method is often as good as the laboratory method

3. It is economical when compared to individual laboratory work
4. The important maxims of teaching such as proceed from known to unknown, simple to complex, concrete to abstract and analysis to synthesis are followed in this method

Demerits

1. Pupils do not participate actively
2. No scope for learning by doing
3. The desirable practical skills are not developed
4. It is impossible to demonstrate certain theoretical topics

2.1.4 Historical Method

In this method, the topic is developed from its very beginning and carried through various stages of evolution. Science has its own theory and every invention or discovery has its own historical background. The children feel very much interested and fascinated in listening to the stories and the teacher can introduce his talk with an interesting story. The credit for developing the historical method may be attributed to J. B. Conant of the Harvard Graduate School of Education during 1950s.

This method is particularly suited to teach scientific theories. Holmyard opined that this method is the only method, which will effectively produce all the desirable results of teaching chemistry. It is highly instructive to let the child see how one hypothesis is replaced by another in the light of newly discovered facts. For example, the gradual development of atomic theory can be unfolded in an interesting way if the historical method is followed.

Historical approaches in the teaching of science can be classified into two:

- (1) biographical or anecdotal and

(2) recapitulatory.

In the first type, that is in biographical or anecdotal approach interesting biographical details and accounts of important incidents relevant to a particular discovery are included in the lesson material at the appropriate place. The emphasis on the events and stories related to the discoveries could be an important corrective to the frequently held erroneous view that science is an impersonal study with no human interest. For example, Archimedes and his bath, Newton and the apple, Kekule and his dream of snake, etc., will always appeal to pupils and may be made the means of arousing interest.

In the second that is in recapitulatory approach the order of presentation is retracing of the historical developments. The young pupils resemble the discoverer in being in the beginning of a journey. Therefore, it is more appropriate to conduct him/her along the road followed by the original discoverer. It will emphasize the tentative nature of all scientific theories and the need for constant modification in the face of newly discovered facts. By treating the work historically, whereby encountering changed views (and discarding theories) a beginner is less likely to believe that the latest theory represents absolute truth.

Merits of historical method

1. This method is in accordance with child's point of views
2. This method develops in pupils a positive attitude towards science
3. Science has the romance of its own. The striving of the human spirit revealed in the investigation of great scientists has a lasting effect on the learner
4. In many cases, the historical order of events shows how the attempts to meet practical needs have given rise to theoretical considerations. This mode of treatment is particularly beneficial to pupils
5. The historical method helps the students to understand the dynamic nature of science

Demerits of historical Method

1. This method is time consuming
2. The pupils may lose sight of the fundamentals in the huge mass of irrelevant details taught by this method
3. The modern pupil has a large stock of scientific information, which makes it impossible to place him/her at the position of the original investigator. Difficulties encountered by the scientists of early days may not appear as such to the present day school children. Hence, in many cases the historical treatment is not suitable for them.

2.1.5 Heuristic Method

The word 'heuristic' is derived from the Greek word 'heurisko', which means 'serving to discover' (I found out). Henry Edward Armstrong of the Imperial College, London, developed this method. According to Armstrong, the real purpose of science is original investigation and discovery. Therefore, the pupil must be put in the position of an investigator to discover the principles of science for himself/herself. Armstrong defined the heuristic method of science as "those methods which involve our placing of students as far as possible in the attitude of the discoverer, methods which involve their finding out instead of being merely told about things". Science is a practical subject and this method advocates the correct way of learning as 'by doing.'

Principles of heuristic method

Joseph listed the following principles underlying heuristic method:

1. Principle of activity
2. Principle of logical thinking
3. Principle of proceeding from the known to the unknown
4. Principle of purposeful experience

5. Principle of self-thinking and self-study

Procedure

The student is required to solve a number of problems experimentally. Each student is given an instruction sheet and is required to perform a number of experiments pertaining to the problem. The instruction is made as simple as possible. The pupil performs the experiments with a bit of guidance from the teacher and keeps a record of the observations. S/he has to draw conclusions himself/herself and work out their bearings on the problem at hand. Thus, s/he is led to reason from observation.

The heuristic method demands discovery rather than dogma; mental and physical activity on the part of the student in place of passive receptivity. Westaway commented about the heuristic method - - "Essentially, therefore, the heuristic method is intended to provide a training in method; knowledge is a secondary consideration altogether". The method emphasizes the learning process and discourages the stuffing of pupils' minds with facts and principles. All the steps in problem solving, viz., identifying the problem, formulating a hypothesis, collecting data, testing the hypothesis and verification have received adequate weightage in heuristic method.

Merits of heuristic method

1. This method is based on the principle of learning by doing
2. This method provides for proper training in the method of investigation
3. Learning becomes free and spontaneous since students attack problem, without any external restraints
4. This method develops scientific interest and attitude in pupils
5. This method helps to develop self-confidence, self-reliance and perseverance

Demerits of heuristic method

1. This method demands an exceptionally brilliant teacher, a very small class size and a well-equipped laboratory and library which are not usually realized in practice
2. It is too expensive to be adopted in schools
3. Pupils do not get the benefit of others' experience as Issac Newton once observed - - "If I have seen farther than Descartes, it is by standing on the shoulders of giants"
4. Most students are neither capable of any original investigation nor they have the necessary ability and required knowledge to design and perform original experiments

2.1.6 Problem Method

The adoption of some of the desirable elements of heuristic method has led to the development of problem method. It differs from the heuristic method in that the problem is found and solved by the class as a group under the leadership of the teacher. The method is designed to give each pupil a thorough training in scientific method of solving problem. "Problem method enjoys the highest prestige as compared with other methods of science teaching amongst science teachers all over the world".

We have defined problem solving in different ways. Problem solving can be defined as "the process of raising a problem in the minds of students in such a way as to stimulate purposeful reflective thinking leading to a rational solution." "It is a planned attack upon a difficulty or perplexity for the purpose of finding a solution." Students should be frequently confronted with scientific problems, for they provoke thinking and test the quality of the concepts formed during teaching.

Problem method involves the following stages:

- (1) identifying the problem
- (2) collecting data

- (3) formulating a hypothesis
- (4) testing the hypothesis
- (5) verification

Procedure

As thinking originates in a recognized perplexity, so to teach each unit we must start with a problematic situation. The ideal is to have the problem raised spontaneously in the minds of pupils as a logical need brought about by a discussion. The teacher should select situations containing such problems and initiate discussion in order to stimulate curiosity. Subsequently this must challenge the intellect of the students to attempt a solution. The problematic situation should be clearly understood by the pupils and the solution must appear worthwhile and desirable. Generally, pupils' interests or experiences should be mobilized to provide suitable problematic situations.

Teacher's role in the problem solving method is very important, s/he has to set up an atmosphere of freedom and help so as to develop in the student an attitude of open mindedness, critical inquiry and attitude of respect for others point of view. S/he has to eliminate bias and encourage wide reading.

Merits of problem method

1. This method develops the capacities of planning, thinking, reasoning, critical enquiry and initiative
2. This method arouses a natural interest in solving problems
3. This method helps in organizing and integrating knowledge and experience
4. This method instils in the learner the social values such as cooperation

Demerits of problem method

1. This method is not suitable for topics that are descriptive in nature
2. In this method, the individual differences do not receive adequate attention

2.1.7 Project Method

Project method originated as a revolt against the old system of education, which imposed the needs and interests of the adults on the child and considered the child a passive entity. Kilpatrick and Stevenson are the proponents of this method. According to W. H. Kilpatrick, "a project is a whole-hearted purposeful activity proceeding in a social environment." J. A. Stevenson defines it as "a problematic act carried to completion in its natural setting." Ballard defines project method as "a bit of real life that has been imported into the school".

As education is closely related to life, this method prepares students for real life through "learning by doing". Such learning is real, meaningful, permanent and applicable. As students take interest and initiative in projects their whole-hearted co-operation and effort can easily be ensured.

Joseph listed the following basic principles of the project method:

1. The principle of purpose
2. The principle of activity
3. The principle of reality
4. The principle of freedom
5. The principle of utility

The following are the major steps of the project method:

- (1) Providing a situation
- (2) Proposing the project
- (3) Planning

- (4) Execution
- (5) Evaluation
- (6) Recording

Each step is detailed as follows:

1. Providing a situation

The teacher should provide situations wherein the pupils feel a spontaneous urge to carry out a particular project. A field trip, news, an article, a video-clipping or any such exposure can help in providing a situation.

2. Proposing the project

In proposing a project, interests, attitudes and abilities of the students should be taken into account. To facilitate the process of proposing a project, formal and informal discussions with students based on a topic will be necessary. The project should be acceptable to all students. The resources in the locality are of prime importance in the selection of a project.

3. Planning

The students have to plan out the details of the project regarding different materials needed, number of groups to be formed, availability of books, resource persons to be contacted, time allotment to each group, nature of the final product, total time needed, equipment available and such details necessary in each project.

4. Execution

This is the most important and long step in the project method. At this stage, the teacher as well as pupils should be careful, since there may be several problems that they may have to face, which were not anticipated at the planning stage. The teacher should

guide, encourage and monitor the progress of the project and should give instructions if necessary.

5. Evaluation

After the project has been completed, it is essential to review the whole work, find out the mistakes if any, and suggest improvements. The students must get opportunity to report their own failures and findings.

6. Recording

The students should keep a complete record of the different steps of the whole project.

There can be different kinds of projects. The following type of projects has been suggested by Kilpatrick. They are:

- (1) producer type
- (2) consumer type
- (3) problem type
- (4) drill type.

According to Prasad (2004), following types of projects can be done by secondary school students:

- (1) observation project
- (2) constructive project
- (3) experimental project
- (4) survey project (5) research project
- (6) scientific investigation project.

A science project can be any enriching science experience. Science projects develop research attitudes, which many result in discoveries. Some students are not good in remembering facts and figures. They get a chance to demonstrate their skills by carrying out projects.

Merits of project method

1. The method satisfies the specific needs and interest of the participants
2. The learners are purposefully and profitably occupied
3. The method provides educationally rich and stimulating experience
4. The method helps to correlate different subjects
5. The method helps to develop democratic way of living and learning

Demerits of project method

1. The method disorganizes the work of the school
2. Teachers hardly get time to provide the suitable situations and to organize the work
3. A project may have relevant materials in different subject areas and the teacher will find it difficult to support students in their efforts

2.1.8 Developmental Method

Most of the books available on science teaching do not detail the developmental method. A few books dealing with developmental method details it differently. Washton describes developmental method as a combination of inductive and deductive reasoning. The method takes on a new aspect of an experiment or a problem. The teacher and pupils interact constantly which leads to the specific experimental details or to the specific aspects of the problem. Based on the question-answer session and discussion the pupils will be given time for writing up their observations along with the results of their discussion. The method can be used in the laboratory as well as in the classroom. The essential nature of the method is that of a problem solving experience. Careful questioning and interaction on the part of the teacher is very

important. The challenge presented in the experiment or problem helps to maintain a high degree of interest.

However, Joseph has described the method with the Herbartian steps - - preparation, presentation, comparison or association, generalization or definition and application. The merits and demerits are identical to the problem method.

Merits of developmental method

1. It gives training in problem solving method
2. There is constant interaction between the pupil and teacher
3. The method is in accordance with the psychological principles of learning
4. The method arouses interest, stimulates thinking and cultivates scientific attitude in pupils

Demerits of developmental method

1. Pupils are not given opportunities for developing laboratory skills
2. It demands a lot of work from the teacher
3. The method is not child centered

2.1.9 Individualized Laboratory Method

Teaching of science without a laboratory is a futile attempt. Laboratory is an integral part of teaching science. Experimentation not only verifies the theories but also help in clarifying many misunderstandings and misconceptions. The concept of cause and effect is strengthened in a laboratory.

Through individualized laboratory method, the students are able to:

- (1) Retain facts learnt in theory classes
- (2) Satisfy their interest and curiosity, and feel emotionally satisfied when they see that they are able to do something on their own
- (3) Acquire training in scientific method
- (4) Acquire scientific attitude
- (5) Acquire skills of handling various apparatus

Individualized laboratory method provides opportunities for each student to conduct experiment at his own desk in the science laboratory; the responsibility for performing experiments is shifted from the teacher to the pupils. Every pupil is provided with the laboratory manual containing instructions and the teacher guides and supervises pupils' work.

The laboratory thus becomes a place where the teacher and the taught solve their problems together.

The teacher divides the apparatus required for experiments into two groups, reserves one group to be performed by him at the demonstration table and the other to be conducted by the pupils in the laboratory. In the case of delicate and costly apparatus, the teacher himself can perform the experiment, which the pupils observe and make their conclusions:

Preparation for laboratory work

For the laboratory work to be effective, the following points should be taken into account:

1. The laboratory should be systematically and skilfully organized
2. The laboratory periods should be perfectly correlated with the class work
3. The pupils should be told beforehand about the setting-up of apparatus, recording of the result and particulars to be taken care of. They must also be asked to collect all necessary directions for the proper conduct of the experiment from textbooks
4. Students should be asked

to bring a laboratory workbook wherein they must have entered all the necessary equipment and draw neat diagrams and tables for the entry of the results

5. Pupils whose preparation of work is found unsatisfactory should not be allowed to do the practical work
6. Apparatus should be available in good condition and should be arranged before the commencement of practical classes

Role of the teacher

The teacher must constantly note the progress of every student and should be the leader, inspirer and guide. S/he should give adequate instruction wherever necessary, check the results, and correct them if necessary.

Record of experiments

Every student should have a record book to record the results of the experiments.

The format includes:

- (1) purpose of the experiment
- (2) apparatus used for the experiments
- (3) procedure
- (4) result
- (5) conclusion

Merits of individualized laboratory method

1. It is a child assertive method
2. It ensures active involvement of students
3. It inculcates manipulating skills and laboratory techniques

Demerits of individualized laboratory method

1. It is highly expensive
2. It is time consuming
3. The dull students are often tempted to copy down the result of brilliant ones
4. It is a tedious process for the teacher to perform his/her role in this method

2.1.10 Supervised Study

Supervised study provides a practical method of teaching pupils how to study and as such, it has important place in any scheme of modern education. It gives the teacher a chance to render individual help, remedial teaching and guidance to the learners whose learning strategies are essentially varied. Supervised study is a method of teaching intended to promote optimum learning. It gives effective direction and oversight of silent study and laboratory activities of pupils. The chief aim of supervised study is to help the pupils acquire good study technique and become efficient learners. The teacher acts as the director of the learning process.

Activities during supervised study

The teacher can make use of some of the following tasks:

1. Teaching pupils memories effectively
2. Teaching pupils read rapidly with understanding
3. Guiding pupils in using reference books, maps, charts, diagrams, etc.
4. Guiding pupils in the preparation of notes and reports
5. Assisting pupils in the formulation of hypotheses
6. Guiding pupils in direct observation of apparatus and specimen

7. Guiding pupils in interpretation of data, graphs, formulae, etc.
8. Supervising in collecting and organizing data
9. Teaching pupils how to gather immediate feedback, verify results and progress systematically

Planning for supervised study

Supervised study can be organized in different modes, some of them are listed as follows:

1. The double period plan - in this mode, one period is allotted for class activity and the other for supervised study under the guidance of the teacher.
2. The daily extra period plan - here, an extra period is allotted for supervised study. The teacher will be available after the class.
3. The library study plan - in this type, pupils may go to the library and work on assignments under the supervision of the teacher.
4. Divided period plan - here, one period is divided into two parts - first part for class activity and the other for supervised study.

Advantages of supervised study

1. It enables the teacher to give individual attention to pupils
2. The pupils get thorough training in study habits
3. It makes the child responsible and self-reliant
4. It creates better teacher people relation

Disadvantages of supervised study

1. It requires good library, laboratory and reading rooms
2. This method requires additional teachers

2.1.11 Dalton Plan

Dalton plan is a scheme of educational reorganization rather than a specific method to teach one or more subjects. Dalton plan was developed by Miss Helen Parkhurst in 1920 and was tried at Dalton High School, Massachusetts, USA. It recognizes the individuality of the child and aims at giving him or her freedom and making the school a community, where mutual interaction of individual and group is possible. It approaches the whole problem of work from the pupil's point of view, giving him/her more responsibility and interest in his/her education. It is intended to be a method of study that calls for the kind of intellectual and moral habits that are so essential for the development of a responsible and successful citizen. The school is conceived to be a sociological laboratory where the children are the experimenters and the teachers are observers ready to give expert advice where so required.

The Dalton plan replaces classrooms by subject laboratories. The class exists only as a unit of organization and not as a unit of instruction. Curriculum consists of two parts - major subjects and minor subjects. The major subjects include science, history, geography and language and the minor subjects include music, arts, and domestic science. The classes are held in two sessions. The classes for the major subjects are arranged in the forenoon and the classes for minor subjects are in the afternoon. The work in the different subjects for the whole year would be divided into smaller units or assignments known as contracts; monthly, weekly or daily. The assignment contains elaborate instructions about the things to be done by the pupils, precautions, reference materials, appliance to be used, self-testing devices and so on. There is no fixed time-table but the only condition is that the student should finish the assignments. Superior or brighter students might receive additional assignments for enrichment. At the end of each month or contract period, the student is given a test at his/her request.

Principles of the method

The major principles underlying Dalton plan are:

1. The principle of individual work
2. The principle of freedom
3. The principle of self-effort
4. Principle of Gestalt view of work

Procedure of Dalton plan

Students go to the subject laboratories and work at their own convenience and pace. They are free to discuss their work with others and with the teacher. There is no fixed timetable for the work. The teacher goes about helping and guiding them in referring books, conducting practical works and taking notes. Every student signs a contract for the works to be done during each month. A detailed assignment is given to the students, which forms the basis of his/her work.

The success of the plan depends on the careful preparation of the assignment. The subject matter included in the assignment should be adequate to do the job. It includes books to be referred, observations to be made and experiments to be performed. It should also contain brief explanations of points requiring clarifications, helpful suggestions and precautions to be observed while performing experiments. In Dalton plan, each pupil's progress is recorded separately in a card called job card.

The teacher's role in Dalton plan is to provide an atmosphere of study. S/he should clarify their doubts regarding assignments. The teacher assumes the role of advisor and does not interfere with the pupils' work as long as their progress is satisfactory.

Advantages of Dalton plan

1. Teaching is individualized
2. Continuity of work is ensured
3. Self-effort brings confidence in pupils
4. Develops initiative and resourcefulness
5. Problem of discipline is solved

Disadvantages of Dalton plan

1. It is impractical in ordinary schools
2. Preparation of assignments needs much expertise
3. It denies group activity
4. Pupils left alone in laboratory are likely to attempt indiscriminate experimentation, which may result in damage of the apparatus and materials.

2.1.12 Differential teaching

Differential teaching is adjusting the teaching according to individual differences. In a class, there will be gifted, average and slow learners. In this method different programs will be given to these groups. Among the slow learners, there may be physically and mentally challenged children. Special training should be given to mentally and physically challenged children. This kind of teaching is called differential teaching.

The classroom teaching involves tasks with varying degrees of complexity and difficulty or with difference in subject matter in tune with the individual abilities, needs and interests. There are three basic procedures in differential teaching.

1. Assigning individual projects accounting for individual differences
2. Dividing the class into several heterogeneous groups so that a variety of talents may be shared or using more

homogeneous groups each assigned with different activities

3. Designing home-work assignments with built-in choices

2.1.13 Cooperative Learning

Cooperative learning, although developed in the 1950s by Thelen has been widely implemented and researched since 1970s.

Today there are many methods of cooperative learning developed by different researchers.

Cooperative learning is defined as “students working together to attain group goals that cannot be obtained by working alone or competitively”. It is an act of learning together. It promotes creative thinking by increasing the number of ideas, quality of ideas, feelings of stimulation and enjoyment and originality of expression in creative problem solving. Here the students are triggered by the ideas of others and different perspectives cause group members to consider a large number of alternatives.

Theoretical framework for cooperative learning

In cooperative learning, Slavin, values two major theoretical bases for learning -‘motivational’ and ‘cognitive.’ With respect to the motivational aspect, cooperative learning persists in the significance of incentives as motivators for further cooperation to facilitate and deepen learning. Therefore, it appreciates the creation of a context in which group members can attain their personal goals only through group attainment. As far as the cognitive aspect is concerned, cooperative learning helps students to acquire critical thinking skills.

Richards and Rodgers argues that cooperative learning possesses its own theory of language and theory of learning. In its theory of language, cooperative learning sees language as a tool for social relations. Students are provided with authentic contexts for

negotiation of meaning through use of the language. In its theory, cooperative learning is based on the works of developmental psychologists like John Dewey, Jean Piaget, Kohlberg and especially Lev Semenovich Vygotsky; all these works accentuate the central role of social interaction in learning, which promotes collaboration and eventually independent problem solving.

Elements of cooperative learning

Stahl enumerates the following elements of cooperative learning that are essential for successful implementation of cooperative teaching-learning situations.

1. A clear set of specific learning outcomes: Teachers should describe in very unambiguous language the specific knowledge and abilities students are to acquire and then demonstrate on their own
2. Collective “buy in” to outcome objectives by all students in the group: Students must collectively accept the expected results as their own and as something, they want to achieve individually and as a team
3. A clear and complete set of task-completion instructions: Teacher must provide directions that describe in clear, precise terms what students in their respective groups are to do, in what order, with what materials
4. Heterogeneous groups: Teacher should organize the three, four or five member small groups. So students are mixed as heterogeneously as possible, first according to academic abilities and then based on ethnic background, race and gender
5. Equal opportunity for success: Each student must perceive that s/he has just as much chance to learn the content and abilities and to learn the group rewards for academic success by being in the group
6. Positive interdependence: Within co-operative learning situations, students have two responsibilities - - a) learns

- the assigned materials and b) ensure that all members of the group learn the assigned material. The technical term for this dual responsibility is positive Interdependence
7. Face to face promotive interaction: For all the group works, students should arrange themselves so that they are positioned and postured facing one another to enable direct eye contact and face-to-face academic conversations. Promotive interaction is defined as individuals encouraging and facilitating each other's efforts to achieve and complete tasks to reach the group's goals
 8. Positive social interaction behaviors and attitudes: To work together in a group as an effective academic team, students must engage in such interaction abilities as leadership, trust building, conflict management, constructive criticism, encouragement, compromise, negotiation and clarification
 9. Access to must-learn information: Students must have access to and comprehend the specific information that they must learn and that is aligned directly with the outcome objectives and the test items that will be used to measure their academic achievement
 10. Opportunities to finish must-complete information processing tasks: For students to be successful, each must complete a number of internal information processing tasks aligned with targeted objectives
 11. Sufficient time-spent learning: Each student and each group must be given the time to learn the targeted information and abilities to the expected extent
 12. Individual accountability (personal responsibility for learning the targeted content and abilities): Individual accountability exists when the performance of each individual member is assessed, the feedback to the individual and the group to compare against a standard of performance, and the member is held responsible

by group mates for contributing his or her share to the group's success

13. Public recognition and rewards for group academic success: The teacher grades the individual tests, computes the average scores per team, and determines the appropriate team prizes. The students receive awards on the day following the test
14. Post-group reflection (debriefing) within group behaviors: Students must spend time after group tasks to systematically reflect upon how they worked together as a team. They should discuss group maintenance; social and group processing behaviors, roles, and attitudes; and particular behaviors and attitudes; that promote or prevent the group's and individual member's success

Thus, cooperative learning involves the working together of students to achieve the shared learning goals by ensuring that, they and their group mates have successfully completed the learning task assigned to them

2.2 TYPES OF COOPERATIVE LEARNING

The types of cooperative learning adopted in our classroom include following:

1. Formal cooperative learning

This is the most widely used method. Formal learning groups involve students working together, for one or several class sessions, to achieve shared learning goals and complete jointly specific tasks and assignments. These groups provide the foundation for all other cooperative learning procedures. They are structured through the following sequence.

- Specify the student outcome objectives for the lesson
- Make a number of instructional decisions
- Explain the task and the position interdependence

within the groups to provide task assistance or increase students' interpersonal and group skills

- Evaluate students' learning
- Help students' assess how well their groups functioned

While forming small formal cooperative learning groups for students conducting experimental activity, the roles may include organizer, record writer, assistant, and observer. The goal of the teacher is to maximize interdependence and active learning among students. Students become capable of organizing themselves as they gain experience.

2. Informal cooperative learning

An informal cooperative learning group is one in which students work together in temporary, ad-hoc groups that last for only one discussion or class period to achieve joint learning goals. Informal cooperative learning groups are used to focus sufficient attention on the material to be learned, create an expectation set and mood conducive to learning, ensure and provide closure to an instructional session. The one-period long group work activity designed for conducting any laboratory work in small groups (usually three to four students) is an example of an informal cooperative learning group.

3. Cooperative base/home groups

These are long-term heterogeneous cooperative learning groups with a stable membership, whose primary responsibility is to give each member support, encouragement, and assistance needed for each one to progress academically, develop cognitively and socially in a healthy way.

Base groups may also be responsible for letting group members who were absent know what went on in the class when they miss a session. Informally everyday, members interact within and between classes, discussing assignments and helping one

another with homework. The use of base groups tends to improve attendance personating the work required and the school experience, and improve the quality and quantity of academic achievement. The larger the class or school, the more complex and difficult the subject matter, the more important it is to have base groups.

4. Cooperative learning scripts

Cooperative learning scripts are standard procedures for conducting repetitive lessons and managing classroom routines. These repetitive lessons provide a base on which the cooperative classrooms may be built.

2.2.1 Steps involved in cooperative learning

There are following steps in the cooperative learning:

1. Student centered class discussion

In this, the students are motivated to invent and express their own interest in the subject covered. The aim of the discussion is to increase their involvement in the topic by stimulating their curiosity. The discussion should lead to an understanding among all students and the teacher, about what the students want to learn and experience in relation to the topic. Thus cooperative learning is a process that flows out of the interests of the students.

2. Selection of student learning teams

The students may be assigned to teams or may be allowed to select their teams, depending on the goals of the class. By maximizing the heterogeneity among the students' teams, the teacher increases the probability of establishing positive peer tutoring, improving ethnic and social relations, increasing role-taking abilities, and improving self-esteem among the students. Thus teams assigned

by the teacher on the basis of heterogeneity increase the need for team-building experiences.

3. Team-building

Several team-building techniques have been designed. They are designed to introduce students to each other and for overcoming resistance among students. Two of these techniques are interview and round table brain-storming. Interview helps students to introduce each other. Round table brain-storming produces a strong team identity, a willingness to work in teams and a sense of the mutual interdependence of the team-mates and the need for cooperative interaction.

4. Team topic selection

The teams are allowed to select the topics for their team. Before doing this, the teams are reminded which topics the class as a whole has indicated are of greater interest. The team-mates are encouraged to discuss among themselves the various topics so that they can settle on the topic of most interest to themselves as a group. As the teams discuss their interests and begin to settle on a topic, the teacher circulates among the teams and acts as a facilitator. Thus each of the teams will settle on a topic and will feel identified with its topic.

5. Minitopic selection

Individual students are encouraged to select minitopics, each of which covers one aspect of the team topic. Minitopics may have some overlap, and the students within teams are encouraged to share references and resources, but each minitopic must provide a unique contribution to the team effort. The teachers may require that minitopics meet the approval of the teacher because some topics may be appropriate to the level of a given student, or because sufficient resources may not be available on a given topic.

6. Minitopic preparation

The preparation of minitopics takes different forms, depending on the nature of the topic. The preparation may involve library research, some form of data gathering, the creation of an individual project, interviews of experts, the planning of an individual contribution to a group project, or introspection. All of these activities take on a heightened interest when the students know that they will be sharing the fruits of their labor with their team-mates.

7. Minitopic presentations

The minitopic presentations and their discussion within teams is an extremely important step in cooperative learning. Minitopic presentations and discussion within teams are done so that all of the team-mates are exposed to the knowledge or experience acquired by each, and so that they can actively discuss the topic as a panel of experts. In the preparation of the minitopic presentations, the teacher may review the principles of active listening, interviewing and supportive questioning. Thus the team presentation becomes far more than, the sum of the mini-presentations.

8. Preparation of team presentations

The teams are informed of how long their presentations will be, and they are encouraged to plan a presentation that will be interesting and informative. Non-lecture formats such as debates, displays, demonstrations, skits, etc., are encouraged. The use of blackboards is also encouraged. Some teams find it useful to make a media presentation such as slide show, OHP, etc.

9. Team presentations

The team members become responsible for how the time, the space and the equipment of the classroom are to be used during their presentations. One of the greatest difficulties that students

have with their first team presentation is managing time. So there is a need to appoint a class timekeeper who is not a member of the presenting team. The teacher may find it useful, following the presentation, to lead a feedback session and/or to interview the team so that other teams can learn something about what was involved in the process of developing the presentation.

10. Evaluation

In this the teachers may wish to elicit comments from the class in order to evaluate each cooperative learning unit after all teams have made their presentation on that unit. Following each team presentation, the teacher may guide a class discussion of the strongest and weakest elements in the content and the format of the presentation. Some teachers and students find it comfortable to derive individual grades from the minitopic papers, the minitopic presentations, and the team presentations. Others prefer to make learning and sharing their own reward.

2.2.2 Requisites of an effective cooperative learning situation

There are certain factors needed for cooperative learning for its smooth functioning.

They are:

1. Group formation

This is the planning process in which, the teacher engages to compose the most efficient grouping based on the goals of the experience. It involves the aspects such as assigning students to groups, size of the group, composition of the group, and classroom arrangement.

2. The role of teacher:

The role of the teacher in cooperative learning is summarized as follows:

- Specifying the objective for the lesson
- Making decisions about placing the learning groups before the lesson is taught
- Explaining the task and goal structure to students
- Careful observation and supportive intervention monitoring the effectiveness of the cooperative learning groups and intervening to provide task assistance or to increase students interpersonal and group skills
- Evaluating the student's achievement and helping students discuss how well they collaborated with each other

3. Assessment

The assessment of cooperative learning situation can be done at two levels

- assessment of individual performance and
- assessment of group performance.

Cooperative learning must be used predominantly to prepare students to live in interdependent, diverse and rapidly developing world. Therefore, cooperative learning is uniquely suited for science teaching.

2.3 TECHNIQUES OF TEACHING

Teaching methods can be implemented through different techniques of teaching. Methods of teaching determine the way or style in which content is to be presented whereas, a technique of teaching assists or helps in the presentation of content in teaching learning process. Teaching methods reveal how content is presented in

classrooms, while techniques indicate the activities to be followed in teaching. Techniques are logical as well as psychological in nature. Sometimes the nature of the content is most important in employing a particular technique of teaching. A method includes several techniques of teaching and one technique employs several maxims of teaching. There are different teaching techniques such as questioning, narration, description, explanation, exposition, illustration, storytelling, etc.

Two important small group-teaching techniques suitable for classroom practice - buzz session and brainstorming - are discussed as follows:

2.3.1 Buzz Session

Buzz session is a small group technique with a high degree of student involvement. This technique is employed during the course of a lecture or some other similar program where the students become motivated and seized with the issues involved. The success of buzz group techniques depends on the awareness and compliance of the rules and procedure of the technique on the part of students.

Organization of buzz session

A typical way of organizing a buzz group technique initially consists of dividing the class into different sub-groups of six to seven members. The subgroups are then given a minute to select a discussion leader and a rapporteur. It is the responsibility of the leader of the sub-group to see that each member of the group expresses himself/ herself freely. After the discussions, the groups reassemble to reconstitute the original large group. The rapporteur of each subgroup then presents the summary of the reactions of the group members to the original presentation. If the members raise any question, the rapporteur should answer it during the course of discussion. The unresolved points (if any) are referred back to the concerned groups for the subsequent discussions and

reporting to the plenary session once again. Finally, the general group reaches a consensus regarding the solution of the concerned problem.

A teacher can use the buzz session at the beginning of the school year to help students get to know each other. In such a situation, students can talk about themselves, their interest, hobbies and other matters of concern.

Advantages of buzz session

1. It promotes critical thinking among pupils
2. All aspects of a particular problem can be discussed
3. It ensures the involvement of all its participants
4. Helps to develop social skills

Disadvantages of buzz session

1. It needs expertise from the part of teacher
2. It cannot work fruitfully in lower classes

2.3.2 Brainstorming

Brainstorming is an activity designed to promote creativity. This technique was developed by Osborn. It is a problem-oriented strategy of teaching. This is a form of discussion which enables the group to do collective and creative thinking. The emphasis is on eliciting of as many different ideas as possible for more careful considerations later. This strategy is based on the assumption that a student can learn better in a group rather than in individual study. This is completely a permissive style of teaching strategy.

In brainstorming technique, the higher order objectives in cognitive and affective domains can be achieved. This strategy consists of a problem-solving situation in which the learners are assigned a problem and they are asked to discuss any idea which come to their mind. The group is encouraged to provide even unusual

suggestions. They have to analyze and evaluate the workability of their own suggestions of the problem. There should be a person to lead or guide the different groups of the program and is called anchor. Anchor has to record all the ideas generated during the discussion.

2.3.3 Stages in brainstorming

(1) Warm up

In this stage, anchor presents the problem formally and asks different groups to express their ideas freely. The anchor should make the situation more interesting for the groups so that they can express freely. In the classroom situations, normally the teacher takes the role of anchor. After three or four sessions, his/ her role can be given to students. Warming up can be done by citing an event, through a small story or through an interesting description.

(2) Ideation

This is the stage where the groups express their ideas freely. The anchor should make sure that all the ideas are recorded.

(3) Evaluation

This is the last stage and in this stage, the evaluation of different ideas is done. The criteria, which are formulated through discussion, are used as references to evaluate the ideas. From these, the most suitable idea is selected as the solution of the problem under consideration.

2.3.4 Principles of Brainstorming

For brainstorming to be effective, it should be based on the following principles:

(1) Freewheeling

Once the brain storming session is started, it should work as a free wheel. It means that there should be no obstructions to express the ideas. The ideas may be irrelevant or foolish. Whatever it may be, the group can express it.

(2) No criticism

There should be no such act which hinders the ideas of groups; even gestures should be avoided.

(3) Quantity breeds quality

As the number of ideas (quantity) increases, there will be more ideas, which are relevant to the purpose. The anchor should encourage the group to give more ideas.

(4) Hitch-hiking

For the formulation of a suitable solution to the problem, the different ideas can be adopted or accepted. Based on these ideas, we can create and modify new ideas. Hitch-hiking is a popular usage; a person reaches his destination with the help of others.

2.3.5 Steps in brain storming

1. Plan all phases of the problem and think about the sub-problems which may emerge
2. Select sub-problems to be attacked
3. Think about the differences which may help involving them
4. Select the probable sources of data and collect the most relevant data
5. Decide the possible ideas through free-wheeling with suspended judgements, which hints to the solution

6. Select ideas that are most likely to lead to the solution
7. Consider possible ways to test these ideas
8. Test the ideas in terms of relevance, adequacy and sufficiency
9. Imagine all possible contingencies and ways of meeting them
10. Take decisions about the final solution of the problem

2.3.6 Advantages of brainstorming

1. It has both psychological and educational basis of teaching
2. It is a creative strategy of teaching and encourages for eliciting original ideas
3. It provides a number of ideas of good quality
4. It creates the situations for independent thinking among learners

2.4 MODELS OF TEACHING

Models of teaching deal with a rich variety of approaches to the problem of teaching. They are intended to help teachers to provide meaningful effective learning situations. It provides guidelines what to teach, how to teach and what actions to take while teaching. A model of teaching contains steps and procedures to generate desired outcome in learning.

Model of teaching is defined by Joyce and Weil as a plan or pattern which can be used to design classroom instruction and shape instructional materials including books and curricula. There are a large number of learning models that students can easily respond, and complex ones, which the students gradually acquire through skilful instruction. Some models aim at specific objectives; others have a broader usefulness.

Models of teaching are really models of learning. The ultimate outcome of good teaching is good learning. "As we help students acquire information, ideas, skills, values, ways of thinking, and means of expressing themselves we are also teaching them how to learn". A model of teaching must enable the students to learn more easily and effectively and to develop the knowledge and skills required to master the learning process systematically. Effective learning must create powerful learners.

2.4.1 Characteristics of a teaching model

We list the following characteristics for a good model:

- (1) Specification of learning outcome - a model of teaching specifies what the students should perform after completing an instructional sequence. It specifies the exact learning outcomes.
- (2) Specification of learning environment - a good teaching model specifies in definite terms the environmental conditions under which a student's response will be observed.
- (3) Specification of criterion of performance - a model of teaching specifies the criterion of performance, which is expected from the students.
- (4) Specification of operations - a model of teaching specifies the mechanism that provides for the reaction of students and interaction with the environment.
- (5) Scientific procedure - a model of teaching is based on a systematic procedure to modify the behavior of the learner.

2.4.2 Methods of teaching and models of teaching

Models of teaching differ from methods of teaching in many aspects. A method stands for the dissemination of content. However, models of teaching aim at the realization of pre-determined objectives besides content transaction. Presentation of

the content is the core process of any teaching method, whereas models of teaching emphasize on definite stages known as phases for its presentation. The content to be presented determines the method adopted, while the objectives to be achieved determine the teaching model. Method is generally a mode or way of presentation; different methods can be used for presenting one subject matter. Models are instructional designs; it refers to formal structure of the sequence of acts to be carried out in classroom and other settings. Generally, models of teaching are supported by sound theories of teaching and learning. Moreover they give emphasis to metacognitive (the awareness of the way in which the knowledge was cognized) aspects in learning.

2.4.3 Types of teaching models

There exists huge variety of teaching models arising from a variety of sources representing different frames of reference towards educational goals. They include historical teaching models, philosophical teaching models, psychological teaching models, teaching models for teacher education and modern teaching models. Here an attempt is made to describe the modern models of teaching:

2.4.4 Modern models of teaching

Joyce and Weil grouped the models of teaching into four families based on their primary emphasis - the way they approach educational goals and means.

They are:

- (1) information processing family,
- (2) personal family,
- (3) social family, and
- (4) behavioral systems family.

Each of the families is discussed as follows:

1) Social family

The social models of teaching are developed to generate 'synergy' (collective energy generated when people work together). The teaching models of social family or social interaction oriented family aim to develop social efficiency among people. Joyce and Weil emphasize the function of social family of models as they give priority for improvement of democratic processes and the improvement of the society to the improvement of individual's ability.

2) Information processing family

Information processing models emphasize ways of enhancing the human being's innate drive to make sense of the world, by acquiring and organizing data, sensing problems and generating solutions to them, and developing concepts and language for conveying them. Models included in information processing family are helpful for the processing of information. Information processing models are more concerned with the intellectual growth rather than the emotional or social development of the individual. Here the knowledge is acquired while they collect and operate information.

3) Personal family

The personal models of teaching begin from the perspective of selfhood of the individual. They attempt to shape education so that we come to understand ourselves better, take responsibility for our education and learn to reach beyond our current development to become stronger, more sensitive and more creative in our search for high quality lives. The models of personal family pays great attention to the individual perspective and seeks to encourage productive independence so that people become increasingly self-aware and responsible for their own destinies.

4) Behavioral systems family

The various teaching models in this family focus the attainment of self-control, the proficiency to reduce mental strain, to develop leadership qualities and to meet the challenges suitably. These models have their origin in the classical conditioning experiments of Pavlov in 1927, the work of Thorndike on reward learning in 1898, 1911 and in 1913, and the studies of Watson and his associates who applied the Pavlovian principles to the psychological disorders of human beings. It was only in the past three to four decades that behavior theory (learning) has been systematically applied in school settings. The impetus on these recent applications comes primarily from the works of B.F. Skinner and Wolpe. It can be seen that Skinner's operant conditioning has given birth to most of the models belonging to this family.

2.4.5 Description of fundamental elements of a teaching model

A teaching model provides valuable guidelines and blue print for carrying out the task of the realization of some specific goals. In order to make use of a model, a teacher must be properly acquainted with the knowledge of the fundamental elements of that model.

Generally, a teaching model is described in the context of some fundamental elements. The major elements needed for the description of a teaching model are - - focus, syntax, principles of reaction, social system, support system and instructional and nurturant effects. However, the element focus is not discussed in Joyce and Weil.

1. Focus

Focus is the central aspect of a teaching model. For what the model stands, is the theme of the focus. All of the teaching models are meant for achieving some specific goals or objectives of teaching

in relation to the environment of the learner. Therefore, objectives of teaching and aspects of the environment generally constitute the focus of the model.

2. Syntax

The term syntax refers to the description of the model in action. It describes the sequence of activities in the model - 'how to start, how to proceed and how to conclude.

3. Principles of reaction

This element of the model describes how should a teacher regard and respond to the activities of the students while working out the model. These responses should be quite appropriate and selective. Sometimes, s/he may shape the behavior of the students by some activities, sometimes avoids the positive reactions from the part of students and in some other cases, teacher adopts passive role allowing students to be self-directive.

4. The social system

The social system describes the roles and relationship of the students and teacher. In some models, teacher is the center of activity; in some others, active participants are students. There are also models in which both the student and the teacher share the activity more or less equally. In the first case, the social system is highly structured and can be planned earlier; in the second, the system is low structured and in third, it is moderately structured or medium structured. The role of the teacher varies from model to model and the way in which the student behavior is rewarded also differs from model to model.

5. The support system

The support system indicates the supporting conditions necessary for the proper functioning of the model. It describes the teaching

tools, human skills, capacities and technical facilities used in working out the teaching model.

6. Instructional and nurturant effect

This is the element of a model, which describes its application context. Some models are meant for short lessons, some for large and some for both. They also differ in terms of the goal achievements. Each model through its element of application context tries to describe the feasibility of its use in varying context achieving specific educational goals and demanding specific work environment. The applicability of the model produces two effects viz.

- (i) Instructional effect (Direct effect)
- (ii) Nurturant effect (Indirect effect or implicit effect)

2.4.6 Functions and applications of teaching models

1. They suggest the ways and techniques of creating favorable environmental situations for carrying out teaching process
2. They help in achieving desirable teacher pupil interaction during teaching
3. The ultimate goal of bringing desirable changes in the behavior of pupil may be achieved through these designs
4. They help in the construction of a curriculum or contents of a course
5. They help the teacher to select appropriate teaching techniques, strategies or methods for the effective utilization of the teaching situations and materials
6. They help in the proper selection of instruction materials for teaching the prepared curriculum or course
7. They are helpful to design the appropriate educational activities

8. They stimulate the development of new educational innovations
9. They help to establish teaching and learning relationship empirically
10. They are useful to develop social, personal and cognitive abilities

2.4.7 Description of selected teaching models

Concept Attainment Model (CAM)

Jerome S. Bruner and his associates Jacqueline Goodnow and George Austine are credited for the development of concept attainment model. This model is based on the assumption that human beings are endowed with the capacity to discriminate and to categorize objects and phenomena into groups. The concept attainment model helps students to describe the similarities and relationship among things of the environment.

Major ideas behind concept attainment

1. Our environment is full of tremendously diverse things and it is impossible to adjust with it, if one is not endowed with the capacity to discriminate, to categorize things in groups and to form concepts. In order to interpret various things, it is necessary to classify objects or events on the basis of similarities and differences. According to Bruner - - "to perceive is to categorize, to conceptualize is to categorize, to learn is to form categories, to make decision is to categorize." That is, in order to interpret various objects or events, there is a coding system in every individual and a well-structured coding system should be developed in an individual through education.
2. A concept, a generalized mental image, which represents all the members in a particular category. Simply it is

an abstraction from facts. Concepts form the basic vocabulary for efficient learning. A concept includes five elements.

They are:

- (a) Name - is the word that describes a concept for communication, for example, atom, friction, etc.
- (b) Exemplars - are the instances or items that could be used in the process of categorization. They may include positive examples (exemplars) and negative examples (nonexemplars). Items that obey all the essential characteristics used for categorisation leading to the concept are positive examples. Whereas items that do not satisfy all the characteristics of positive example, but are needed for making the grouping meaningful are called negative examples. The knowledge of negative examples is essential because the ability to distinguish positive examples definitely develops only through comparisons with related negative examples.
- (c) Attributes - are the features or characteristics based on which a number of items could be categorized into a particular group or class that represents the concept. The features that are crucial for the occurrence of the object or event are called essential attributes. Certain others are not to be considered essential and are called non-essential attributes. For example, consider the attributes of concept "metals" - malleability, ductility, lustre, presence of free electrons, etc. are attributes. However, the essential attribute of a metal is the presence of free electrons; others are nonessential.
- (d) Attribute value - attributes have value and range. The value of an attribute is evaluated or identified based on its role in identifying and defining a particular concept. For example, consider the concept poison. Chlorine is a poison that we put in water. Yet, we judge the amount of chlorine that will kill certain bacteria and still not harm human beings. Therefore, tap water is not an exemplar

- of poisonous water because it does not contain enough poison to harm human beings. The value of the attribute is low enough; its presence does not give the water membership in the category poisonous to human beings.
- (e) Rule or definition - is formed from the essential attributes to describe a concept. It is the statement of the meaning attached to a word expression, operation or symbol.
3. Learning is nothing but learning to learn. The learning material and the process of learning are equally important. Effective and the systematic ways of solving problems should be devised, that is, every learner should learn how to learn.
 4. Make use of the wonderful gift given to human being by nature - curiosity as the dynamic force leading to discover.
 5. Anything can be taught to anybody in any level of development in an intellectually honest manner. Experiences should be selected in accordance with the developmental stages of the learners.
 6. The strategy to learn should be discovery learning.
 7. Categorizing activity has two components, the act of concept formation and the act of concept attainment. In the concept attainment, the concept is determined in advance and the task is to determine the elements of the concept. Concept formation is the act by which new categories are formed; it is an act of invention.

Description of concept attainment model

Based on the ideas put forward by Bruner and his associates, different models of teaching have been developed. They are:

- (1) reception model of concept attainment
- (2) selection model of concept attainment and
- (3) the model of unorganized material.

Each of those models has a slight different sequence of activities (syntax) but all are developed from a common conceptual base.

The reception model is described as follows:

Description of reception model of concept attainment

- (1) Focus - it is to help the students in the attainment of a particular concept. It also enables them to become aware of the process of conceptualizing.
- (2) Syntax - sequence of the phases and activities in reception model is outlined

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CHAPTER 3

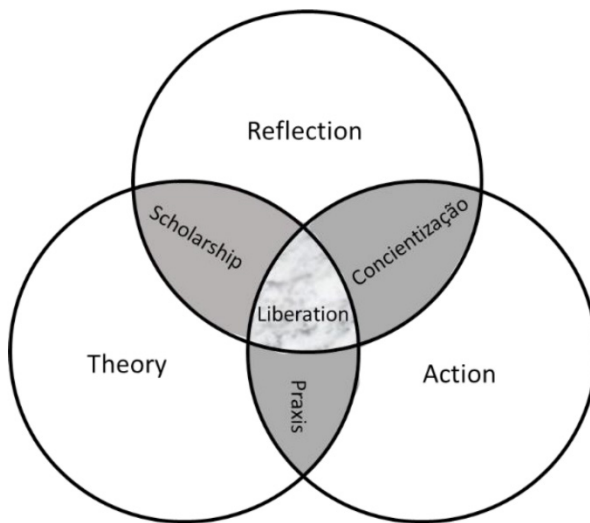
CRITICAL PEDAGOGY FOR SOCIOLOGY

INTRODUCTION

Critical Pedagogy, Paulo Freire has invented and used the term for the very first time, with the theory of exploited oppressed.

The information which is transferred to the public is, first filtered by the dominant class and thus get biased in the favor of the dominants thereafter, it is transferred to the public. In educational institutes, in the books of innocent and such students whose minds are free and still have vacant space which is expected to be filled with true facts and knowledge, there also the dominants have their dominancy ruling; dominants have the power to make access to the knowledge and information; thus books make them ideal in the eyes of public.

Poulo friere made a new theory where the promulgation of a factual description of any event, news, information and even the educational knowledge is made available directly to individuals or public. Here, one of the most important facts which should be understood and noted is that people or public receiving information develop within them a curiosity to know more, they develop question within their brain which are needed to be answered. The process of finding answers reaches to the limits of research, curiosity leads to the conversation and interaction of groups of individuals; interaction of cultures and knowledge reveals the truth and the same process propagates truth within society. So a question arises here, whether it is important to allow critical-pedagogy find its separate place in society ? to form a different body for such research work, is not sufficient? Does it reveal the only truth or bring forward more than it? or, mere revealing the truth is only work of such process, such process which demands further hard work: more hard work apart from the day to day work.



While answering them, it is important to note the answer of, “Does it reveal the only truth or bring forward more than it”. Critical-Pedagogy not only brings truth but also, upgrade the view of individuals towards a particular condition, situation or

event. When an individual gets involved in finding the answers to his question, he experiences many problems which trigger his mental ideas also, his soul's emotion. Thus, before making any decision with the prior beliefs which are formulated and given by ancestors, an individual gives his decision taking into account his personal emotions and thus balances his logical thinking.

Here, another benefit for an individual is the improvement in intellectual: he starts thinking indiscriminately, without getting biased towards any particular belief. His beliefs and thoughts toward a particular event and incident start getting different. These differences in thoughts are due to the pragmatism, a process which is used earlier, to educate children.

It is a process which challenges a student, a challenge to gather knowledge; it challenges a teacher to present in front of students, the truth. The presentation of truth must be done in such a way that truth shall not appear as negative against humanity, or shall not leaves a negative impression on the mind of an innocent.

3.1 SOCIALIZATION: MEANING, TYPES AND EXAMPLES, OVERVIEW

Socialization is a process of interaction which establishes a stable and balance relation between an individual and his society. This process teaches an individual to work and perform daily work and functions according to the rules of his society. These rules and norms are among, his first lessons of discipline. They are taught to follow rules, they are taught manners, they are taught about the good and bad habits and things; bad company is also a socialization which is exposure of an individual to a society which does not have, in it, healthy habits, to avoid them is also a lesson which is taught by parents and learned by his child.



Socialization teaches an individual not only, to remain in discipline but also teaches him to oppose when he/she is exploited by their society. these lessons of behaving well cannot be taught by any notebook and neither can be learned by any teacher they can only be taught by a group of the teacher which is known as society.

An infant, unknown of his abilities, religion, god, basic manners, when coming to this world needs to be taught what is good for him and what is wrong; without this basic instinct, he won't be able to survive in this world. Learning these instincts also is a result of socialization.

3.1.1 Types of Socialization

Socialization is of two types.

One of the socialization is one in which a person learns the rules by himself, by going out in the society or learns rules, restrictions, regulations, norms, folkways, and mores by getting exposed by his guardians. another kind of socialization includes a socialization in which a person is reached by society; thus society, by different ways, teaches him the way he/ she is expected to behave in the society.

Examples of the first kind of socialization, where an individual learns the rules is, by making friends and having an interaction, participating in different cultural activities of the society. peoples belonging to Hindu culture participates in the festivals; hence

learns different things of their god/goddess. This is how they learn, what their culture want from them.



Example of the second kind of socialization is mass media. Individual watch television, use youtube, twitter, facebook, and many other social media, also radio and read newspaper in order to entertain himself, but television and this mass-media including static media, i.e. newspaper, interfere with his thoughts and generates such ideas which are not such, as are created by himself. These media interact with an individual with or without his consent and an individual consciously or unconsciously learns what these media has taught him.

For the sake of development and improvement, an individual has to come in contact with other social and modify his/her beliefs in accordance with other societies and cultures.

Socialization is thus playing a very important role which cannot be substituted from any other process.

3.1.2 Characteristics of Socialization Process

When a nomadic civilized group travels or migrates, following his culture, the group is faced with different community and has to stay with such a community which has a culture different from them, to survive and live with them they are bound to learn their culture this is another example, how socialization takes place within a society.



Characteristics of socialization:-

- Socialization is a process which remains to be continuing from the birth of a person to his death. It never stops, however its speed gets changed with stages of life, moreover with position and occupation of life.
- The socialization process is a process which converts a “human being” into a “social being”. The basic meaning of this statement is that this process teaches a man to behave according to the rules and norms of a society.
- A personality of an individual is how a society judge to him, which can get developed only when a person or individual understands what a society needs to form him and thus socialization helps him to do so.
- People promulgate their views in the way which they taught as appropriate, thus socialization may differ from society to society and thus, culture to culture.
- Culture diffusion takes place due to socialization, of a person belonging to one society, to another.
- Socialization transmit forward to generations, rules of societies
- Re-socialization process is what takes place with the socialization of rules of other society, to one’s own society. This is how development takes place. One learned man can teach the whole society and that’s how a society can be learned.

- Socialization takes out the hidden qualities of a child, and thus develops him mentally, physically and socially, this process is participant socialization.

3.1.3 Socialization Process and Conditions for Identification

Socialization is a word which explains and point towards, interaction. Interaction for introducing one's society to others, this "others" includes in it, children and new person of other society. Without this process cultures of societies neither it can be promulgated nor it can be developed and get modified with development.



Socialization is a process which leads to cultural diffusion. Cultural diffusion is a process of mixing of different cultures together. To change and to develop a culture this process is carried out in a society with other societies.

It is a family where you first develop your gender identity, which is also a kind of socialization. This is where you learn what is seen as acceptable masculine and feminine behavior

There are two phases of socialization they are

- Primary stage
- Secondary socialization

The primary stage of socialization includes and hence takes place from the very beginning and comes from individual's family. Here a child learns basic instinct which will help him, to survive and live among the different people of society. for example, way to use a toilet, ways to eat and feed himself/ herself, a religion which he/ she is expected to follow, language he/ she should use in future in his society.

Secondary socialization carries on when we start to leave the family home and begin school and wider society. Here, people learn different culture additionally they learn one more thing, i.e. to obey rules.

From the above explanation, there are certain things which can conclude one of which is, socialization is everything which a person learns from his parents and society. Another name which can be given to socialization is globalization. This is another form of socialization.



Socialization results and leads to make an individual learn folkways and more. Folkways are the rules which are basic rules and teach basic rules and regulation to spend life for an individual. Mores are the rules which are needed to be followed by individual or members of society

It also leads individuals to develop themselves. For example -a person having knowledge of one culture when travels and

hence interact with other society, then his intellectual improves and led to development. Society forms culture according to the geographical condition; also this construction, take into account the physical ability of a person living in that area. Socialization hence improves, not only mental intellectual but also improves physical ability.

Three necessary conditions for a child to socialize himself are:-

- Interaction of child and his parents must occur, parents must not ignore their presence, in this way parents can improve child's personality
- The adult must take interest in child and must fulfill his wish to the level of an extent which is correct.
- The adult must be able to keep control over the resources and in this away a positive relation of dependence must be developed between parents and a child.

Thus socialization is a process which is natural and cannot be controlled. It is the process which confirms the intention of god behind the creation of human being, i.e. development.

3.2 THEORETICAL FOUNDATIONS OF CRITICAL PEDAGOGY

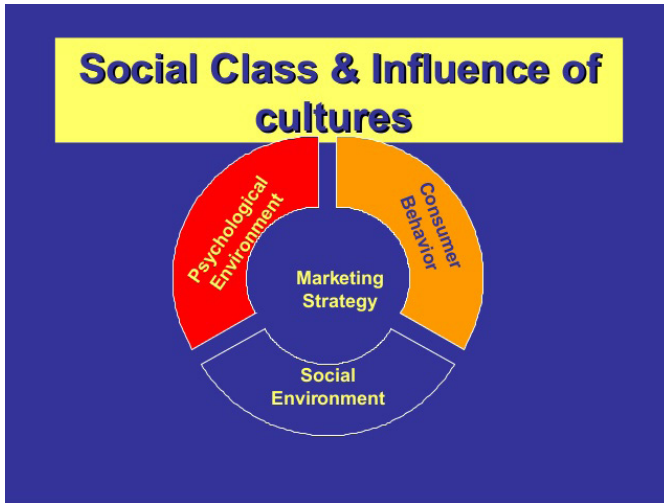
Before understanding the role critical pedagogy may play in creating opportunities for social mobility, this section first explains the theory's philosophical foundations. Critical pedagogy draws heavily from the works of Karl Marx and Pierre Bourdieu, emphasizing the role class and culture play in the schooling process. Critical pedagogues believe education is both a political and cultural affair. They argue that since power relations control the schooling process, in order for critical pedagogy to take place, these current power dynamics must be challenged.



3.2.1 Class and Culture

In critical education theory, class and culture are inextricably linked. Class refers to the economic, social, and political relationships that govern life in a social order. These relationships will largely be defined by individuals' income level, occupation, and place of residence. These relations also create asymmetrical distribution of power, which results in social stratification. This paper will specifically focus on those who are positioned at the bottom of the American social hierarchy, also known as the lower class. While this refers more generally to the unemployed, underemployed, and marginalized economic groups, they have also historically consisted of largely non-white and minority populations.

In addition, critical pedagogues define culture as a common system of beliefs, attitudes, practices, ideologies, and values shared by a social collective. This shared culture functions as a means of organizing and sustaining social order. Class relations significantly contribute to the way culture is produced in a society, as one's preferred culture is largely related to the individual's position within the given social structure. Furthermore, the degree to which a culture is legitimized in greater society is largely determined by the group's collective power, which is derived from social status and rank.



Culture is found in many social symbols and practices, such as music, dress, food, speech, religion, and education. Television, video, and films are also popularly regarded as cultural forms, but critical pedagogues contend schooling is another major form of cultural expression. Furthermore, while culture may be observed as individual behaviors, these actions do not exist separately from social structures and relations of class, race, and gender. In the urban context, inner-city students carry sub-cultures largely reflective of their socioeconomic status, race, and gender. However, upon entering school, these cultures clash with mainstream public schooling, which largely reflects the cultural values of the middle and upper class.

Ideology & Hegemony

Inspired by Louis Althusser's concept of the ideological state apparatus, critical pedagogues place great emphasis on the role of ideology in schools. Ideology can be defined as the "production and representation of ideas, values, and beliefs and the manner in which they are expressed and lived out by both individuals and groups." Critical pedagogues contend that schools primarily function as sites of cultural programming, where students are acculturated into mainstream ideologies and values. In other words, schools are socializing agents of the state.



Hegemony, domination, and power are also repeatedly mentioned in critical pedagogy discourse. Hegemony is defined as the exercise of domination by the culture in power over subordinate cultures. According to this definition, it is quite easy to consider all forms of hegemony as oppressive, yet critical educational theorists do not believe it is entirely negative; certain prevailing values of the dominant class have created positive social relations (e.g., individual rights and freedom). Yet, what is of importance for the critical pedagogue is isolating those hegemonic values that are oppressive, for they are the ones that perpetuate the status quo of inequity.

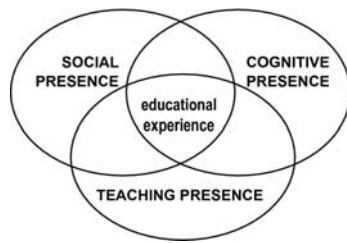
Additionally, subordinate classes can unknowingly participate in hegemony through the creation of oppositional cultures. One popular example of oppositional culture in American cities is “street gang” culture, which contests the mainstream norms of education, speech, music, and dress. Although oppositional cultures originate to resist the values and practices of the dominant class, there is still a degree of consent and acknowledgement that the mainstream culture is in the greatest position of power.

3.2.2 The Social Construction of Knowledge

Critical pedagogues believe all forms of knowledge are socially constructed. There is no absolute truth, as this will always be relative and dependent on culture and context. All individuals, regardless of class or status, will carry their own subjectivities and possess different constructed forms of knowledge. However, some may have more power and legitimacy than others. Critical pedagogues argue that schools are not only a battleground for

competing cultures but also a battle between competing forms of knowledge, and the lower class tends to be on the losing side. In legitimizing only certain forms of knowledge, schools legitimate certain gender, class, and racial interests while negating others.

In the context of classroom teaching, schools have the capacity to construct three forms of knowledge: technical, practical, and emancipatory. Technical knowledge is based on quantifying and measuring knowledge, such as in science and mathematics, through empirical and quantitative analytical methods (e.g., standardized test scores).



The second type of knowledge, practical knowledge, illuminates a student's historical understanding of human and social interactions. This type of knowledge can typically be seen in liberal arts education and disciplines (e.g., history, sociology). The relevant analytical methods would include qualitative research and methodologies (e.g., ethnographic field work).

While both of these forms of knowledge are useful for creating a holistic learning experience, the critical educator is most interested in a third form of knowledge: emancipatory knowledge. Emancipatory knowledge specifically aims to help students understand how social relationships are distorted and manipulated by power and privilege. Without emancipatory knowledge, disadvantaged students are not equipped with the critical and political consciousness to understand the realities of the urban condition. This type does not necessarily stand in opposition to technical and practical knowledge, though. However, if inner-city students should become social agents in the classroom through critical pedagogy, then emancipatory knowledge is just as necessary to their learning experience as

technical and practical knowledge, for it creates the foundation for student empowerment.

All of these theoretical foundations establish the premise that public education is more than just an academic setting. Schools reflect the greater contestation of class, culture, power, and knowledge within society. This plays a huge role in the conflict low-income students face when trying to succeed within inner-city schools, for the culture and knowledge they bring do not align with the standard values in formal education. However, critical pedagogy presents an opportunity for inner-city students to identify this within the classroom and use this knowledge to address the greater social and economic conditions they face.

3.3 SOCIOLOGY OF EDUCATION AND CRITICAL PEDAGOGY

Critical pedagogy challenges both students and teachers to channel their experiences of oppression into educating and empowering marginalized peoples. Critical pedagogues approach education as a process of social, cultural, political, and individual transformation, where social equity can be nourished or social inequity perpetuated. According to critical pedagogues, notions defining rational classification of people into categories that diminish their social affect and importance keep them oppressed. Oppressed peoples thus require not only awareness of inequities they suffer but also an understanding of ways that oppressive social mechanisms and beliefs endure, and of resistance strategies. Reflection on one's own experiences of oppression and the feelings of frustration, shame, guilt, and rage that accompany those experiences help shape practices of critical pedagogy. Critical pedagogues redirect these feelings that can incite violent acts, submission, and/or ongoing repression into dynamic dialogue that defines literacy in terms of participatory citizenship.



Methods of critical pedagogy are as diverse as the people who practice them. However, some common elements and general themes include reworking roles of student and teacher, questioning economic categories of worth and success, and ongoing engagement with the social, cultural, and political interactions that perpetuate disenfranchised and marginalized identities. In a traditional educational environment, students listen to a lecturing teacher, who controls the flow of questions and answers. Part of the traditional student-teacher relationship is that students consume decontextualized knowledge produced by the teacher (and those who dictate what the teacher teaches). This arrangement, according to critical approaches to pedagogy, disenfranchises people by removing their control over experiential reflection, and by neglecting to address emotionally charged daily experiences through which cultural symbols gain greater meaning.

Critical pedagogy incites critique of social values based on economic measures of worth and identity. When economic value defines products and peoples who can or cannot afford them, participation in community governance pits those who have against those who have not, and freedoms may only be afforded by people with enough money to buy them. Critical pedagogues teach people how to effectively participate in community governance (voting, legislating, finding alternative resources), thereby empowering people who are in no position to challenge oppressive economic systems and values based on economic leverage.



Many scholars attribute the beginning of critical pedagogy to Karl Marx's writings on commodity fetishism and the social stratification that accompanies economic classification of people and resources, and to John Dewey's writings on educational theory and progressive schooling. More frequently, however, the beginnings of critical pedagogy are traced back to a school of thought, referred to as the Frankfurt School, that applied Marx's writings and critiques of capitalism to academic inquiries.

3.3.1 The Frankfurt School

The Frankfurt School identifies a school of thought originating at the Institute for Social Research (Institut für Sozialforschung) established at Frankfurt University in 1923. As such, its members, many Jewish radicals and all various Marxist scholars, observed first-hand the German fascists' rise to power. Austrian economist and historian Carl Grünberg became the first director of the Institute. Under Grünberg's charge, the Institute's research followed an orthodox Marxist avenue to investigate the economic structures of bourgeois society and problems with the European working class movement. Institute staff during its first six years included economist Henryk Grossman, who worked on crisis theory, and Orientalist Karl Wittfogel, then an active member of the German Communist Party (KPD).

After Grünberg suffered a stroke, Max Horkheimer became director in 1930. With this change of directorship came changes in the Institute's general approaches to studying capitalism and socialism. In addition to Horkheimer, some notable Frankfurt School figures from this period include Erich Fromm (psychologist and philosopher), Theodor W. Adorno (philosopher, sociologist, and musicologist), Herbert Marcuse (philosopher), and Walter Benjamin (essayist and literary critic). Changes in the way Institute members approached capitalism and socialism included distancing academic study from activism while nurturing inquiry into how cultural systems, Marx's historical materialism, and Freud's psychoanalysis help explain dynamics of working class political struggles. Later in the 1950s and 1960s, former Hitler Youth member Jürgen Habermas and others steered the Frankfurt School back toward left wing student activist stances, which required ongoing intellectual disagreement amongst Institute members.

By this time the Russian Revolution had transformed Marxism as a subject of intellectual inquiry into the state ideology of Marxism Leninism. This transformation, together with Adolf Hitler's accession to power in Germany in 1933, the abolition of the Austrian workers' movement in 1934, and Francisco Franco's seizure of power through the Spanish Civil War (1936-9), represented a decade of defeat for the ideals and freedom of inquiry sought by Institute members, who fled Germany in exile.

Because of these developments, the Institute began referring to its brand of Marxism as "critical theory," thereby distancing its work from overt ties to subversive ideals without abandoning them. In his 1937 paper "Philosophie und Kritische Theorie" (Traditional and Critical Theory), Horkheimer wrote: "The Marxist categories of class, exploitation, surplus value, profit, impoverishment, and collapse are moments of a conceptual whole whose meaning is to be sought, not in the reproduction of the present society, but in its transformation to a correct society." Themes developed by different Institute members in Horkheimer and Adorno's *Dialectic of Enlightenment* (1944) include the mass culture

industry, Enlightenment philosophy, postpositivism, rationality, anti-Semitism, fascism, authoritarianism, and psychoanalysis. Later, critical pedagogues developed these ideas into educational approaches for steering social transformations toward using more equitable categories.

3.3.2 Critical Theory, Pedagogy, and Consciousness

After Frankfurt School exiles developed critical theory as their brand of Marxism, Paulo Freire spread his brand of Marxism as a form of empowering education during his exile from Brazil. Brazilian voting laws in the 1950s and 1960s dictated that only functionally literate people were allowed to vote. Because share croppers and peasants were not given access to educational opportunities, these laws maintained a hegemonic power structure that kept the lower economic classes from having a voice in their governance. Freire spearheaded successful educational programs for these Brazilians, teaching them not only to read and write, but also how their constructive reflection and discussion of their experiences could sow literacy and participation in morally and ethically responsible community decision making. After President Joao Belchior Goulart invited Freire to implement a literacy program that aimed to teach reading, writing, and political understanding to 5 million illiterate Brazilians in the first year, a coup d'état plunged Brazil into over 20 years of military rule under which Freire was arrested twice and spent two months in prison before beginning his 16 years in exile.

Freire traveled extensively during those 16 years, a time in the United States marked by student activism and challenging capitalistic values. He defined the term "praxis" as a continual and balanced process of reflection and action, emphasizing that action arises from critical perception of lived experiences that can challenge oppressive social arrangements, so long as reflection does not dominate action or vice versa. Praxis at both the individual and collective level involves coming to what Freire described as a "critical consciousness," engaging in an ongoing process ("conscientization") of theoretical application, evaluation,

reflection, and further theorizing. Freire and many others who furthered the concepts of praxis and critical consciousness helped not only to develop critical pedagogy but also to pave the road to studies of postcolonialism and postmodernism.

The Civil Rights Movement in the United States at that time significantly fueled the development of critical pedagogy. Septima Poinsette Clark, who taught both children and illiterate adults in South Carolina and Tennessee (with Myles Horton at the Highlander Folk School), related problems these people faced in everyday life to English, math, and political concepts. She founded "citizenship schools" on these principles, and worked with judges and community groups to get equal pay for black and white schoolteachers. As a young black woman in the Southern, rural United States, bell hooks identified with the marginalized peasants she read about in Freire's work. Yet, hooks challenged the language Freire used as one that marginalized women, and subsequently became a figure in the feminist movement, educating and writing on topics that encouraged people to use education as a means of practicing freedom.

Ivan Illich's Deschooling Society (1970) described this in terms of how traditional school systems make all students powerless and directly model capitalist social arrangements that critical pedagogies aim to transform. Paul Willis presents his notable ethnographic work on how schools ensure that working class students get working class jobs in his book *Learning to Labor* (1977). Ira Shor, another leading proponent of critical pedagogy, joined forces with Freire and emphasized that traditional capitalist definitions of literacy and education not only oppress lower social classes, but also perpetuate inequality through middle and upper social class strata as well. Because social transformation arises from praxis at the collective level, critical pedagogues maintain that education for critical consciousness must take place at all levels of society and among all categories of people to instigate necessary social change.

The democratic school and free school movement grew from these and many others' works. These schools focus on participatory

democracy by allowing student teachers and teacher students the power to choose what they learn and teach, with minimal class or activity requirements. By so doing, participation in democratic school activities helps people question the mass culture industry that perpetuates inequalities. The mass culture industry commodifies education just like any other good or service, but critical pedagogues aim to spread informed dissidence that breaches the boundaries set by capitalist categories of people and of knowledge.

When corporations superficially adopt principles of critical pedagogy to sell products, they introduce elements of confusion to those new to the concepts of critical pedagogy. For example, "praxis" became the name of a standardized test used to evaluate teachers in training. A main goal of critical pedagogy challenges people to think and act against forces of commodification and the stratified categories that perpetuate social injustices. Such categories inherently define most, if not all, standardized tests, and place pressure on critical pedagogues to conform instead of transform.

Henry Giroux, another noted critical pedagogue, chose to leave the more culturally credentialed Penn State University, after 10 years, for McMaster University in Canada, because he observed increased alliances among corporate values and interests in the United States' university system. Giroux's move exemplifies problems faced by critical pedagogues.

On one hand, they draw emotional and material support for their ideas and their communities from people raised according to capitalistic values. On the other hand, the principles they live and learn by inherently reject capitalistic values and ways they find support (such as commodification of educational services and concepts). Concepts drawn from social constructivism address these issues through exploration of how people "socially construct" their society, culture, and realities through enactment of recurring stratified interactions.

3.4 SCHOOLS AS SITES OF CULTURAL & SOCIAL REPRODUCTION

“Urban schools are not broken; they are doing exactly what they are designed to do.” - Ernest Morrell

Not only do critical pedagogues argue that schools are representative of the greater power relations in society, but they also contend that schools merely reproduce the inequalities and social hierarchy in place. Using the theory of social reproduction, this section provides a more focused description of how class and culture intersect in schools to produce inequitable outcomes for public school students.

3.4.1 The School as a Cultural and Political Enterprise

Critical pedagogues identify the school as an arena of cultural politics. This definition is particularly useful for the aims of critical pedagogy; before a school can be seen as a site of social transformation and empowerment, it must first be understood as a site of power contestation between opposing social groups.

The argument that schools have historically been used to socialize the youth into the dominant culture is not a unique claim to critical pedagogues alone. Many scholars in the field of sociology have argued that the school is more than just an institution of academic learning. Yet, what makes this frame particularly useful in critical education discourse is that it emphasizes the role schools play in reinforcing the dominant culture's power.



To be more specific, in inner-city schools, students enter classrooms with a racial and/or cultural identity they have adopted from their urban communities. For instance, many inner-city black youth embrace what mainstream society would consider a “street” persona, an identity that does not completely align with middle and upper-class definitions of an American. Since schools partially function as a socializing mechanism, inner-city students receive messages that their chosen identities are not an appropriate fit for mainstream America. When these schools ignore or negate the value of the students’ urban identity, a clash of cultures then emerges. Inner-city students are faced with the false binary to either assimilate into the mainstream American and achieve academic success, or retain their urban identity and become society’s outsiders. This form of cultural politics contributes to the dysfunction within urban schools and will later explain why the phenomenon of student resistance often occurs in inner-city classrooms; many students choose to participate in the oppositional culture and reject the American socialization process.

3.4.2 Defining Social Reproduction

Critical educational theorists have long explored how schools perpetuate social reproduction, which is defined as “the reproduction of social relationships and attitudes that maintain

the existing class relations and economic hierarchy of the larger society.” Social reproduction theory examines how schools can prematurely organize students into occupational classes and further perpetuate inequalities. Some examples of these socially reproductive mechanisms include: the allocation of students into private or public schools (and the determinants of this structural allocation), the socioeconomic demographics of individual schools, and the placement of students into curriculum tracks.

This field of thought is largely inspired by the works of German philosopher Karl Marx and his theory of economic determinism, which describes social and political institutions as structural reinforcements of economic and class interests. However, critical education theorists contend social reproduction is more than simply a case of reproducing socioeconomic status. Critical pedagogues particularly highlight the importance of social, cultural, and linguistic factors.



While the effect is always the intergenerational reproduction of social class (i.e., working-class students become working-class adults, middle-class students become middle-class adults, and upper-class students become upper-class adults), the forces behind social reproduction may manifest in various forms. In addition, school administrators, teachers, and even students themselves are all capable of contributing to the process of social reproduction.

There is a mix of both theoretically-based works and critical

ethnographies of schools to demonstrate these reproductive forces in classrooms. Jean Anyon (1980) conducted one of the original research analyses of social reproduction in American classrooms. Her work illuminated the differentiation in pedagogical practices among schools of different classes. According to her research, “working-class schools” instructed students to “follow steps of a procedure.” Rather than being rewarded for taking individual freedoms in their education, students were only taught to respect authority and conform to obedience. Lower-class students were also denied opportunity for critical thinking in the learning process; teachers simply handed them assignments with little explanation to their relevance or influence in bettering their educational outcomes.

Since not much value or meaning was placed in their schoolwork, lower-class students then viewed education as a mundane routine of rules and regulations rather than as a sincere route of learning. In this case, the socially reproductive forces were the pedagogical practices that failed to: 1) intellectually stimulate the students so they could achieve academic growth, 2) motivate them with the ambition to further pursue their education, and 3) equip them with the skills necessary to attend higher education and become more competitive in the job marketplace.

It is important to note, however, that few recent studies on social reproduction in American classrooms have been published to confirm Anyon’s original research findings that the differentiation in instructional practices in schools is largely correlated to the socioeconomic demographics of the student population.

3.4.3 Social and Cultural Capital

Similar to social reproduction, cultural reproduction is an inequality-producing process that functions on class-based differences in cultural capital, which is defined by French sociologist Pierre Bourdieu as the general background, knowledge, disposition, and skills that are passed on from one generation to another. Economically privileged students inherit substantially

different cultural capital from their families and neighborhoods than disadvantaged students, but schools tend to only reward those who exhibit the capital of the middle and upper class. Schools then systematically depreciate the cultural capital of students who occupy subordinate class positions.

For example, linguistic competency is one common form of cultural capital that critical theorists argue is generally rewarded to students who exhibit the middle and upper-class linguistic codes. On the other hand, schools will devalue students who use “street” coded speech, which is spoken predominantly by low-income and minority youth. If inner-city students do not master upper-class speech or gain access to other forms of their cultural capital (e.g., social and professional networks), they are unable to properly navigate the educational system and achieve academic and professional success.

3.4.4 Student Resistance

Another case of social reproduction appears through the phenomenon of student resistance, and this theory further questions the processes by which the school system sustains the inequalities found in a class and race-divided society. As stated earlier, schools attempt to socialize a student by instituting cultural values characteristic of mainstream society. However, if students recognize this, they may respond with adverse behaviors.

One major contribution to resistance theory was made by Jay MacLeod (2009) and his field study of low-income students who engaged in classroom episodes of student resistance. He found that through their own oppositional culture of rebellion, inner-city students often implicated themselves even further in their own subordinate positions. More specifically, the students he encountered held negative perceptions and attitudes of their schools and viewed them as discouraging of upward mobility. Students believed they were being “whitewashed” and claimed they were taught that they were nothing more than society’s outsiders. Resenting the schooling agenda, the students dropped

out and turned to low-wage positions or drug-dealing for income. However, by rejecting schooling, these students only became further trapped in their lower social status, helping to perpetuate the status quo of inequality.

MacLeod's findings also established a link between students' personal aspirations and social reproduction. If students assessed opportunity and acceptance within their school, they were more likely to actively pursue their education. However, if they did not see the school as socially mobile or culturally inclusive, they became frustrated with their inability to realize their academic ambitions while also maintaining their sense of identity.

Paradoxically, schools both reinforce the culture of the dominant class and incite a backlash of resistance and oppositional culture. In spite of their differences, these social dynamics nonetheless produce the same effect in maintaining the status quo. Whether an innercity student chooses to accept or reject urban schooling, the chances for social mobility remain slim. If they stay within the system, the pedagogical practices only prepare for them for lowerclass positions in the job marketplace; instruction promotes discipline and obedience to behavioral rules rather than encouraging creative and intellectual stimulation. Yet, if students prematurely leave the educational system, the only occupations available for them are of the lower and working class.

In sum, socially reproductive processes manifest through the school culture, curricula, classroom procedure, pedagogical practices, and other facets of the schooling process. They collectively reflect an ideological organization of lower-class students into social positions, restricting them from opportunities of upward social mobility. If inner-city students only have access to the lower class status, then school is no longer a place for fulfilling the American dream; rather, it is a hub for maintaining the status quo.

Social reproduction theory also demonstrates that culture is just as integral to reproducing inequality in schools as material wealth, for it functions on class-based differences in both economic and cultural capital. Thus, in order for educational opportunity and social mobility to become a reality for inner-city students, teachers must counter classroom procedures that is discouraging

of students' cultural identities or that requires the very capital to which these students have little legitimate access. Without a change in urban pedagogical practices and classroom cultures, inner-city students will continue to remain marginalized in subordinated positions.

3.5 TEACHING ISSUES OF INEQUALITY THROUGH A CRITICAL PEDAGOGY OF PLACE

Sustainability, engagement, place-based and experiential learning are buzz-words in public discourse from classrooms to community organizations, but what do these words mean and how do we as educators create meaningful learning experiences where learners, whether traditional students or community members, can learn and practice the sociological imagination? This section provides an example of how educators from academia and the larger community of which they are a part can build partnerships where both students and community members can benefit as they work to build a future where social responsibility becomes practice and not just theory.

Today, both students and faculty engage in discourse and the study of ideas of sustainability in relation to society and the environment. However, it is less common for these same ideas of sustainability to apply to critiques and analyses of a larger sustainable culture. In terms of thinking about sustainability, students and faculty must push themselves to also consider aspects of social, political, and economic sustainability. How to conceptualize these ideas, and what they might and could mean especially in terms of addressing issues of inequality provides many areas for new research and theorizing. This is the logical next step in addressing sustainability and several environmental sociologists suggest that environmental issues cannot be dealt with until inequality is addressed.

This section challenges educators to consider how teaching issues of social, political, and economic inequality can be addressed in the classroom and how students can participate in the work of a

sustainable community by becoming “student-teachers”. A course on *Inequalities in the U.S.* at a small liberal arts college has been redesigned to incorporate ideas and concepts related to social, political, and economic sustainability. The purpose was for students to address and understand inequalities within the context of the U.S. at both the macro and the micro level in terms of how inequality can be seen and understood as a social issue that should be examined at multiple levels. By partnering with The Cumberland County Historical Society, course objectives and assignments have been rethought so that students can come to understand inequalities as they exist in the shared social environments around them through local spaces, not just in the abstract macro spaces that they are used to considering in the academic classroom. Through place-based and experiential learning activities, students are able to come to a better understanding of the study of inequalities both theoretically and as applied to specific local, state, regional, and national contexts.

Issues related to the effects of the system of stratification based on race, class, gender, sexuality, etc. within the U.S. need to be rethought in how they must be addressed in holistic and sustainable ways to achieve real and lasting solutions through social change. By addressing the teaching of inequalities in this way service-learning, experiential, and place-based learning opportunities have been incorporated where students can spend time at local community organizations and use both qualitative and quantitative methods and reasoning. The objective is to enable students to see inequality within local, regional, and national contexts and to link these experiences to global forces. At the same time students need to learn to see the social worlds that we inhabit and for them to become active participants in the local community where they become teachers on issues of inequality.

One of the main pedagogical goals was to take this course and to teach it with an integrated service-learning component, which would allow students to examine areas of American society related to inequalities of race, class, and gender. Experiential based learning was incorporated through service learning projects where

students would be required to spend time at a local community organization. This was done as a means to use C. Wright Mills' "sociological imagination" whereby students could link personal troubles to larger social issues, enabling them to see inequality within local, regional, national, and global contexts, and encourage them to make connections to the larger social worlds that they inhabit.

The project stretches the traditional study of inequality to make use of place-based learning and to facilitate the identification of various forms of inequality in the social world around us by providing a framework through which students are able to exit the campus bubble and to meaningfully engage in the local community. The study of inequality often examines the distribution of power and resources within a society but often fails to put a personal face to these issues, which are often treated at the macro level through examining the distribution of power and resources. The goal of this project was to rethink the course *Inequalities in the U.S* so that it challenges students to not only think about inequality abstractly and theoretically, but concretely and experientially.

This should both enable and empower students to think about inequality not only at the national and regional levels but also at the state and local community levels. This course redesign advances learning because it directs students to examine how inequality is an unsustainable social practice and how a more sustainable society might be better designed to ameliorate issues of inequality. By participating in service-learning projects students are able to connect the problems and solutions to inequality from the classroom to the actual lived experience of individuals and communities. A key component of this redesign is an attempt to get students to engage in ideas outside of the classroom and to get their hands dirty through taking ideas and concepts related to inequality and to apply them through research and service learning.

This project, it is hoped, will contribute to the relationship building between 'town and gown' so that both the communities of a small liberal arts college, a local historical society, and the surrounding

municipality will be able to see themselves not as separate, but as parts of the same community. A large part of this project is for students to not only learn about inequality through the local community as a living laboratory, but also flip their roles as students and become what Freire refers to as “student-teachers”. Thus they will not only learn, but in turn teach what they learn to both each other and the larger community. One of the key ways of dealing with sustainability and with issues of inequality is first and foremost educating publics about issues as a means to instigate social change.

Learning for the sake of learning is good, but learning for the sake of praxis lends itself to more active and engaged learning and social action. When learning can be applied and shared, it amplifies itself and moves beyond an individual act and becomes an act of community building. Learning of this type is necessarily situated within a particular place and at a particular time with particular actors. In order to implement a pedagogy of place specific social change towards sustainability, this section now turns to a discussion of Freirian pedagogy, which lends itself to praxis as a form of social change through consciousness building or awakening.

Praxis is the reflective act of transforming the world through the application of theory. In Freire’s life and work, it took the form of helping individuals learn to understand their world through the process of *conscientização*, “by making it possible for [women and] men to enter the historical process as responsible Subjects”. For Freire, pedagogy is a means for teaching-learning and inspiring the process of learning-teaching in others, subsequently effecting action through developing a critical consciousness or *conscientização*.

The ideas of Freire, were integral to exploring how the educational process of learning about inequality could be both a means for student-learning and student-teaching. Freire saw education as suffering from “narration sickness” and to a large extent we can make the same claim about society as a whole. People are often told what is wrong, what they need, and how to fix it without

ever becoming active knowing subjects. Instead, they remain submissive objects throughout this entire process of citizenship. For Freire, knowledge is only possible through the dialectic process of constant engagement and recreation. To address this, Freire recreated and restructured the student-teacher relationship. This relationship must be recreated and rethought to become one of collaboration and mutual participation in the process of knowledge creation and analysis of material conditions. Through the process of dialogue the two parties must work together to create a holistic form of pedagogy that allows students and teachers to become autonomous, conscious, active decision makers in the process of their own participation in their communities and the larger world. Integral to this restructured relationship is the process of dialogue “whose goal is social as much as individual change”. But this change can only take place in an educational process that is engaged in by “two learners who occupy somewhat different spaces in an ongoing dialogue”. The idea of an ongoing dialogue is essential to the idea of people as uncompleted beings who are always seeking to grow and become better beings. It is also through the creation of an educational dialogue that we can begin to investigate “the possibilities for invigorating public spaces as sites of community solidarity and democratic action”.

This course was designed in a number of different stages so that students could build on new knowledge and apply it at various points during the semester. Initially students began with a series of readings addressing larger macro assessments of inequality in the U.S. regarding issues such as race, class, gender, and equality of opportunity or lack thereof in access to education, health care, wealth, income, etc.. These readings were then followed by a series of readings dealing with public sociology, public history blogs and pedagogy. The idea was for students to not only learn, but take what they learned and share that knowledge with others through the creation of public interactive history exhibits at the local historical society.

In order for students to get a better understanding of how these exhibits would work, they were initially introduced to the

Cumberland County Historical Society (CCHS) and led through a discussion on the importance of public history and its role in communities as well as issues the CCHS faces in terms of accessibility and overcoming its own history as a type of institution constrained by race, class, and gender. Students toured the exhibits and examined how the stories of race, class, and gender are or are not portrayed, and identified historic events that have affected the divisions of race and class within the physical space of Carlisle, PA. Students were then given surveys for analyzing how the existing exhibit space addresses issues of education and representation of community groups in terms of easily recognizable identity markers such as race, class, and gender through discussion. They were then able to tease out the various readings and perspectives they themselves brought into the space as well. This was done to give students both an introduction to the space and a feel for the kind of work currently being done. It was also a means for the CCHS to obtain useful feedback in terms of evaluation of their portrayal of aspects of diversity and inequality.

Another integral part to this project was the incorporation of service-learning. This sought to serve two mutually beneficial ends. The first was to create a more reciprocal relationship with the CCHS by providing (wo)man power for the interactive history workshop space. The second was so students would be able to understand how the public interacts with exhibits and to have practical experience and knowledge necessary for designing their own interactive history exhibits dealing with inequality in the local community.

Students were able to apply information from the class materials to experiences, and thus think critically about the parallels between the theory and experiences of forms of inequality. Gruenewald identifies that one of the reasons a critical pedagogy of place is so important is that the “education of citizens might have some direct bearing on the well-being of the social and ecological places people actually inhabit”

The service-learning component also provided students with the opportunity to contribute to and participate in the local community.

This was when they began to take on the role of “student-teacher”. Their service work provided them with opportunities to gain new skills and also apply skills acquired through their formal education, learn more about themselves, and compare and contrast what they were learning in the classroom to the larger world. Additionally, these experiences added perspective to the course readings and discussions. Through their service work, they were also able to develop a deeper understanding of how nonprofit organizations try to address the needs of local populations. These experiences gave students a more complex understanding about how *they* can make a difference in their communities through taking on the role of the “student-teacher” and “teacher-student”.

Education, or lifelong learning, becomes the activity of conscious individuals within society. Specifically, human praxis entails the insoluble unity between action in and reflection on the world. This interaction is the positioning and engagement of the individual in society. What is important to note is that *conscientização* cannot exist without praxis or as Freire wrote “action-reflection”. When you teach a person to read and write you are teaching them to name the world. This dialogical process is essential because in traditional “banking” systems of education “the fragmentation of skills and bodies of knowledge . . . creates the inability to make linkages, and . . . it deadens the senses. This process leads to a de facto social construction of not seeing”. An important part of the service-learning was to ensure that students had adequate time for reflection of their experiences not only in terms of processing their work within public spaces, but also by making the connections between the theory of the classroom and their lived experience and practice; in short to make sure that they were seeing. Students were periodically expected to write reflective essays linking the two worlds of the classroom and the local community through their service-learning work. Reflection served to allow students to grapple with the world and to see how they fit into the overall social structure.

To make this process as smooth as possible and to also extract higher levels of meaning, discussions were held and readings

were given to conduct participant observation and take field notes (i.e. Warren & Karner 2015) to provide the necessary tools for students to make use of the academic knowledge within a particular setting. Theory is important but only in so much as it is connected to a practice and results in affecting praxis. Pedagogy is a process that consists of the unity of the theory and practice of education. Freire explains the interrelation of theory and practice and the significance of this dialectical relationship. He wrote that in order “to practice better” he had “to look for the help of theories”. Through this process, Freire states that one must learn “to not dichotomize theory and practice, and to never perceive them as being isolated from each other, but in permanent contradictory and dialectical relationship”. Pedagogy identifies the what, why, and how of a process of education, theoretically and methodologically.

Integrating a certain amount of research methods training was necessary to ensure that students had the parameters and skills to actively understand and acquire the knowledge necessary to identify markers of inequality within social spaces. To this end, students were assigned more directed readings on race, class, and gender in urban settings and on qualitative methods involving place and analyzing material objects. Readings were followed with discussion and students were given tasks to complete that required them to practice these methods. For example, after readings on objects as material culture and how to read objects as social artifacts, students were taken to a local art museum. Previously, an assignment had been created where students would analyze a series of works of art around street scenes in various cities. Together with the art curator, an educational experience was created where students, upon entering the gallery, were asked to walk around and identify a work that they felt compelling. This was followed by a discussion of why they had been drawn to the particular work and what had caught their attention. Context of the works was provided in a brief lecture and students were asked to explain issues of inequality, such as representations of race, class, and gender within the works. The discussion then addressed why certain aspects of individuals were portrayed in

particular ways and how they could be analyzed both now and at the time they were produced. By focusing students on the two time specific moments of meaning creation, students were required to apply the sociological imagination of C. Wright Mills (1959). This particular educational experience was carried out towards the beginning of the semester after having laid groundwork of main themes and concepts within the study of social stratification and inequality. This was done so that students could then apply their acquired knowledge and so that they could practice the skills of looking and observing before using the same skills within the local neighborhoods to which they were assigned.

The next stage in this educational project was focused on understanding the specific intersections of race, class, and gender within the particular space of the community. In order to achieve this, students were asked to read excerpts on these topics in relation to urban settings. Then students were given a map of the borough and assigned to a group. Each group was then responsible for exploring a section of the city. Students were asked to identify the racial mix of various neighborhoods and seek to identify racial segregation in the form of racial and ethnic enclaves. Students then compared their own empirical results to the Census data provided on the racial make-up of the town. Students then identified the class background of various neighborhoods and sought to categorize which residential neighborhoods belonged to which socio-economic classes. Care was taken to identify material markers of social class. Students compared their findings to the Census data provided on income and wealth. Finally, students were asked to consider where gendered spaces could be located and the impacts these divisions had on the community. These mapping projects were presented to the class in order to create a holistic view of the entire community and to encourage across group collaboration among students.

At this point the groundwork was in place for students to complete the final class project (the design of interactive history exhibits for the CCHS). Students were assigned groups by choosing one student from each of the previous groups so that all members of

the new group had seen a different perspective of the community through different neighborhoods. Students were then directed to individually write a one-page concept proposal of how they would create a teachable interactive exhibit about the historical and current inequalities in the community. Students were guided to focus on themes concerning issues of race, ethnicity, class, gender, etc. Each group would then decide which of the five proposals they thought met the objectives for a public interactive history exhibit on inequality. As a group they would then prepare multimedia exhibits examining inequality through time in the local community. Students were expected to make the presentation an interactive learning experience that could then be built and implemented at the CCHS.

Freire understands that pedagogy as a project of *conscientização* or “educational practice is a necessary dimension of social practice”. As such, he emphasizes that the educational practice of *conscientização* must include “popular participation” and the ability to engage “the dialectic unity between theory and practice”. Giroux points out that “pedagogy works to produce, circulate, and confirm particular forms of knowledge”. This reminds us that no educational project or pedagogy is neutral. The act of learning and the act of teaching to publics became the educational practice of the students by creating spaces to question the historical and current forms of inequalities of a place. This manifest itself through students who made comments about never having realized the differences in race and class in the city of Carlisle and who did not realize that poverty presented itself clearly to a conscious observer.

One of the main goals of this project has been to bridge the gap between the college classroom and the local community. Hattery and Smith speak to “the importance of involving students in the communities in which they are living” as one of the key perspectives offered when utilizing a framework of public sociology. This became most visible amongst those students marked by race, class, and gender. One thanked me for having provided space for said student to actually address issues of inequality in students home community. This was productive for the class as a whole

as students were able to make links not only between the global, national, and local, but also between localities. This project has also sought to help students realize that they interact with and are part of a community and social world beyond the ivory tower. Through the process of engaging in place-based education, through service-learning activities, and through experiential learning, students are able to engage with knowledge in new and creative ways. They also begin to break down the dichotomy of teacher/student and they become student-teachers and realize that beyond just absorbing and regurgitating information they can actually take that information and apply it to the world around them. By working in partnership with local community organizations and immersing themselves in local social institutions, they begin to understand the power they have to engage in a pedagogy of place that can lead to positive social changes in the place specific locations in which they find themselves.

This section has sought to illustrate how educators from both academia and other social institutions (such as local historical societies) can partner in ways that are mutually beneficial to both institutions and participants as well as the publics that they serve. By creating meaningful learning experiences education becomes not just a passive act, but a means for learning subjects to understand and engage with the world around them. In this particular case study, historical and ongoing issues of inequality were learned about, documented, and taught as a means of creating dialogue between groups that normally do not interact. By performing this work within institutions it co-opted traditional spaces with specific histories of race, class, and gender to use them in innovative ways to both create knowledge for and deliver knowledge to local communities. By highlighting issues we may be more comfortable avoiding, an educational space has been created that can encourage dialogues for finding solutions to inequality within and between our neighborhoods and thus lead us to developing more holistic practices for building sustainable communities.

3.6 CULTURALLY RELEVANT PEDAGOGY: MAKING CRITICAL EDUCATION WORK IN URBAN SCHOOLS

This section explores how critical pedagogy can be applied in real urban classrooms, particularly those occupied by minority students. By incorporating racial identity into the critical pedagogical approach, students are able to draw upon the systemic racial issues in both their personal lives and communities to engage in classroom learning. This section explores how culturally relevant pedagogy can be modeled in inner-city classrooms through project-based learning and critical research. Through this method, students are able to personally connect with their education and develop the critical literacy to understand the social injustices within their communities.

3.6.1 Culturally Relevant Instruction: An Additive Model

Many urban schools harbor culturally exclusive practices; urban students are asked, either implicitly or explicitly, to exchange the culture of their home and community for the higher culture of the school. This approach to schooling often reduces the life choices for non-white youth into a false binary: they must decide between retaining their urban identities and becoming an academic failure or “escaping the hood” to achieve success.

Alternatively, an additive model of education would focus on designing urban pedagogy that identifies inner-city students’ cultures and communities as assets . This approach breaks the cycle of disinvestment in urban communities; it inspires inner-city students to recognize their potential agency in improving their communities rather than seeing them as places to escape. This method of instruction provides urban youth a renewed sense of purpose in school, and it offers the community the necessary actors to contribute to its social, economic, and political revitalization.

3.6.2 Critical Praxis

Culturally relevant pedagogy employs the five steps in critical praxis; originally termed by critical pedagogues, this process allows teachers and students to commit to an education that leads to action and reflection. This process has five stages:

- Identify a problem.
- Analyze the problem.
- Create a plan of action to address the problem.
- Implement the plan of action.
- Analyze and evaluate the action.

Through this process of critical reflection, urban students are not only developing the academic competencies of problem-solving skills, they are also engaging in a cycle of critical reflection on the very issues they face within their urban communities. Critical praxis breaks down the inherent power relations in traditional instruction and recognizes students as collaborators with their teachers. It repositions students as actors and contributors.

There have been several documented cases in implementing this approach to critically engage poor and urban students. While this paper is not necessarily an implementation guide, but a more philosophical paper in nature, it is still useful to translate the abstract and ideological notions of critical pedagogy into real-life practice in urban classrooms.

An example

The second portion of this section examines one specific example of culturally relevant pedagogy with youth participatory action research, a process where urban youth conduct a collective investigation of a pressing social conflict. In this example, critical pedagogy author Ernest Morrell led a cohort of young students in Oakland, California to become critical action researchers within their own communities. The outcomes of their research both enhanced their academic skill development and passion for

social and educational justice. The following description will also illustrate how these projects employed the five steps of critical praxis.

Identify the Problem

The project sought to answer the following questions: What does every student in California deserve? What inequalities arise in the experiences of California's students? Why do these inequalities arise? How can youth use research to play a part in legal advocacy?

Analyze the Problem

The students were divided into research teams, and each team utilized both qualitative and quantitative methods to research the student learning experience in Los Angeles-area schools. The students used audiotape recordings, video and still digital photography, and interviews with educational researchers, community organizers, school administrators, civil rights attorneys, and elected officials. Students also examined statistical databases and researched other historical artifacts such as yearbooks, newspaper articles, and photographs. Through these research methods, the students were able to collect meaningful data that articulated a narrative of schooling for students of color in the city.

Create and Implement a Plan of Action

Student research teams then produced PowerPoint presentations and reports that presented their research findings, which included policy recommendations for urban public schools. The students then presented their proposals to university faculty, local and state politicians, teachers, community members, and parents on how to better improve the experiences of students of color in Los Angeles.

Analyze and Evaluate

After the first year of this project, students returned to their original research questions and decided to conduct another oral history of the area. Through critical reflection, the youth were able to further develop their research and address unanswered questions relating to educational equity and access in the city.

Through this project, the high school students were able to reposition themselves in relationship to their own histories, and they were able to share valuable information with community organizations, parents, peers, and policymakers who were all actively involved in fighting for educational, social, and racial justice in their city. Moreover, what differentiated this project from other traditional modes of student research in classrooms was that it involved collective action and made the city the context for learning.

Therefore, to implement critical pedagogy in urban contexts, it is vital that educators identify the curriculum that is intriguing enough to generate student engagement and relevant enough to warrant student participation. It should answer the question, "Why is this important to me, my future life, and the future of my community?"

This also means that developing a culturally relevant curriculum and pedagogy should address the material concerns of students and their communities (e.g., education, housing, justice, jobs), and it should encourage students to use what they are learning to act upon these social and economic concerns. In addition, although this example draws primarily from social science research, culturally relevant pedagogy can manifest in other forms and cuts across several subjects and areas. This example is just particularly poignant in illustrating the social justice component of culturally relevant pedagogy.

This example also illustrates that culturally relevant pedagogy does not have to exclude other conventional modes of instruction and curriculum. Teachers are not faced with the false binary of

choosing between a classic curriculum and a curriculum focused on the lived experiences of the students. Rather, culturally relevant pedagogy can be both; its instruction builds on the knowledge students bring into the classroom and uses it to enhance their academic potential.

3.6.3 Challenges to Realizing Critical Pedagogy in Urban Education

Although critical and culturally relevant pedagogy present possible tools for transforming the quality of urban education, the theory's abstract and humanistic ideals will confront serious challenges in practice. If critical pedagogues believe teachers are to play a role in developing students' critical literacy, the teacher must then possess a sufficient level of competency and effectiveness in student instruction. However, the current state of affairs in urban schools, and the public education system more generally, show several structural and organizational barriers to teacher effectiveness in America. These obstacles must be thoroughly addressed in order for critical pedagogy to be effectively implemented in urban classrooms. The current research data on the urban teaching workforce reveals that many teachers are not yet fully capable of being critical educators, for a high percentage of them are novice teachers and inexperienced in teaching at-risk students. Moreover, the high rates of teacher turnover in urban schools, especially among minority teachers, illustrate another organizational challenge: sustaining a stable school environment. One significant contributing factor behind high turnover rates is the frustration among teachers, both white and non-white, with inner-city schools' working conditions. More specifically, they are discouraged by the lack of individual autonomy in directing their classrooms. If urban teachers are to fulfill their role as social agents, new policy measures must ensure these teachers are both properly qualified and prepared to teach inner-city students. Urban schools must also improve their working conditions and have a culture that is both stable and conducive for critical education.

Urban Teachers: Growing Younger and Less Experienced

Over the past few decades, the demographics of the American teaching force have significantly changed. Although these shifts cut across several dimensions, ranging from gender to race, age, experience, and other teaching factors, this section will specifically explore the most relevant changes in urban schools that will challenge the implementation of culturally relevant pedagogy.

Arguably the most problematic transformation in the teaching workforce is the growing number of younger and less-experienced teachers. While recent research reports have shown that the number of teachers has significantly increased, this influx of is not a direct indicator of a rise in qualified or experienced instructors. In fact, this rise is partially attributed to the growth in new hires; recent college graduates, as well as middle-aged persons who make a mid-career switch to teaching, are driving the expansion of the teaching workforce.

However, research has shown that newly hired teachers experience great difficulty in instruction when they first enter the profession; it takes a minimum of three years for novice teachers to attain a proficient level in instruction. Moreover, before they can become critical pedagogues, novice teachers must have the maturity to understand each individual student's academic and emotional needs, as well as have the critical awareness that these needs connect to greater social issues the youth face in their communities. However, not only are inexperienced teachers less likely to produce academic achievement among students, but they are also less likely to possess other necessary qualities of effective teaching, such as handling behavioral problems.

Since inner-city schools are known to have a climate of disruptive behaviors and violence, the challenge for newly hired teachers is prominent. If the number of inexperienced teachers continues to rise and dominate the teaching workforce, this presents serious challenges to the realization of culturally relevant pedagogy. Critical educational theory demands teachers to have both the intellectual competency and instructional capability of integrating

students' personal and social experiences into classroom learning. It requires teachers to have an acute awareness of their students' personal backgrounds.

All of these skills are key for empowering inner-city students around issues of social justice in the classroom. Anchoring critical pedagogy in racial and cultural identity entails a significant level of maturity, professionalism, and empathy. These qualities are highly useful for working with at-risk, low-income, and minority youth. Unfortunately, the majority of novice teachers have not yet reached a quality level of instruction, or attained the proper skill sets, to critically engage inner-city students to be agents in the classroom.

There is one silver lining, though, in the recent research report; the expansion of the teaching workforce is also partially attributed to the increase in veteran teachers. While the growth of younger and inexperienced teachers is outpacing the growth of veteran teachers, there is still opportunity for veterans to play an integral role in improving the efficacy of new hires. Research has shown that when veterans mentor novice teachers, they increase their capacity to promote academic achievement. If more veteran teachers were to stay in inner-city schools, professional development programs should ensure mentorships and mutually beneficial relationships are established between veteran and novice instructors so they can be ready to handle the demands of urban and culturally relevant instruction.

Teacher Turnover

However, the rise of younger and less-experienced teachers is not the only potential conflict to promoting critical pedagogy. High teacher turnover rates in inner-city schools pose a serious challenge to the stability of school environments and the opportunity to foster a culture of critical learning.

Two statistics are particularly telling of the current teacher staffing crisis in urban schools. First, novice teachers have the highest turnover rates of any group of teachers. Second, around

one quarter of public schools are contributing to nearly half of the public teacher turnover, and the concentration of this turnover is located in mostly high-poverty and high-minority schools. Moreover, recent research shows that teachers who are leaving low-income and inner-city schools are not necessarily quitting the teaching profession; rather, a good percentage of them are leaving to teach at wealthier and whiter school.

This high level of attrition among novice teachers, especially in inner-city schools, contributes to the low level of teacher quality in urban school districts. When novice teachers leave to teach in privileged schools, they create the job openings for other less-experienced teachers to take their place. This only perpetuates a dangerous cycle of under-developed teachers continuously occupying inner-city classrooms.

In addition, minority teachers in inner-city schools are experiencing relatively higher levels of teacher turnover than their white counterparts. This statistic is particularly interesting considering the fact that the teaching workforce has diversified in recent decades, and recruitment efforts to increase the number of minority teachers in inner-city schools has had some degree of success; more minority teachers are employed in under-resourced schools now than ever before. However, in spite of the increase in minority teachers serving at-risk and disadvantaged student populations, many of these teachers soon leave.

Why are both novice and minority teachers leaving inner-city schools? These teachers primarily attribute their departure to the unsatisfying school working conditions, claiming that high-poverty and high-minority schools do not give them the individual autonomy to make critical decisions concerning their teaching responsibilities. While there are certainly other contributing factors, the primary determinant is administrative control and the ability of instructors to use their own discretion in the curriculum and classroom learning process.

In conjunction with the influx of novice and inexperienced teachers, if high turnover rates continue to affect inner-city schools, teacher

quality will pose a serious challenge to realizing culturally relevant pedagogy. The cycle of novice teachers both entering and leaving inner-city classrooms creates instability in school environments and impedes teachers' professional development.

Teacher retention must be seriously addressed in inner-city schools, for long-term teacher-student relationships have been shown to be positively influential in student outcomes. The lack of these long-term relationships has also been strongly linked to the minority achievement gap and persistent educational disparities. Moreover, minority teachers can serve as adult role models for minority students who lack contact with teachers who understand their racial and cultural background. It is much easier to implement culturally relevant pedagogy when the teachers are already in tune with students' racial and cultural identities. However, if minority teachers continue to leave at-risk schools, the prospects of realizing culturally relevant pedagogy are dim.

Implications for Policymaking

In order for culturally relevant pedagogy to be effective in urban education, policy measures should better promote teacher effectiveness and address the structural issues surrounding teacher turnover. Professional development programs should allow novice teachers to develop the required competency to effectively teach inner-city students. In addition, while recruitment initiatives have been moderately successful in increasing the number of minority teachers in inner-city schools, new policies should focus on ensuring school administrators sustain the proper working conditions for teachers to have more individual autonomy; this would decrease the likelihood of teacher frustration and attrition. When schools become nurturing environments for teachers to grow as qualified instructors, these teachers can in turn increase their capacity to critically engage their students through culturally relevant and meaningful material.

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CHAPTER

4

CRITICAL PEDAGOGY FOR PHYSIOLOGY

INTRODUCTION

Critical pedagogy is a teaching approach inspired by critical theory and other radical philosophies, which attempts to help students question and challenge posited “domination,” and to undermine the beliefs and practices that are alleged to dominate. In other words, it is a theory and practice of helping students achieve “critical consciousness.” The mainstream of tertiary education has seen a massive transformation over the last few decades. The goalposts have changed from teaching facts, to helping students to learn how to find relevant information, how to assess it and how to organize disparate information into a cohesive whole and the move towards student centered learning is finding support

in the physiological sciences. This triggered a virtual explosion of innovation in teaching/learning strategies and it is becoming increasingly urgent to find ways of evaluating them. So, there is a need for educational research and on-going evaluation must be considered to be a fundamental part of educational advance. The simplest measurement of outcome is by examination and several studies have attempted educational evaluation using examination. But currently, the most pragmatic and realistic approach in educational evaluation is to focus on students' perception of their experience with a learning program and this approach has been used in several studies.

4.1 CRITICAL PEDAGOGY

Critical pedagogy is a form of education in which students are encouraged to question dominant or common notions of meaning and form their own understanding of what they learn. This type of approach is especially popular in potentially subjective fields of study such as literature, art, and even history. One of the central ideas of this teaching method is that students are able to build their own meaning when learning and teachers should facilitate that process rather than "force" meaning upon the students.

In education, pedagogy refers to educational schools of thought or philosophies regarding how people learn and how teachers should assist in that learning. It can range from traditional forms of pedagogy where the teacher acts as a "sage on the stage," standing at the front of the room and telling the students what they should know to less traditional methods of teaching in which students build meaning for themselves. This latter category would include critical pedagogy, as it seeks to allow students to create meaning in what they learn outside of what others have said something should mean.



One of the easiest ways to consider critical pedagogy is in the field of literature, where it can be applied quite effectively. In older forms of education, students would often read a work of literature and the teacher would then inform them of what the story or poem meant. Students would be expected to learn and remember this “correct” interpretation of the work and then repeat this answer on a test in order to demonstrate learning.

Critical pedagogy is driven by the desire to demonstrate that there is not a single “correct” interpretation or reading of a work of literature. The students are encouraged to build their own meaning based on their own experiences and views, and this type of personal reading tends to create a stronger connection between a reader and work of literature. Rather than demonstrating knowledge of a “correct” answer, the student instead must be able to support his or her reading of the work using text from the story or poem. In this way, learning and understanding is demonstrated by the student’s ability to show critical reading of the work.

This type of critical pedagogy can also be extended to other fields of study such as history. While history may have certain facts, such as dates or names of people, an effort can be made to move away from dominant views of history and build new understanding of historical events. This is often achieved through efforts to examine the roles of minorities or women in historical contexts, rather than reading history as the tale of “old dead white guys” as it can often be portrayed in American and European schools.



4.1.1 Different Types of Pedagogical Skills

Pedagogy can be defined as the art of teaching. Beyond simply understanding the content one is teaching, pedagogy involves being able to convey knowledge and skills in ways that students can understand, remember and apply. Although there is a significant amount of overlap between the two, pedagogical skills can generally be divided into classroom management skills and content-related skills.



Any good teacher knows that a class full of out-of-control students is unlikely to learn much. A teacher's first major task, then, is to learn to manage behavior in his or her classroom. This set of pedagogical skills involves establishing clear rules and expectations, because students who do not know what is expected of them are more likely to misbehave. Establishing expectations upfront keeps many problems from arising. When behavioral problems do arise in the classroom, however, a skilled teacher is able to handle them with a minimum amount of disruption to the learning environment.

The other major area of pedagogical skills is that of teaching content effectively. These skills vary with the subject matter and level of instruction, as those skills needed to teach kindergarteners to read are significantly different from those needed to teach secondary students to build sets for a theater production. Regardless of the content, however, a good teacher will present information in ways that actively engage the students in the material that they are learning. Good pedagogy involves not only imparting information, but also providing opportunities to apply that information.



A teacher must also be able to tailor content to the needs of his or her students. In any given classroom, no two students will have exactly the same knowledge or skills about the subject matter. A skilled teacher will be able to anticipate and respond

to individual students' learning needs and challenges. He or she will also present tasks that are appropriate to the students' level of cognitive development.

These two types of pedagogical skills work together to create a good learning environment. Engaging and appropriate teaching methods help to reduce behavioral problems in the classroom. Students who are actively learning are less likely to be disruptive. If the material is too easy or not presented in interesting enough ways, students are likely to get bored. On the other hand, material that is too difficult may cause students to become frustrated.



4.1.2 Critical Pedagogy in the Classroom

Instructors who hope to encourage these critical thinking skills in their students can incorporate these methods into their instruction. By fostering progressive ideals such as the fight against racism, sexism and income inequality, instructors can instill values of social justice into their class. Creating an open and accepting class culture recognizes how power works to keep people in their place. Those in power do this so the people don't challenge those powerful entities for taking advantage of the labor efforts of the people.

For example, instructors can help students understand how those in power manipulate public opinion to encourage infighting among the people as a distraction so they don't notice they're being robbed. People are encouraged to blame the poor for a failing economy and ignore billions of dollars in corporate welfare that provide

CEOs with private jets and holiday homes, by convincing the people that their struggles can be attributed to starving children and the elderly. Since many of these starving children will be in the classrooms, teachers have the power to correct some of these coerced beliefs and reduce the perpetuation of stigma against the poor.

Instructors can use their forum and access to students to teach them to recognize corrupt power dynamics and encourage them to fight for the powerless. For example, a history lesson in the perspective of critical pedagogy would explain that Columbus committed an atrocious genocide and avoid glorifying him for 'discovering' the new world. By examining the story of Columbus through this critical lens, student can understand why the Native American population is now less than 1%. Students can see parallels and connect these dynamics to current power struggles in issues of immigration and nationalism.

In the Classroom

These provides for an example of how critical pedagogy is used in the classroom. He develops these themes in looking at the use of Freirean teaching methods in the context of the everyday life of classrooms, in particular, institutional settings. He suggests that the whole curriculum of the classroom must be re-examined and reconstructed. He favors a change of role of the student from object to active, critical subject. In doing so, he suggests that students undergo a struggle for ownership of themselves. He states that students have previously been lulled into a sense of complacency by the circumstances of everyday life and that through the processes of the classroom, they can begin to envision and strive for something different for themselves.

Of course, achieving such a goal is not automatic nor easy, as he suggests that the role of the teacher is critical to this process. Students need to be helped by teachers to separate themselves from unconditional acceptance of the conditions of their own existence. Once this separation is achieved, then students may be

prepared for critical re-entry into an examination of everyday life. In a classroom environment that achieves such liberating intent, one of the potential outcomes is that the students themselves assume more responsibility for the class. Power is thus distributed amongst the group and the role of the teacher becomes much more mobile, not to mention more challenging. This encourages the growth of each student's intellectual character rather than a mere "mimicry of the professorial style."

Teachers, however, do not simply abdicate their authority in a student-centered classroom. In the later years of his life, Freire grew increasingly concerned with what he felt was a major misinterpretation of his work and insisted that teachers cannot deny their position of authority.

Critical teachers, therefore, must admit that they are in a position of authority and then demonstrate that authority in their actions in supports of students. As teachers relinquish the authority of truth providers, they assume the mature authority of facilitators of student inquiry and problem-solving. In relation to such teacher authority, students gain their freedom--they gain the ability to become self-directed human beings capable of producing their own knowledge.

And due to the student-centeredness that critical pedagogy insists upon, there are inherent conflicts associated with the "large collections of top-down content standards in their disciplines". Critical pedagogy advocates insist that teachers themselves are vital to the discussion about Standards-based education reform in the United States because a pedagogy that requires a student to learn or a teacher to teach externally imposed information exemplifies the banking model of education outlined by Freire where the structures of knowledge are left unexamined. To the critical pedagogue, the teaching act must incorporate social critique alongside the cultivation of intellect.

Joe L. Kincheloe argues that this is in direct opposition to the epistemological concept of positivism, where "social actions should proceed with law-like predictability". In this philosophy,

a teacher and their students would be served by Standards-based education where there is “only be one correct way to teach” as “everyone is assumed to be the same regardless of race, class, or gender”. Donald Schön’s concept of “indeterminate zones of practice” illustrates how any practice, especially ones with human subjects at their center, are infinitely complex and highly contested, which amplify the critical pedagogue’s unwillingness to apply universal practices.

Furthermore, bell hooks, who is greatly influenced by Freire, points out the importance of engaged pedagogy and the responsibility that teachers, as well as students, must have in the classroom:

- Teachers must be aware of themselves as practitioners and as human beings if they wish to teach students in a non-threatening, anti-discriminatory way. Self-actualization should be the goal of the teacher as well as the students.

4.1.3 How to Implement Critical Pedagogy into Your Classroom

Critical pedagogy is a teaching philosophy that invites educators to encourage students to critique structures of power and oppression. It is rooted in critical theory, which involves becoming aware of and questioning the societal status quo. In critical pedagogy, a teacher uses his or her own enlightenment to encourage students to question and challenge inequalities that exist in families, schools, and societies.

This educational philosophy is considered progressive and even radical by some because of the way it critiques structures that are often taken for granted. If this is an approach that sounds like it is right for you and your students, keep reading. The following five steps can help you concretely implement critical pedagogy into your classroom.

- ***Challenge yourself.*** If you are not thinking critically and challenging social structures, you cannot expect your students to do it! Educate yourself using materials that question the common social narrative. For example, if you are a history teacher, immerse yourself in scholars who note the character flaws or problematic structures that allowed many well-known historical figures to be successful. Or, perhaps, read about why their “successes” were not really all that successful when considered in a different light. Critical theory is all about challenging the dominant social structures and the narratives that society has made most familiar. The more you learn, the better equipped you will be to help enlighten your students. Here are some good resources to get you started.
- ***Change the classroom dynamic.*** Critical pedagogy is all about challenging power structures, but one of the most common power dynamics in a student’s life is that of the teacher-student relationship. Challenge that! One concrete way to do this is by changing your classroom layout. Rather than having students sit in rows facing you, set up the desks so that they are facing each other in a semicircle or circle. This allows for better conversation in the classroom. You can also try sitting while leading discussions instead of standing. This posture puts you in the same position as the students and levels the student-teacher power dynamic. It is also a good idea, in general, to move from a lecture-based class where an all-wise teacher generously gives knowledge to humble students to a discussion-based class that allows students to think critically and draw their own conclusions.
- ***Present alternative views.*** In step 1, you, the teacher had to encounter views that were contrary to the dominant narrative. Now, present these views to your class alongside the traditional ones. Have them discuss both and encourage them to draw their own conclusions. If a student presents a viewpoint, encourage him or her to dig further. Asking questions like “why do you believe

that?” or “why is that a good thing” will encourage students to challenge their own beliefs, break free of damaging social narratives, and think independently.

- ***Change your assessments.*** Traditional assessment structures, like traditional power structures, can be confining. You don’t have to use them! Make sure that your assessments are not about finding the right answer, but are instead about critical thinking skills. Make sure students are not just doing what they think they need to do to get a particular grade. You can do this by encouraging students to discuss and write and by focusing on the ideas presented above presentation style.
- ***Encourage activism.*** There is a somewhat cyclic nature to critical pedagogy. After educating yourself, you encourage students to think critically, and they, in turn, take their newfound enlightenment into their families and communities. You can do this by telling your students about opportunities in their community where they can combat oppression, like marches, demonstrations, and organizations. You can help students to start clubs that focus on bringing a voice to the marginalized. You can even encourage students to talk about patterns of power and oppression with their family and peers.

Concluding thoughts

Obviously, implementing critical pedagogy will look different in different subjects, and what works for one class may not work for another. For example, a history teacher may challenge an event that is traditionally seen as progressive, while a literature teacher may question a common cultural stereotype found in a book. A science teacher, on the other hand, may encourage students to look at the impact of scientific discoveries on marginalized groups. Often, this will involve finding common bonds between subjects as the critical approach is not confined to only one area of education and culture.

4.1.4 Critical Pedagogy of Teaching

The rapidly changing demographics of the classroom in the United States has resulted in an unprecedented amount of linguistic and cultural diversity. In order to respond to these changes, advocates of critical pedagogy call into question the focus on practical skills of teacher credential programs. “This practical focus far too often occurs without examining teachers’ own assumptions, values, and beliefs and how this ideological posture informs, often unconsciously, their perceptions and actions when working with linguistic-minority and other politically, socially, and economically subordinated students.” As teaching is considered an inherently political act to the critical pedagogue, a more critical element of teacher education becomes addressing implicit biases (also known as implicit cognition or implicit stereotypes) that can subconsciously affect a teacher’s perception of a student’s ability to learn.

Advocates of critical pedagogy insist that teachers, then, must become learners alongside their students, as well as students *of* their students. They must become experts beyond their field of knowledge, and immerse themselves in the culture, customs, and lived experiences of the students they aim to teach.

4.1.5 A way Forward for Teaching and Learning of Physiology

Physiology is bedrock of undergraduate medical curriculum. The preference for a particular mode of content delivery has been extensively investigated by medical teachers to convey knowledge in a logical, strategic, cohesive and chronological manner to the students. The times are changing and more emphasis has been placed now on the development of critical thinking skills in contrast to emphasis on the systems-based didactic lectures. Physiology has been recognized as a challenging discipline for medical students to comprehend, integrate and apply in clinical sciences. Moreover, students exclusively face difficulty in understanding

core physiological concepts in the context of disease processes and may require help from physiologists. Medical educationists are thus looking at ways to achieve effective vertical and horizontal integration in the discipline of Physiology.

Regular assessment of the medical curriculum is the need of time to further improve the living document of curriculum by cultivating and introducing various new teaching and learning approaches. Multiple teaching and learning approaches are used for teaching of Physiology like interactive lectures, (IL) structured interactive sessions (SIS), case-based lectures (CBL) and problem-based learning (PBL) techniques. It is important for Physiology faculty to inform themselves about the discipline, various teaching and learning strategies and how effective those methods are to achieve the goal of the real student learning.

Didactic lectures have evolved into interactive IL along with delivery of core conceptual understanding of physiological mechanisms. When lectures are properly structured, teachers are in a better position to keep students engaged and motivated in the classroom. Nevertheless, as an effective teaching and learning technique, the case-based instruction and discussion surpasses the IL in terms of actual student learning experience. This supports the assertion that students feel motivated and empowered when they are helped to actively engage in self-directed learning exercises.

Small Group Tutorials smoothly develop discussion on prior content knowledge with perceptions of ideas and facts from text books or lectures. Researchers have demonstrated that they enhance individual attention of teacher to facilitate equal participation by all students, which improves the students' interest as well as performances. These sessions have been receiving consistent positive feedback in terms of understanding the concepts of Physiology. SIS encourages increased transaction of knowledge between teachers and students with their active participation, motivation and interaction.

Case-based learning (CBL) is a major teaching and learning method. In case-based discussions, it is aimed to understand

theoretical functional aspects of basic sciences and correlating those facts to the clinical signs and symptoms and pathophysiological processes. This method develops and improves the complex-problem solving skills of the students. The disease processes deals with deeper understanding of physiological and pathological aspects. The emphasis is not physiological understanding alone but as integration of the pathological underpinnings of the physiological concepts. The decision makers wanted to explore perception of students in terms of IL, CBL and SIS so as to decide and assign their due weightage in the curriculum. We aimed to explore the perceptions of medical students about the usefulness of IL, CBL and SIS as major teaching and learning methodologies in Physiology.

Critical Pedagogy and Sport

Critical pedagogy is a way that education should provide an education for liberation since the critical-thinking or problem-solving process does not happen without critical learning or, again, critical pedagogy. Maybe critical pedagogy is a deconstruction of regular pedagogy in a critical theory. I can understand that critical pedagogy is a different methodology of *conscientização* Freire defines as where men and women use a critical form of thinking about their world and become part of a democratic world. But, again, how about sport? Freire calls on students to be active participants, to link awareness with practice. Critical pedagogy must emphasize wholeness, a union of mind, body, and spirit. Sport in correlation with critical pedagogy can be a very useful instrument to educate people. The idea is to understand how sport connected with critical pedagogy can be used to improve education.

Many researchers have found that sport, when presented and organized properly, makes a significant contribution to the social and moral education of young people and is an effective way of producing benefits for both the individual and the society. Sport-education is used on regular basis in schools in different countries with the objective to provide integral and complete development

through physical-cognitive connections. However, its connection with critical pedagogy is not very well recognized or explored by authors and teachers/coaches. Since there is a gap in actual literature, it is very hard to explain critical pedagogy related to sport.

Decision-making is common in sports. Especially in team sports, students or athletes need to make decisions almost every second during the practice or game. For example, a volleyball hitter will have a successful attack if he/she reads the game situation. Depending on what kind of setting, opposite block position, his/her relation between the ball and his/her approach, etc., will define the player's best decision. This decision-making process is a critical part of the game which coaches call tactical intelligence.

Freire says education must be democratic, dialogical, anti-bias, emancipatory, and dialectical, must produce knowledge, and must promote *conscientização*. Let's try to connect each one of these with sports:

- **Democratic** – Sports participation is one of the most democratic activities. People with some exceptions, with or without talent, from every social economic status, even with physical limitations can participate and enjoy sports. Today, however, competitive sports are very exclusive, especially in schools.
- **Dialogical** – In sports, students have a unique opportunity to have an experimental trial in the development of cooperation, unity, and organization with respect to cultural synthesis. These concepts can be used to define teamwork. Moreover, cooperation and unity are essential to be successful in sports. Organization can be the way that a coach prepares his/her team for practice. Cultural synthesis can be people's appreciation of a particular sport according to their cultural, historical, and regional heritage.
- **Anti-bias** – Sport is a method that invokes a type of conversation that provides participants with a group-therapy space for praising one another. Through

sports, participants have the possibility of developing a consciousness of their own historical realities and learn to exercise them. In this, humans are self-educated through their interactions with their work and life experiences.

- ***Emancipatory*** – People on a sports team fight for the same purpose. Sports can promote emancipation as a common goal where they must seek to live with others in solidarity. Moreover, underprivileged students can use sport to promote a better quality of life. Students who participate successfully in sports usually receive more respect in school. Participation in sports may also open doors of opportunity by helping students earn a scholarship for college, or by preparing them to become professional athletes. Thus, sports are a way in which people can climb into higher economical or educational levels.
- ***Dialectical*** – In contrast to most regular classes, the teaching approach in sports is based on practice. Frequent practice helps develop the knowledge of the game. As Freire said, “a person learns how to swim in the water, not in a library” (1970, p.137). This is a very dynamic, spiral, and infinite process where students can develop theory in practice because in every game or practice, they are confronted with new and different situations.
- ***Knowledge Production*** – Understanding the rules and techniques of the game and learning to respect partners, opponents, coaches, and referees can be effective ways to prepare students to become positive and productive members in their society. Children are excited to play, and this can promote a perfect environment to produce knowledge. On the other hand, educators may not need to test students in sport fields to evaluate them, because their knowledge and skills are demonstrated in real ways.
- ***Conscientização*** – In sport people show their feelings by body language or gestures. It is a true communication

in an individual moment. This is a learning process converted in “body dialogue” with coaches, parents, and teammates. Sport is a celebration of life in a unique expression of feelings where people develop their own identity and experience problems, history, and culture. It is an overdose of critical pedagogy.

4.2. PEDAGOGY OF PHYSIOLOGY

Pedagogy and andragogy are models of education based, respectively, on passive and active learning. The compared two balanced sections of an undergraduate course in physiology. Both sections used the pedagogical method of didactic lectures to present basic material.

Pedagogy is a word derived from Greek roots that literally translates to the idea of leading a child. In English, the word receives numerous definitions, most related to education. It is the art of teaching, its theory, its practice, and its methods. Sticklers for definition point out that the word should only be applicable to children and sometimes suggest that practice of, methods for, and theories about teaching adults should be called andragogy.

Whether or not pedagogy in all its senses is consciously defined, most forms of formal teaching involve it, in several ways. This has always been true. Teachers enter classrooms or other settings with theories or ideas on how best to teach, they decide what materials to cover, and these underlying principals inform their actions and subjects in teaching settings.

Formal discussion of pedagogy can be found thousands of years ago. One of the most well-known ancient discussions of this occurred in Greece in the 5th and 4th centuries BCE. Itinerant teachers called the Sophists plied their craft, teaching rhetoric to young men throughout Greece. In contrast, formal schools like Isocrates’ and Aristotle’s sought to limit the teaching of rhetoric to specific forms, and philosophers like Plato, though influential to Aristotle, argued against teaching it at all. Exactly what should

be taught and how it should be taught were a deep pedagogical concern, and the ongoing history of education shows this question is never fully answered.



It can be said that the expansion of education to almost all people in many modern societies has simply created numerous arguments on what learning theory is supposed to be, what subjects should be taught, and how teachers ought to behave to best instruct their students. Many teachers today have a fairly clear sense of what their pedagogy is. They teach based on the theories about learning they believe are most accurate. Actions in a classroom are honed through learning and practice.

Pedagogical approach can also be influenced by a teaching facility's specific standards. Subject matter certainly is. An elementary school instructor is often told exactly what material to cover, based on country or state standards. These are also reliant on pedagogical ideas about what subjects are most important for children to learn.

Essentially, the idea of pedagogy concerns several related concepts. It is created from theories on learning, which then influences practice and/or subject. A teacher always has a pedagogy, even if it is not clearly defined. It is worth defining it, though, because a more conscious sense of the underlying methods that produce different types of teaching and learning, can help instructors refine those methods to be more effective in their work.



4.2.1. Teaching Methods of Physiology

The teaching section promotes excellence in physiology education through educational research and scholarship in physiology. The teaching section recognizes that research in physiology—both basic and biomedical—depends on education and that all physiologists are educators.

The Teacher and the Learner

In the act of teaching there are two parties (the teacher and the taught) who work together in some program designed to modify the learners' experience and understanding in some way. It is necessary to begin, therefore, with observations about the learner, the teacher, and the subject matter and then to consider the significance of group life and the school. It will then be possible to consider the factors and theories involved in modifying a person's experience and understanding. They include theories of learning in education, of school and class organization, and of instructional media.

A child enters school with little if any attainment in written expression and leaves it capable of learning much from human culture. It was thought originally that such progress was just a

matter of learning, memorizing, associating, and practicing. The work of psychologists has revealed, however, that the growth of the pupil's intellectual powers must include a large element of development through different phases, beginning with simple sensorimotor coordination; going on to the beginnings of symbolizing, helped by the growth of language and play; and then on to logical thought, provided the material is concrete; and, finally, in midadolescence, on to the power to examine problems comprehensively, to grasp their formal structure, and to evoke explanation. Regarding emotional experience, the child progresses from direct, immediate, uninhibited reactions to more complex, less direct, and more circumspect responses. The physical growth of the child is so obvious as to need no comment. Any attempt to educate the child intellectually and emotionally and for action must take account of those characteristics. Education must pace development, not follow it and not ignore it. The components in the child's overall educational growth are physical and mental maturation, experience, formal teaching through language, and an urge in the learner to resolve discrepancies, anomalies, and dissonances in experience.



What is required of teachers is that they enjoy and be capable of sharing with children work programs designed to modify their experience and understanding. That means making relevant

experience available to the student at the right time. The teacher must be mature, have humor with a sense of status, be firm yet unruffled, and be sympathetic but not over personal. With large classes, the teacher becomes a leader of a group, providing stimulating learning situations.

The subject matter taught also has a marked influence on the total teaching situation. It may be conveniently divided into broad headings of languages, humanities, sciences, mathematics and arts. Although each group of subjects has something in common with others in terms of the demands it makes on the thinker, each area has also something quite specific in its mode of development. Languages call for verbal learning and production based on oral work, particularly during the early phases. The humanities call for an understanding of cause-effect relations of immediate and remote connections between persons and institutions and between human beings and their environment. The sciences call for induction from experience, though deductive processes are required when the laws of science are formalized into mathematical terms. The humanities and sciences both depend on the ability of the learner to hypothesize. Mathematics calls for the ability to abstract, symbolize, and deduce. An interest in the formal and structural properties of the acts of counting and measuring is fundamental. Arts and literature call for a fairly free opportunity to explore and create.

A large part of the teacher's role is as a group leader, and the group life of the school and the classroom must influence the teaching situation. Group life shows itself in the dynamic structure of the class—including its manner of reaching group decisions, the hierarchy of its members, the existence of cliques and of isolated individuals—and in its morale and overall response to the school and the rest of the staff. Individual pupils also conduct themselves under the influence of the groups to which they belong. Their achievements and attitudes are subject to evaluation by the group, leading to support or ostracism, and they set their standards according to those influences.



In many schools, the range of ages in any class is about one year, and the narrow range makes for some uniformity of subject-matter coverage. But in rural one- and two-teacher schools, groups of children may be heterogeneous by age and ability, and the mode of teaching has to cope with a number of smaller subunits moving along at different rates. The teacher's problem is to coordinate the work of those small, dissimilar groups in such a way that all get attention. Creative free activity has to be practiced by one group while another has more formal instruction from the teacher.

The effect of "streaming," or "tracking"—that is, selecting homogeneous groups by both age and intellectual ability—has promoted much inquiry. The practice evokes extreme opinions, ardent support, and vociferous condemnation. The case for uniformity is that putting pupils with their intellectual peers makes teaching more effective and learning more acceptable. The case against it draws attention to its bad effects on the morale of those children in the lower streams. That view supports the heterogeneous class on the grounds that the strongest are not overforced and the weakest gain from sharing with their abler fellows. Experimental evidence on the problem is diverse.

The school community is housed in a physical complex, and the conditions of classrooms, assembly places, and play areas and the

existence (or nonexistence) of libraries, laboratories, arts-and-crafts rooms, and workshops all play their part in the effectiveness of the teaching-learning situation. Severe restrictions may be caused by the absence of library and laboratory services.

The social forces immediately outside the school community also influence the teaching situation. They emanate from home, neighborhood, and wider social groupings. Teaching is a compact among several groups, including teachers, students, and parents, in the first place, with youth organizations and civic and sometimes religious groups playing a secondary role. The overall neighborhood youth subculture also sets standards and attitudes that teachers must take into account in their work.



General objectives of teaching

The classification of the general objectives of teaching in terms of school subject matter is not sufficient to explain the ultimate ends of education. They include, essentially, the promotion of a well-integrated person capable of taking a responsible, active role in society. With such a purpose in mind, one may achieve more

insight by choosing a psychological analysis of the objectives into the attainment of intellectual abilities and social insights (cognition), the learning of practical active skills (psychomotor learning), and the development of emotions, attitudes, and values (affective learning).

Cognitive growth begins at the level of the infant school, with the acquisition of early language and numerical capabilities, and continues increasingly to dominate education to the secondary and higher levels. But the learner is more than an enlarging reservoir of information. With that acquisition goes a growing power to generalize, abstract, infer, interpret, explain, apply, and create. Cognitive training produces a thinker-observer aware of the modes of thought and judgment making up human intellectual activity. In the final stages, the teacher aims at a thinker, critic, organizer, and creator.

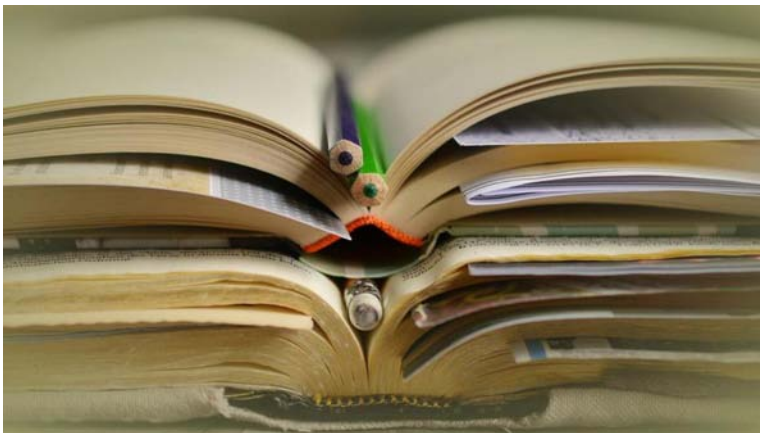
In the development of psychomotor learning, the teacher is concerned with the promotion of coordinated skills and their creative use. Instruction begins with the acts of handwriting and plastic art play, characteristic of earlier years of schooling. It includes painting, games, workshop skills, and practical science. It has a high prestige value among the pupils themselves and the wider community.

The permeation of emotional learning throughout the whole educative process is not always obvious, in part because very often it is brought about incidentally. Teachers may be self-conscious and self-critical about the deliberate inculcation of emotional responses, which will provide the energy and a mainspring of social life. The acquisition and application of values and attitudes are most marked by the time of adolescence and dominate the general life of the young individual. Theoretical, aesthetic, social, economic, political, ethical, and sometimes religious values pervade the school curriculum. Literature, art, the humanities, and sometimes religious teaching are all directly involved, and the teaching of science and mathematics can bring about a positive attitude toward cognitive and theoretical values.

An individual's emotional structure is the pattern of personal values and attitudes. Under the influence of instruction and experience, that structure shows three kinds of change. First, pupils learn to select those situations and problems to which they will make appropriate emotional responses. Second, in general, an increasing range of situations includes happenings more remote from the learner. At first, emotions are aroused by situations directly affecting the child. As children become more mature, they are increasingly involved in affairs and causes far removed from their own personal lives. Third, their repertoire of emotional responses gradually becomes less immediate, expressive, and linked with physical activity.

The general design of instruction

The scientific analysis of educative processes has led to a more detailed examination of the total act of teaching, which is intended to make the teacher more aware of all that is involved in a piece of instruction.



Foreknowledge about students and objectives: The complete act of teaching involves more than the presentation and development of lesson material. Before they embark on a fresh stage of instruction, teachers must be reasonably clear about two things: (1) the capabilities, achievements, strengths and weaknesses, background, and interests of their learners; and (2) the short-

and long-term objectives they hope to achieve. Those curricular strategies will have to be put into effect in the light of what is known about the students and will result in the actual tactics of the teaching-learning situation.

Educational psychologists give much attention to diagnosing preinstructional achievements, particularly in the basic subjects of language and number, and to measuring intellectual ability in the form of reasoning power. There has been special emphasis on the idea of the student's readiness at various ages to grasp concepts of concrete and formal thought. Numerous agencies produce test material for those purposes, and in many countries the idea has been widely applied to selection for entry to secondary and higher schools; one of the purposes of so-called leaving examinations is to grade students as to their suitability for further stages of education. Teachers themselves, however, can provide the most sensitive diagnoses and analyses of preinstructional capacity, and the existence of so much published material in no way diminishes the effectiveness of their responsibility.



The teaching-learning situation: In the actual instruction, a single lesson is usually a part of a longer sequence covering months or more. Each lesson, however, stands to some extent as a self-contained unit within a sequence. In addition, each lesson itself is a complex of smaller teaching-learning-thinking elements. The progress of a lesson may consist of a cycle of smaller units of shorter duration, each consisting of instruction by the teacher

and construction by the learner—that is, alternating phases in which first the activity of the teacher and then that of the learner predominates.

The lesson or syllabus proper is thus not to be narrowly conceived of as “chalk and talk” instruction. It is better seen as a succession of periods of varying length of instruction by the teacher and of discovery, construction, and problem solving by the pupil. Although the student’s own curiosity, experience, and observation are important, so is the cyclic activity of teacher and learner. The teacher selects, arranges, and partially predigests the material to be learned, and that is what is meant by guiding the learner’s discovery and construction activity. It is a role the teacher cannot abrogate, and, even in curricula revised to give learners greater opportunity to discover for themselves, there is concealed a large degree of selecting and decision making by the teacher. That is what teaching is about.

Teachers must face the problem of how to maintain curiosity and interest as the chief motivative forces behind the learning. Sustained interest leads students to set themselves realistic standards of achievement. Vital intrinsic motivation may sometimes be supplemented by extrinsic rewards and standards originating from sources other than the students themselves, such as examinations and outside incentives, but those latter are better regarded as props to support the attention of learners and to augment their interest in the subject matter.

Assessment of results: At the end of the lesson proper or of any other unit or program of instruction, the teacher must assess its results before moving to the next cycle of teaching events. Assuming the occurrence of teaching-learning cycles of instruction-construction activity, it follows that there is a built-in process of frequent assessment during the progress of any period of teaching. The results of the small phases of the learner’s problem solving provide at the same time both the assessment of past progress and the readiness for further development.

Progress over longer intervals of learning can be measured by more formal tests or examinations within the school or at local administrative levels. Post instructional assessment may have several purposes: to discover when classes or year groups have reached some minimum level of competence, to produce a measure of individual differences, or to diagnose individual learning-thinking difficulties. A wide variety of assessment can be used for this purpose, including the analysis of work produced in the course of learning, continuous assessments by the teachers, essay-type examinations, creative tasks, and objective tests. The content of the assessment material may also vary widely, ranging from that which asks for reproduction of learned material to that which evokes application, generalization, and transfer to new problem situations.

4.2.2. The Organization of Instruction

Educational organization rests to some extent on psychological views about learning, but explicitly it is concerned with the grouping of pupils for educational experience and instruction.

Pupils in general are organized by age into what are usually termed grades, classes, or forms. Each school is also usually either comprehensive (containing students pursuing various academic, commercial, and vocational curricula) or based on the so-called dual plan (containing only students pursuing a particular curriculum). In some countries, the dual system is actually tripartite: there may be schools for classical academic study, schools for technical or vocational study, and schools for more generalized, "modern," diversified study. Whether comprehensive or dual-plan, schools frequently have some kind of streaming or multi-tracking whereby students are grouped according to ability so that there are separate classes for the less able and the more able.

Grading and streaming have recently come in for much criticism. There is a rigidity in the two systems that causes some educators uneasiness, particularly since total education is seen as more than achievement in school subjects. Some countries, notably the

United States, have made a start in trying to solve this difficulty by introducing the nongraded school, in which grades are abolished and students are placed individually in "phases" for each subject, through which they progress at their own pace. A similar solution has been to ungrade students for certain basic subjects, such as mathematics and native language, but to have them rejoin their age peers for other school activities. In such systems there is, nevertheless, a kind of grading by intellectual ability, and egalitarians are apt still to be suspicious of them. There is scarcely any clear evidence of the effectiveness of the wholly nongraded system. It would seem probable that the optimum organization may be to combine grading with non-grading. Although that will involve constructing complex timetables, it will also offer the advantages of other, more rigid systems without introducing too many of their disadvantages. For one thing, retaining some grouping by age seems important as a link to extramural activities, in which age peers tend spontaneously to come together.

The modern interest in resources for learning has led to the concepts of general-purpose classrooms, open-plan teaching, and team teaching. The idea of general-purpose classrooms starts from the assumption that the school curriculum can be divided into a few large areas of allied intellectual interests, such as the humanities, languages, and sciences. The total resources available for teaching in each of those areas, including teachers, are then made available in one common teaching space, and ordinary classroom and lesson-period divisions disappear, to be replaced by a real mobility between teachers and learners as they make use of the different resources available, including library and laboratory facilities and various educational aids. In the infant and primary schools, similar ideas are introduced in the open-plan system. At both the primary and the secondary levels, however, there is insufficient evidence on the effectiveness of the systems. The attitude and action of teachers remains the strongest factor, and they may still require some privacy for their teaching.

Team teaching represents an attempt to make better use of every teacher's potential in any subject area, to create a flexible learning

situation, and to make nonstreaming more effective. For example, the normal class of 30 pupils with an individual subject teacher is replaced by a larger group of pupils and a team of teachers, who pool their efforts. Although the team plan may take several forms, it generally assumes some variety of the following elements: (1) large-group instruction, in which the total complement of some 50 to 150 students in the program is periodically taught by one teacher (either the same teacher or several teachers in rotation) in a lecture hall; (2) small-group instruction, which alternates with large-group instruction so as to allow small numbers of students and a member of the teaching team to discuss, report, and exchange ideas; (3) independent study, whereby students are given individual projects or library work; and (4) team planning sessions, in which, daily or weekly, the teachers plan, coordinate, report on, and evaluate their programs. The presumed benefits of team teaching are that it makes better use of each teacher's individual interests and strengths; that it avoids unnecessary replication, particularly in such basic subjects as native literature, in which ordinarily several classes led by different teachers cover the same ground; and that teaching in front of one's colleagues is a beneficial practice providing some evaluative feedback. Also, it is said that the less able children do not feel as segregated as in ordinary streamed classes; although they may gain little from the large-group sessions and individual projects, they seem to make real progress in the small seminar groups, without becoming overaware of their more limited capabilities. The reasons for that are obscure. In any event, the most obvious advantage of team teaching is its flexibility, in affording a great variety of possible combinations of student groupings and of educational resources. The major problem is that team teaching cannot be used in all subject areas. Although it may be useful in such areas as the humanities and the social sciences, its provision for lecture-size audiences does not aid the teaching of such subjects as mathematics, in which there are too many individual differences in ability. The same is true of arts and other subjects. Furthermore, without expert leadership, seminars are apt to degenerate into scenes of rather woolly discussions.

The grouping of children by ability, though still practiced, remains a problem. Formal tests are used to separate students according to their ability, and many people feel that separations by such means are neither reliable nor socially desirable. Even with regard to separating the intellectually disabled, there is growing opinion that, wherever possible, such children should be given basic instruction in special centers and remedial classes in schools for normal children. Disabled and normal children would thereby share much of their education. Separation of the sexes has also declined in most countries, as the mixing of girls and boys has come to be recognized as healthy and socializing.

Instructional media

In general, instructional media are seen by educators as aids rather than substitutions for the teacher. Teachers spend a disproportionate amount of their time in routine chores—in collecting and assigning books and materials and in marking, or grading—that could be partly obviated if aids could be so constructed as to free them to concentrate on the central job of promoting understanding, intellectual curiosity, and creative activity in the learner.



Speaking-listening media

With in-person lectures and with audiovisual recordings, teachers are able to set out their material as they think best, but usually the audience reception is weakly passive since there is not much opportunity for a two-way communication of ideas. Furthermore, in lectures, much of the students' energies may be taken up with note writing, which inhibits thinking about the material. Recordings enable one to store lecture material and to use it on occasions when a teacher is not available, but they are rather detached for young learners and seem to evoke better results with older students.

Language laboratories are study rooms equipped with electronic sound-reproduction devices, enabling students to hear model pronunciations of foreign languages and to record and hear their own voices as they engage in pattern drills. Such laboratories are effective modes of operant learning, and, after a minimum vocabulary and syntax have been established, the learning can be converted into a stimulating form of problem solving.

Visual and observational media

Useful visual materials include objects and models, diagrams, charts, graphs, cartoons, and posters; maps, globes, and sand tables for illustrating topographical items; pictures, slides, videos, motion pictures, and television. Facilities include blackboards, bulletin boards, display cases, and museums. Such activities as field trips and the use of visiting authorities (usually called resource people) are considered part of visual and observational programs, and even demonstrations, dramatizations, experiments, and creative activities are usually included.

In general, pictures and diagrams, fieldwork, and contrived experiments and observations are all used as concrete leads to the generalizing, abstracting, and explaining that constitutes human learning. To fulfil that function, however, their use must be accompanied by interpretation by an adult mind.

The teacher must offer careful elaboration and discussion, for children's and adolescents' powers to interpret and infer often go astray and thus must be carefully guided. Visual material by itself may even be a hindrance; a scattering of pretty pictures through a history text, for example, does not necessarily produce a better understanding of history. Similar difficulties are inherent in fieldwork—geographical, biological, archaeological, and geological. What is observed rarely gives the whole story and, in the case of archaeological and geological fieldwork, provides an incomplete picture of the past. Teachers must fill in the gaps or somehow lead their students to do so.



Reading-writing media

Reading and writing have formed the staple of traditional education. Both assume sophisticated language attainments and the capacity to think formally and respond to another mind, for a

textbook is essentially a mode of communication between a remote teacher and a reader. The material in a textbook is a sample of a subject area, simplified to a level suitable for the reader. Because the sampling in both the text and the exercise might be haphazard, and there can be no feedback to the writer, the teacher has to take on the writer's responsibilities.

Programmed learning is a form of reading and writing. The most basic form of programmed instruction—called linear programming—analyzes a subject into its component parts and arranges the parts in sequential learning order. At each step in their reading, students are required to make a response and are told immediately whether or not the response is correct. The program is usually structured so that right answers are apt to be extremely frequent in order to encourage students, so the theory goes, and give them a feeling of success. In another kind of programmed instruction—called branching programming—students are given a piece of information, provided with alternative answers to questions, and, on the basis of their decision, detoured, if necessary. The two types of program differ fundamentally in their attitudes toward errors and the use of them. The brancher uses them to further the learning; the linearist avoids them. The chief value of programmed instruction in general is that it allows students to learn at their own pace, without much teacher supervision. Its chief defect is that it can quickly become dull and mechanical for the student.

Computer-based instruction

Computers have great usefulness in the classroom. They can give instruction to students, call for responses, feedback the results, and modify students' further learning accordingly. Computers can also be used to measure each student's attainments, compare them with past performances, and then advise teachers on what parts of the curriculum they should follow.

In a fully computer-assisted instruction program, the computer takes over from the teacher in providing the learner with drill, practice, and revision, as well as testing and diagnosis. The form of the teaching may be simply linear or branching, or it can be extended to thinking and problem solving by simulation.

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CHAPTER

5

CRITICAL PEDAGOGY FOR MUSIC EDUCATION

INTRODUCTION

Critical Pedagogy for music education derives from a philosophical framework based on the Critical Theory as well as an educational psychology referred to as “Experiential Learning”. Critical Pedagogy can be described as a flexible pedagogy. Music education encompasses all sorts of learning and situations. Some of this musical learning goes on in the classroom in the form of weekly music lessons and at other times in the school structure, for example singing assemblies, nativity plays, celebrations, choirs, ukulele groups and throughout the extra curricular programme.

5.1 OVERVIEW OF MUSIC EDUCATION

An observation of music classes in the public schools reveals that little changed in the last half of the twentieth century, including the education of music teachers. The value and role of music education in schools has been affected, however, by the education reform movement and changes in the organization and delivery of instruction. One major change is that music often is not regarded as a standalone subject but is incorporated into an arts education.



Almost all K–6 schools offer some type of required instruction in music. At the middle school level, changes in the instructional format and the addition of electives in other arts courses have reduced the importance of music. The secondary school music program consists largely of performance ensembles, which comprise bands (wind ensembles), choirs, and string or full orchestras. These ensembles are elective although an increasing number of states mandate a unit of fine arts at the secondary level. To enable the nonperformer to meet this graduation requirement, courses are offered that may include advanced placement (AP) music theory (usually taken by students who are already enrolled in a music class), beginning guitar and keyboard classes, or an extension of the general music class similar to that offered in the elementary school. The prevalence of the new requirement for an arts course at the secondary level is somewhat misleading as

some states define grades seven through twelve as secondary education. There is also a broad interpretation of what constitutes an arts course; some states include literature, foreign language, and photography, as well as music, visual arts, theatre, and dance, while others include the arts as a choice among required electives. The most identifiable change in the music curriculum, found primarily in general music, is a greater emphasis on composition, the instruction of which has been facilitated by computers and the use of multicultural music.

It is difficult to generalize the percentage of students participating in music at the secondary level. Percentage of participation varies greatly depending upon the size of the school, ranging from 5 percent in large schools to as much as half the student body in small or magnet schools. About 35 percent of the student body are enrolled in music for one semester, a percentage that would be about 20 percent at any one time. Well over 90 percent of the secondary schools offer band and nearly 85 percent offer choral music. String programs are found in approximately 20 percent of high schools, although this dearth is compensated by the all-city/region youth orchestras that provide stunning musical experiences, often rivaling the quality of the local symphony orchestra. String students commonly study music privately outside of school and often began instruction at an early age through a Suzuki-type program.

An important variable in secondary music is the establishment of numerous magnet arts high schools. Students enrolled in these programs do very well academically, as shown through past experience with arts magnet schools like the Interlochen Arts Academy and the North Carolina School for the Arts. James Catterall's research on students enrolled in music for four years reveals that they score appreciably better than average on SAT and ACT tests. This relationship between academic success and the arts is frequently used to promote the concept of "learning through the arts." In 2001 the U.S. Department of Education provided a \$2.5 million grant to the Berkeley County School District in South Carolina to initiate an integrated arts/academic magnet school curriculum.

Elementary School Music

The required general music program in grades K–6 is less vibrant than it was at the midpoint of the twentieth century. The reduction in curriculum time occurred gradually during the 1970s and 1980s, making it difficult to pinpoint any single cause. Budget reductions are most often cited as the cause, perhaps due to the publicity given to budget caps passed by the legislatures in California and Massachusetts. Whether the caps were causal is a matter of debate but the reduction in curriculum time for music was more likely the result of changes in priorities and not fiscal change. During the 1970s and 1980s fewer discretionary funds were available to school districts due to steep increases in shared costs for special education. Second, greater emphasis was placed on test scores in language arts and mathematics. In addition, elementary classroom teachers were relieved of responsibility for teaching or helping to teach music, due to an extensive campaign by the Music Educators National Conference in behalf of certified music teachers. Fourth, colleges of education reduced the coursework in music required of classroom teachers, making music the area in which these teachers felt least competent to model and to teach. Also during this period instructional time was reduced from daily classes of 20–30 minutes to a weekly offering of the same length. However, expectations of student competency in music were not lowered and in fact new objectives were added. No public reaction to this change occurred, as school administrators and the public never had a clear idea of the important competencies in music that all students should possess upon completion of a K–6 curriculum. Thus, inadequate time became the norm. Instructional time in the secondary schools was not reduced; thus there was no change in the more visible components of the secondary school's music program.



Music appreciation as an objective in the elementary curriculum lost any cachet it once had (the AP course in music listening was dropped at the secondary level for lack of interest) despite a warning by the National School Board Association in 1988 that performance had replaced appreciation. Singing as an objective became a lower priority. Texts for general music for K–6, consisting of songs with related listening materials for all students, were replaced by specialized programs based on the method and materials of the founder. These programs, primarily Orff, Kodaly, and Dalcroze, became ascendant, along with teacher-constructed offerings consisting of popular and ethnic music, music games, videos, and activities tangentially related to music. When the specialist teacher came in contact with students only once per week and met as many as 500 students during that week, the idea of a sequential curriculum became infeasible, as did the possibility of assisting the student who fell behind. In all states except Louisiana specialists are the primary deliverers of instruction.

The reform movement promotion of basic or core subjects mobilized those interested in elementary music education to demand that music be included as a core subject, returning it to its century-long importance. Music was joined by visual arts, theatre, and dance to create a requirement in arts education. Arts Content Standards were quickly formulated in each of the four arts and in 1994 these standards were the first core addition to be accepted (after the long-standing mathematics standards) by the Secretary

of Education. Performance and Opportunity to Learn Standards were also constructed and distributed to members of the four arts professions but these two standards have received scant attention, especially the Opportunity to Learn Standards that are necessary for students to attain at least a proficient performance level in nine content areas. The Music Educators National Conference (now named MENC: The National Association for Music Education) has vigorously promoted the content standards since their adoption. (The suggestion has been made that if the standards in all of the subjects were adopted that it would add five years to the K–12 curriculum). Two of the content standards in each art form emphasized the importance of relating the four art forms to one another and relating the arts to other subjects in the curriculum. Although it is difficult to imagine how social studies or most other subjects could be taught without consideration of the arts, this content standard shifted the perception of responsibility so that the arts teacher is seen as an aide to the subject matter teacher when the reverse should be true, logically and educationally. The arts standards will not be taken seriously where the classroom teacher is given the responsibility but not the competency to teach in the arts area.

Middle School

With the recommendations of the Carnegie Foundation for the middle school, new curriculum emphasis was placed on student development of a positive outlook toward educational success that would contribute to improved self-confidence and self-esteem. To accomplish this, the middle school curriculum was to be taught by teacher teams in the more basic subjects that, in turn, were to be supplemented by a rich offering of exploratory courses. The arts became part of these elective exploratory courses, frequently competing with chess club and Tae Kwon-Do for available curricular time. (The arts are often a required exploratory for six to nine weeks at one or more of the grade levels of middle school, an arrangement that interferes with any sequential music curriculum

during middle school and lacks any connection to elementary school music objectives or to the offerings in the secondary school.)

The involvement of the arts community in supporting the inclusion of the arts as a basic school subject has raised many substantive issues. First, could a national or community artist supplement or replace the certified teacher at a lower cost and provide more authentic instruction? The massive Annenberg grant to the public schools established partnerships between the schools and cultural organizations, a provision that brought performers and composers who had no teacher training into the schools much like the Ford Foundation's Young Composers Project did in the late 1950s and 1960s and programs of the National Endowment of the Arts, state arts councils, and Young Audiences do in the early twenty-first century. Second, arts organizations raise or find money to support their own curricular vision of a music program or music experience. These organizations provide musical instruments, music scores, and instruction, as well as field experiences such as attendance at concerts and operas. Third, arts organizations have found it easier to work with classroom teachers and their objectives rather than with the heavily scheduled music teacher. The Lincoln Center Institute has operated such a program for twenty-five years, bringing classroom teachers and professional musicians together to facilitate the classroom teacher's objective of an enriched classroom and to aid teachers in attaining goals in their extant curriculums. Fourth, other arts and nonarts organizations have taken a broad approach to education (as opposed to schooling) and initiated after-school programs in music to accomplish several purposes: to provide a balance to remedial programs in the more basic subjects that are offered after school; to provide a safe environment for that time period between the end of the school day and when parents are at home; and to free up the basic curriculum by avoiding the interruption for music class. Fifth, community music centers have a presence in many cities, offering not only private lessons but often ensemble experiences and short-term educational instructional units in the public schools (with their own staff); these offerings consist of content that fits a particular school's monthly or yearly focus. Sixth, all major

and community orchestras have initiated educational programs that include youth concerts and preparation for attendance at these concerts. These multiple offers of assistance from the local community are difficult to reject; they cost the schools nothing, are designed for all students in K–6, and administratively count as part, or all, of the music program.

To describe the music education of Americans one must take into account the value of private music lessons (especially piano and guitar); the impact of radio, television, and compact discs and the listening experiences they provide; and the many informal performing experiences such as garage bands. Should a student's competency in music be the issue, many students could test out of classroom music. However, the opportunity to learn to play an instrument is provided in most schools around fourth grade—the decision of when to offer instrumental music instruction is based more upon the budget than the student's likelihood of success. Also, music educators in K–6 general music have adopted a role in supporting multicultural education. It is interesting to identify music from other cultures and to compare and contrast these types of music. Learning to perform on ethnic instruments is fun and listening exercises are more concrete as much ethnic music has a practical value in its relationship to social studies and other core courses. Western music, written for the concert hall, often does not contain many cultural or historical references; its meaning and importance are based on its formal and aesthetic qualities.

Early Childhood Music

Early childhood education frequently includes rich music experiences whether in the private early childhood programs such as Waldorf and Montessori (which extend beyond early childhood) or in public school programs for disadvantaged children. Research, including the Perry Early Childhood Program (High Scope) that has impressive longitudinal data on a sample of students for some twenty years, indicates that music competencies achieved from birth to age five assist students in later school experience. Other research, whose findings are often mislabeled the “Mozart

effect," indicates that music listening experiences with very young children play a role in how the brain is wired. This research is focused on temporal-spatial ability and how it relates to the abstract thinking required in mathematics and science. Keyboard experience also may provide a spatial-temporal advantage. These research results also support programs labeled "learning through music" where music is taught not for its musical benefits but for other reasons. The interest in justifying music instruction on the basis of what is learned about other subjects is a contemporary worry, although the powerful instrumental music programs in the secondary schools have long been valued for their role in accomplishing general, nonarts objectives. Students do learn character, responsibility, cooperative learning, how to budget their time, and much more as part of being a contributing member to an ensemble that has high standards. Students participate because their peers participate and they are attracted by the chance to do things well with their friends. The power of these side objectives does not necessitate the sacrifice of unique musical objectives; however, the perception of school administrators and board members is important for long-term goals. Music continues to play an important role in special education programs, in music therapy, and with English as a Second Language students. The nonverbal nature of music allows students with special needs to participate in many music experiences and to obtain educational benefits as well as enjoyment.



Secondary Schools

The instrumental performance program (grades 9–12) is edging toward becoming a semi-independent part of the school day in that it is not fully supported by school funds. Participating students do receive academic credit but that credit is not always computed in a student's overall grade average and many colleges exclude such grades and credit in making admission decisions. *The Instrumentalist* magazine reported in 2001 that more than half of the budget required to support secondary instrumental music programs was raised by students, businesses, and parents through fund-raising or assessments. This percentage likely represents the more advanced band programs. The quality of band programs is steadily increasing with graduates often able to matriculate into college applied music curricula. A study completed by Educational Research Service indicates that slightly more than 20 percent of the funds required to support secondary music programs, including general music, music theory, choral performance, and other academic classes, is raised from outside sources. No longer automatically providing instruments for students, schools have gradually come to expect students to own or rent their own instruments and to pay for expenses associated with contests, festivals, and travel. There are also expenses involved with choral music but these are more limited, restricted to appropriate concert dress and travel funds. Secondary music is, therefore, not affordable for everyone unless support exists for special students.

In other aspects, music education in the secondary schools has not changed significantly. Secondary music teachers have not been affected by the educational reform movement (except for block scheduling and the addition of more required courses) and are generally unconcerned about the voluntary national standards as some do not relate to ensembles and others are too rudimentary to cause much trouble.

5.1.1 Benefits of Music in Education

Music can bring a series of important benefits to your child's education, many of which you may not have considered before.



1. Improve language capabilities

Music and language have a deep and profound relationship. The link between musical instruction and better language development in young children has long been established.

Musical training stimulates and trains the same part of the brain that deals with understanding language. Children who have some exposure to musical education will, therefore, have a greater understanding of tone and how different segments of speech align. It can also be incredibly useful if your child is learning a second language.

2. Better Cognitive Abilities

Playing an instrument increases the use of your neural network. When compared to those who don't play an instrument, there is

some suggestion that musicians have a larger growth of neural activity.

A 2009 study in the New York Academy of Sciences showed how children who received musical instruction showed improved sound discrimination and fine motor tasks, with visible changes in those networks showing during brain imaging.

3. Better maths skills

Children who undertake music in education are also enhancing their maths ability. A link between music and better control of spatial-temporal tasks, as pointed out here in the Journal of Aesthetic Education, means children are better equipped to learn key mathematical skills.

One theory says that learning rhythm is responsible, as maths involves picking up patterns and how visual elements go together.

4. Better Test Scores

With better maths ability comes the potential for better test scores. A 2007 study from the University of Kansas found that students in primary schools with better musical programmes scored 22% higher in English and 20% higher in maths when compared to those in weaker musical programmes. This was regardless of the socioeconomic factors between the different schools.

5. Inspire Creativity

Music is one of the most creatively stimulating tasks any person can undertake. If you want to spark your child's creativity, there are few better things you can do than to encourage them to create their own unique music by picking up an instrument or engaging in their music class.

6. Refined Hand-Eye Coordination

Learning an instrument to an elite level is no easy task. It takes considerable hand-eye coordination to learn almost any instrument. Those who master their craft are blessed with a unique skill; it's something that can be applied to other areas of academia and general life.

Hand-eye coordination is important in many sports, especially bats or racquet sports like tennis or cricket. It can also help elsewhere in education, as writing skills and art require the hands and eyes to work together.

In adulthood, your child will find them relying on their hand-eye coordination to do any number of tasks. Practical things like DIY are easier with good coordination. Allowing your child to improve it with music will benefit them for a lifetime.

7. Better Memory

Improved memory is another well-established benefit of music in education. Learning an instrument, the language of music and the notes and lyrics that make up songs all require a flexing of memory.

Music is also one of the easiest things to store in your memory, often to our frustration. Songs get stuck in our heads, sometimes for days; a perfect display of how music can stick in our minds.

8. Encourage Teamwork

Music is often considered a solo effort, but it's unlikely your child will go through their musical education alone. In class or as an extracurricular activity, music is one of the best ways to learn vital life skills like teamwork. Be it in a band or singing group, teamwork is vital to creating good music.

9. Relieve Stress

School is such an important time for children and at times it can be stressful – especially during tough examination periods.

Music has become a proven remedy to relieving stress, with research from Stanford University linking this to the beat of music. At 60 beats per minute, music can cause our brain to synchronize and cause alpha brainwaves – which are present when we are relaxed. Over a period of 45 minutes or so, it can help induce sleep too.

After a long day studying, a musical session is an easy way to relieve stress and take your child's mind off of deadlines and exams.

10. Develop Social Skills

As an extension of improving teamwork, music is also a great way for your child to meet new people and create lasting friendships. Music is a great way to bring people together. If they decide to take up music as an extracurricular activity, they'll be bonding with likeminded children who share their passion.

In a time when children are increasingly interested in communicating online and focusing on digital skills, music is a refreshing return to face-to-face contact.

11. Instil Perseverance

Speak to anyone who has mastered a musical instrument or played in a successful band; musical excellence is hard to come by. It requires plenty of practice and a willingness to keep going.

To continue to improve and progress requires perseverance. A child understanding they have to work hard to achieve something is incredibly powerful and something they will lean on for the rest of their lives. There are few better ways to instil perseverance than through music.

12. Bring about a Sense of Achievement

When your child does achieve a musical goal, they get the incredible satisfaction that comes from working hard to attain something. In that sense, music is a great confidence builder. Creating something as expressive and loved as music and seeing audiences on stage or family members at home enjoy it can be an incredibly rewarding experience.

Confidence is one of the most valuable skills a child can have and music is one of the best ways to allow it to flourish in your child.

13. Learn an Envidable Life Skill

How many times have you met an adult who says their biggest regret is not learning a musical instrument as a child? Musical skills they didn't learn as a child become some of the most sought after in adulthood. Help your child to develop their skills in music from an earlier age and you'll be giving them a gift that will bring them, and others, joy for the rest of their life.

5.2 HISTORY OF MUSIC EDUCATION

5.2.1 History of Music Education in the United States

18th Century

After the preaching of Reverend Thomas Symmes, the first singing school was created in 1717 in Boston for the purposes of improving singing and music reading in the church. These singing schools gradually spread throughout the colonies. Music education continued to flourish with the creation of the Academy of Music in Boston. Reverend John Tufts published *An Introduction to the Singing of Psalm Tunes Using Non-Traditional Notation* which is regarded as the first music textbook in the colonies. Between 1700

and 1820, more than 375 tune books would be published by such authors as Samuel Holyoke, Francis Hopkinson, William Billings, and Oliver Holden.

Music began to spread as a curricular subject into other school districts. Soon after music expanded to all grade levels and the teaching of music reading was improved until the music curriculum grew to include several activities in addition to music reading. By the end of 1864 public school music had spread throughout the country.

19th Century

In 1832, Lowell Mason and George Webb formed the Boston Academy of Music with the purposes of teaching singing and theory as well as methods of teaching music. Mason published his *Manuel of Instruction* in 1834 which was based upon the music education works of Pestalozzian System of Education founded by Swiss educator Johann Heinrich Pestalozzi. This handbook gradually became used by many singing school teachers. From 1837 to 1838, the Boston School Committee allowed Lowell Mason to teach music in the Hawes School as a demonstration. This is regarded as the first time music education was introduced to public schools in the United States. In 1838 the Boston School Committee approved the inclusion of music in the curriculum and Lowell Mason became the first recognized supervisor of elementary music. In later years Luther Whiting Mason became the Supervisor of Music in Boston and spread music education into all levels of public education (grammar, primary, and high school).

During the middle of the 19th century, Boston became the model to which many other cities across the United States included and shaped their public school music education programs. Music methodology for teachers as a course was first introduced in

the Normal School in Potsdam. The concept of classroom teachers in a school that taught music under the direction of a music supervisor was the standard model for public school music education during this century. While women were discouraged from composing in the 19th century, “later, it was accepted that women would have a role in music education, and they became involved in this field... to such a degree that women dominated music education during the later half of the 19th century and well into the 20th century.”

Early 20th Century

In the United States, teaching colleges with four-year degree programs developed from the Normal Schools and included music. Oberlin Conservatory first offered the Bachelor of Music Education degree. Osbourne G. McCarthy, an American music educator, introduced details for studying music for credit in Chelsea High School. Notable events in the history of music education in the early 20th century also include:

- Founding of the Music Supervisor’s National Conference (changed to Music Educators National Conference in 1934, later MENC: The National Association for Music Education in 1998, and currently The National Association for Music Education – NAFME) in Keokuk, Iowa in 1907.
- Rise of the school band and orchestra movement leading to performance oriented school music programs.
- Growth in music methods publications.
- Frances Elliot Clark develops and promotes phonograph record libraries for school use.
- Carl Seashore and his Measures of Musical Talent music aptitude test starts testing people in music.

Middle 20th Century to 21st Century

The following table illustrates some notable developments from this period:

Date	Major event	Historical importance for music education
1950	The Child's Bill of Rights in Music	A student-centered philosophy was formally espoused by MENC.
1953	The American School Band Directors Association formed	The band movement becomes organized.
1957	Launch of Sputnik	Increased curricular focus on science, math, technology with less emphasis on music education.
1959	Contemporary Music Project	The purpose of the project was to make contemporary music relevant in children by placing quality composers and performers in the learning environment. Leads to the Comprehensive Musicianship movement.
1961	American Choral Directors Association formed	The choral movement becomes organized.
1963	Yale Seminar	Federally supported development of arts education focusing on quality music classroom literature. Juilliard Project leads to the compilation and publication of musical works from major historical eras for elementary and secondary schools.
1965	National Endowment for the Arts	Federal financial support and recognition of the value music has in society.
1967	Tanglewood Symposium	Establishment of a unified and eclectic philosophy of music education. Specific emphasis on youth music, special education music, urban music, and electronic music.
1969	GO Project	35 Objectives listed by MENC for quality music education programs in public schools. Published and recommended for music educators to follow.
1978	The Ann Arbor Symposium	Emphasized the impact of learning theory in music education in the areas of: auditory perception, motor learning, child development, cognitive skills, memory processing, affect, and motivation.

1984	Becoming Human Through Music symposium	“The Wesleyan Symposium on the Perspectives of Social Anthropology in the Teaching and Learning of Music” (Middletown, Connecticut, August 6–10, 1984). Emphasized the importance of cultural context in music education and the cultural implications of rapidly changing demographics in the United States.
1990	Multicultural Symposium in Music Education	Growing out of the awareness of the increasing diversity of the American School population, the three-day Symposium for music teachers was co-sponsored by MENC, the Society for Ethnomusicology, and the Smithsonian Institution, in order to provide models, materials, and methods for teaching music of the world’s cultures to school children and youth.
1994	National Standards for Music Education	For much of the 1980s, there was a call for educational reform and accountability in all curricular subjects. This led to the National Standards for Music Education introduced by MENC. The MENC standards were adopted by some states, while other states have produced their own standards or largely eschewed the standards movement.
1999	The Housewright Symposium / Vision 2020	Examined changing philosophies and practices and predicted how American music education will (or should) look in the year 2020.
2007	Tanglewood II: Charting the Future ¹⁹	Reflected on the 40 years of change in music education since the first Tanglewood Symposium of 1967, developing a declaration regarding priorities for the next forty years.
2014	Revised National Standards for Music Education	The National Standards created in 1994 were revised with an emphasis on musical literacy. Instead of the 9 content standards, there are 4 artistic processes (Create, Perform, Respond and Connect) with 2–3 anchor standards per process.

Music course offerings and even entire degree programs in online music education developed in the first decade of the 21st century at various institutions, and the fields of world music pedagogy and popular music pedagogy have also seen notable expansion.

In the late 20th and early 21st centuries, social aspects of teaching and learning music came to the fore. This emerged as praxial music education, critical theory, and feminist theory. Of importance are the colloquia and journals of the MayDay Group, “an international think tank of music educators that aims to identify, critique, and change taken-for-granted patterns of professional activity, polemical approaches to method and philosophy, and educational politics and public pressures that threaten effective practice and critical communication in music education.” With a new focus on social aspects of music education, scholars have analyzed critical aspects such as music and race, gender, class, institutional belonging, and sustainability.

5.2.2 Europe

Music has been a prominent subject in schools and other learning institutions in Europe for many centuries. Such early institutions as the Sistine Chapel Choir and the Vienna Boys Choir offered important early models of choral learning, while the Paris Conservatoire later became influential for training in wind band instruments. Several instructional methods were developed in Europe that would later impact other parts of the world, including those affiliated with Zoltan Kodaly, Carl Orff, Émile Jaques-Dalcroze, and ABRSM, to name but a few. Notable professional organizations on the continent now include the Europe regional branch of the International Society for Music Education, and the European Association of Conservatoires. In recent decades, Central, Southern, and Eastern Europe have tended to successfully emphasize classical music heritage, while the Nordic countries have especially promoted popular music in schools.

5.2.3 India

Institutional music education was started in colonial India by Rabindranath Tagore after he founded the Visva-Bharati University. At present, most universities have a faculty of music with some universities specially dedicated to fine arts such as Indira Kala Sangeet University, Swathi Thirunal College of Music or Rabindra Bharati University. Indian classical music is based on the Guru-Shishya parampara system. The teacher, known as Guru, transmit the musical knowledge to the student, or shishya. This is still the main system used in India to transmit musical knowledge. Although European art music became popularized in schools throughout much of the world during the twentieth century (East Asia, Latin America, Oceania, Africa), India remains one of the few highly populated nations in which non-European indigenous music traditions have consistently received relatively greater emphasis. That said, there is certainly much western influence in the popular music associated with Bollywood film scores.

5.2.4 Java

The Indonesian island of Java is known for its rich musical culture, centered around gamelan music. The two oldest gamelan instrument sets, dating from the twelfth century, are housed in the kratons (palaces) in the cities of Yogyakarta and Surakarta. Gamelan music is an integral part of the Javanese culture: it is a part of religious ceremonies, weddings, funerals, palace activities, national holidays, and local community gatherings. In recent years, there has been an increasing market for gamelan associated tourism: several companies arrange visits for tourists wishing to participate in and learn gamelan.

Gamelan music has a distinct pedagogical approach. The term *maguru panggul*, translated means “teaching with the mallet” describes the master-apprentice approach that is used most

often when teaching the music. The teacher demonstrates long passages of music at a time, without stopping to have the student demonstrate comprehension of the passage, as in a western music pedagogy. A teacher and student will frequently sit on opposite sides of a drum or mallet instrument, so that both can play it. This provides the teacher an easy way to demonstrate, and the student can study and mimic the teacher's actions. The teacher trains the kendang player, who is the leader of the ensemble. The teacher works one on one with them and repeats the parts as many times as necessary until the piece is rhythmically and stylistically accurate. The Kendang player is sometimes relied on to transmit the music to their fellow gamelan members.

5.2.5 Africa

The South African Department of Education and the ILAM Music Heritage Project SA teach African music using western musical framework. ILAM's Listen and Learn for students 11–14 is «unique» in teaching curriculum requirements for western music using recordings of traditional African music.

From the time that Africa was colonized up to 1994, indigenous music and arts being taught in schools was a rare occurrence. The African National Congress (ANC) attempted to repair the neglect of indigenous knowledge and the overwhelming emphasis on written musical literacy in schools. It is not well known that the learning of indigenous music actually has a philosophy and teaching procedure that is different from western “formal” training. It involves the whole community because indigenous songs are about the history of its people. After the colonization of Africa, music became more centered on Christian beliefs and European folk songs, rather than the more improvised and fluid indigenous music. Before the major changes education went through from 1994 to 2004, during the first decade of the democratic government, teachers were trained as classroom teachers and told that they would have to incorporate music into other subject areas. The few colleges with teaching programs

that included instrumental programs held a greater emphasis on music theory, history of western music, western music notation, and less on making music. Up until 1999, most college syllabi did not include training in indigenous South African Music.

In African cultures music is seen as a community experience and is used for social and religious occasions. As soon as children show some sign of being able to handle music or a musical instrument they are allowed to participate with the adults of the community in musical events. Traditional songs are more important to many people because they are stories about the histories of the indigenous peoples.

5.2.6 South America

Among the Aztecs, Mayans, and Incas, music was used in ceremonies and rituals to teach the history of their civilizations and was also used for worship. The Aztec people were mainly educated by their priests. Music remained an important way to teach religion and history and was taught by priests for many centuries. When Spain and Portugal colonized parts of South America, music started to be influenced by European ideas and qualities. Several priests of European descent, such as Antonio Sepp, taught European systems of music notation and theory based on their knowledge of playing instruments throughout the 1700-1800s. Since music was taught to the general public by rote, very few knew how to read music other than those who played instruments until the nineteenth and twentieth centuries. The development of music in South America mainly followed that of European development. Choirs were formed to sing masses, chants, psalms, but secular music also became more prevalent in the seventeenth and eighteenth centuries and beyond.

Music education in Latin America today has large emphasis on folk music, masses, and orchestral music. Many classrooms teach their choirs to sing in their native language as well as in English. Several Latin American Schools, specifically in Puerto Rico and Haiti, believe music to be an important subject and are working on

expanding their programs. Outside of school, many communities form their own musical groups and organizations. Community performances are very popular with the local audiences. There are a few well-known Latin American choral groups, such as “El Coro de Madrigalistas” from Mexico. This famous choral group tours around Mexico, showing students around the country what a professional choral ensemble sounds like.

There is evidence of the positive impact of participation in youth orchestras and academic achievement and resilience in Chile.

5.3 TEACHING METHODS OF MUSIC EDUCATION

5.3.1 Orff Schulwerk Method

Philosophy

Since the beginning of time, children have not liked to study. They would much rather play, and if you have their interests at heart, you will let them learn while they play; they will find that what they have mastered is child’s play.

—Carl Orff

The Orff Schulwerk method is the only approach that is not a systematic “method” per se, although it does entail fostering creative thinking through improvisational experiences. Rather than a system, Schulwerk combines instruments, singing, movement, and speech to develop children’s innate musical abilities. There are four stages of teaching:

- Imitation
- Exploration
- Improvisation
- Composition

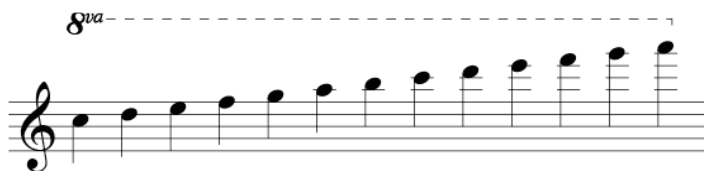
Schulwerk is rooted in arts and subject integration. In the early 20th century, Carl Orff met gymnastics and dance educator Dorothee Gunther and established an innovative school for children based on the idea that all human beings are musical by nature. Their approach was to combine movement (gymnastics), music, and dance. Orff developed the concept of elemental music based on the synthesis of the arts of the Greek Muses, which combined tone, dance, poetry, image, design, and theatrical gesture. Gunther and Orff's approach was to create a comfortable environment that approximates the child's natural world of play, thus allowing children to be introduced to a range of musical skills in a relaxed and stress-free setting.

Carl Orff's definition of elemental music is based on small-scale musical patterns (e.g., ostinato, drone) familiar to the students.

The Orff Instrumentarium

In early 20th century Germany, there were few instruments accessible to children. Orff began by buying recorders, which were rare at the time. Since no one knew how to play them, Dorothee Gunther created instructional books to teach recorder to children. No one knew how to play them, so Dorothee Gunther created instructional books to teach them. Carl Orff came across an African xylophone, and developed a way to transform the xylophone into an instrument for the children at the school to play. He then developed the metal-barred metallophones from the idea of the Indonesian gamelan orchestra and the German glockenspiels, which were small metal-plated instruments found in Germany. Thus the instrumentarium was born—the complete set of which includes bass bars, bass, alto/tenor, and soprano metallophones, xylophones and alto and soprano glockenspiels. While each instrument is limited in range to fewer than two octaves, all together, from bass bars to soprano glockenspiel, the ensemble covers six octaves, creating an entire orchestra!

Soprano Glockenspiel Range (C7-A9)



Soprano Xylophone-Soprano Metallophone-Alto Glockenspiel Range (C5-A7)



Alto Xylophone-Alto Metallophone Range (C4 [Middle C]-A6)



Bass Xylophone-Bass Metallophone (C3-A5)



Contra Bass Bar Range (C2-C3)



Patterned Accompaniments

Orff believed that one of the easiest ways to encourage student participation in music while also contributing to beautiful music-making is to have them play a simple accompaniment on a xylophone. By second grade, most students will be able to keep a steady beat, with a fair number able to do so by first grade. Below are some basic accompaniment patterns on the xylophone or metallophone that students should be able to perform easily.

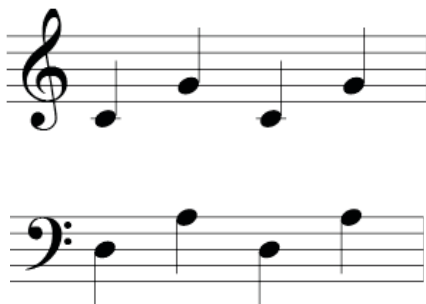
Bordun/Chord Bordun: An open 5th, containing the 1st and 5th degrees of the chord. The 3rd is not played. For example, a bordun in C will include the two pitches C and G; in F, the F and C; in G the G and D; in d minor the d and a, etc. A chord bordun means that the 1st and 5th degrees are played simultaneously.



Example of Bass Bordun With Introduction and Simple Pentatonic Melody



Broken Bordun: The notes of the bordun are played separately.



Moving/Broken Chord Bordun



Example of Moving Chord Bordun With “Lil’ Liza Jane” Melody



Level Bordun: The bordun plays in different octaves.



Crossover Bordun: The mallets cross over to play the pattern.



Drone: A note or chord continuously sounding without change. A bordun functions as a type of drone.

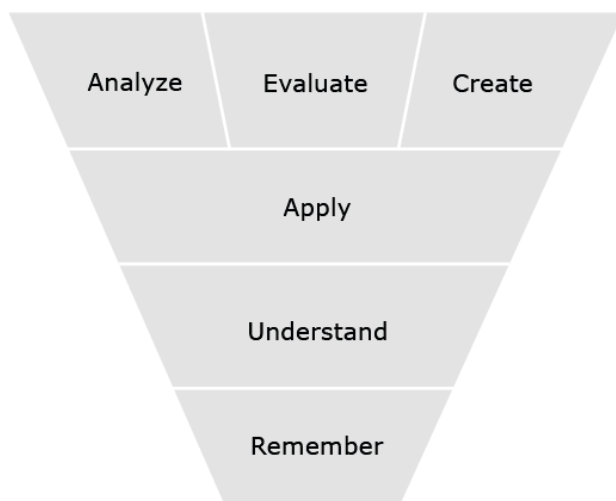


Ostinato: Motif or phrase that repeats.



The Orff process

The American adaptation of Orff Schulwerk utilizes four stages to organize the process of teaching music: imitation, exploration, improvisation, and composition. These four stages establish the fundamental building blocks for children to develop musical literacy. They are similar to Bloom's taxonomy, in that they begin by introducing a very basic skill set and then gradually move on to more complex activities such as composition, which is represented in the upper phases of the taxonomy.



5.3.2 The Kodály Method

There are almost as many approaches to learning music as there are musicians. Every teaching style has a philosophy behind it, and this philosophy influences what is taught and how it is taught. The interactive, collaborative, and highly kinesthetic Kodály method of learning music was developed by Hungarian composer and educator Zoltán Kodály in the early 20th century. It combines several powerful techniques for developing the core skills of musicianship.

Because it focuses on the expressive and creative skills of musicianship (rather than the theory or instrument skills) the Kodály approach is very closely related to the world of musical ear training.

In fact, it could arguably be seen as an approach to ear training, since it is primarily your musical ear which Kodály develops.

Philosophy of the Kodály Method

Growing up with political disquiet in his country, Kodály sought out a way to preserve Hungarian culture, and found the answer in music.

Having been exposed to many styles of music education, Kodály found problems with the existing methods, especially taking issue with the fact that music education started so late in most schools. One story goes that in 1925, Kodály, overhearing schoolchildren singing, was so appalled that he set out to overhaul Hungary's music education system.

Not without drawing the ire of fellow music educators, Kodály dedicated himself to the project of music education reform, creating a new curriculum and new teaching methods.

Kodály was a firm believer in the importance of heritage and culture in one's music education; he asserted that there was no better music than that of a child's culture to teach children basic

musical literacy. To this end, the system he developed integrated the singing of folk songs in the pupils' mother tongue.

Finally, in 1945, Kodály's work was applied in the ways he hoped it would; the new Hungarian government started to implement his ideas in public schools. This was soon followed by the opening of Hungary's first music primary school.

This school was so successful that over a hundred more schools like it opened in Hungary in the following decade.

It didn't stop there; the ideas of these music schools were presented at a conference of the International Society for Music Educators (I.S.M.E.), held in Vienna. Another conference held in 1964 in Budapest allowed other music educators to see Kodály's work first-hand, leading to a steep increase in interest and to the widespread adoption of Kodály's principles by his fellow educators.

The Creation of the Kodály Method

The Kodály method as we know it today was not technically developed directly by Zoltan Kodály himself. Rather, it was a system that evolved organically in music schools in Hungary under Kodály's instruction and guidance.

Kodály's friends, colleagues, and students helped develop this method by picking out techniques found to be the most interactive and engaging to create a method that focused on the expressive and creative skills of musicianship (rather than the theory or instrument skills). Many of these techniques were adapted from existing methods, altered to fit the context of Hungary. The resulting method relied quite heavily on exercises and games, and integrated the Hungarian cultural aspects.

The Central Principles of Kodály

- Music should be taught from a young age. Kodály believed that music was among, if not *the* most important subject to teach in schools.

- Music should be taught in a logical and sequential manner.
- There should be a pleasure in learning music; learning should not be torturous.
- The voice is the most accessible, universal instrument.
- The musical material is taught in the context of the mother-tongue folk song.

Kodály for Children

The original method that Kodály pioneered was created with children's development in mind. With the method, young children unconsciously learn the basic musical elements: solfa, rhythm, hand signs, memory development, singing, and more. Because the music education is already rooted in the culture they are immersed in, learning can occur both in the classroom and at home, with family. Early Kodály music education for children has countless benefits.

Kodály for Adults

The Kodály method is not just for children! Since training starts with simple steps and segues into more complex exercises as a knowledge base is created, adult musicians on every level will also find the method useful. The concepts of rhythm, relative pitch, and improvisation taught in the system are universal.

What Principles Does Kodály Involve?

This method places an emphasis on intuitive, interactive learning. To that end, the techniques used engage the student as much as possible, integrating body movement, singing, and group exercises.

1. Movable “Do” Solfa

Solfa (aka solfège) is a system for relative pitch ear training (i.e. recognising and following the pitch of notes) which assigns a spoken syllable to each note in the scale.

Musicians who haven't studied solfa often think of it as “*the do-re-mi system*”, and while this hints at its nature, it actually vastly understates its power and versatility.

The key advantage is that by learning the musical role and distinctive sound of each note in the scale, it becomes easy to identify (and sing) notes simply by recognizing where they fit in the musical context.

By using solfège to teach the pitch side of musical listening and performance skills, the Kodály approach ensures that musicians have a natural and instinctive understanding of the notes they hear.

2. Hand Signs for Movable “Do” Solfa

The Kodály Method includes the use of hand signals during singing exercises to provide a visual aid for the solfa syllables. The height that the hand rests at while making each sign is related to the pitch, with “*do*” at waist level and “*la*” at eye level. The spatial distance between the hand signs of different pitches corresponds to the size of the interval.

This even further reinforces the power of the solfa system in ear training; the student associates each pitch not only with a memorable syllable, but also with a specific hand motion made at a specific level. The hand signs complement and strengthen solfa learning.





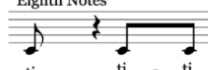
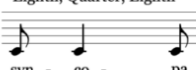


If you want to try it out yourself, the Mobile Musical School has a useful exercise for practicing singing with hand signs!

3. Rhythm

Rhythm is often a neglected area of ear training. Many students simply don't know how to effectively develop their rhythm skills, or how to connect them to the rest of their music learning.

The Kodály approach provides a clear systematic way to think about and speak rhythms in music which very much complements the solfège system for pitch. Kodály exercises encourage the participants to aurally, visually, and physically engage with the rhythms they're playing.

Note values are counted out loud with assigned syllables that actually sound like the rhythms they spell out. For example:

<p>Half Note</p>  <p>too</p>	<p>8th and 16th notes</p>  <p>ti - ti ka ti ka - ti</p>
<p>Quarter Note</p>  <p>ta</p>	<p>Dotted quarter plus 8th</p>  <p>tum - ti</p>
<p>Eighth Notes</p>  <p>ti ti - ti</p>	<p>Eighth, Quarter, Eighth</p>  <p>syn - co - pa</p>
<p>Sixteenth Notes</p>  <p>ti ka - ti ka</p>	<p>Dotted 8th + 16th</p>  <p>tim - ka</p>

Kodály students learn to speak and sing rhythmic patterns using specific syllables, and so develop a framework for understanding rhythm by ear and performing it accurately.

4. Creativity

Although we often think about frameworks as limiting sets of rules, in fact they can provide a structure which gives you confidence to experiment.

This is the case with the solfège and rhythm systems in Kodály teaching: by having clear systematic ways to understand pitch and rhythm, the musician is empowered to be creative and confident in music.

An example would be improvising sung melodies, or changing the rhythm of a song in creative ways. These tasks can seem intimidating to a musician who has been taught in the classical tradition, but with the Kodály approach, musical tasks like these are simple and enjoyable.

5. Collaboration

At its heart, the Kodály approach is a very human and social one, involving plenty of musical collaboration. From the earliest lessons, students are encouraged to perform together and play or sing duets, rounds, and other musical forms which allow both collaboration and creative improvisation.

Examples would be students singing together and taking turns to improvise different melodies while the other sings an accompaniment, or playing clapping games where their rhythms interact and synchronise in fun ways.

5.3.3 Dalcroze Method

Emile-Jacques Dalcroze is a Swiss educator best known for eurhythmics, which incorporates rhythm, structure, and musical expression with movement. The ultimate goal is to develop total cognitive and kinesthetic awareness through sound. The music acts as a stimulus to which the body responds, after which sensation returns to the brain to form emotions, which deepens the significance of the experience.

Philosophy

The Dalcroze philosophy centers on the concept that the synthesis

of the mind, body, and resulting emotions is fundamental to all meaningful learning. Plato said in his *Laws*: “Education has two branches, one of gymnastics, which is concerned with the body, and the other of music, which is designed for the improvement of the soul”. Emile-Jaques Dalcroze believed that every musician should strive to be sensitive and expressive, and to express music through purposeful movement, sound, thought, feeling, and creativity.

Mead (1994) cites four basic premises that encapsulate the Dalcroze philosophy:

- Eurhythmics awakens the physical, aural, and visual images of music in the mind.
- Solfege (sight singing and ear training), improvisation, and eurhythmics together work to improve expressive musicality and enhance intellectual understanding.
- Music may be experienced through speech, gesture, and movement.
- These can likewise be experienced in time, space, and energy. Humans learn best when learning through multiple senses. Music should be taught through the tactile, kinesthetic, aural, and visual senses.

The Dalcroze approach is based on eurhythmics, which teaches rhythm, structure, and musical expression through music. Eurhythmics begins with ear training, or solfege, to develop the inner musical ear. This differs from Kodály’s use of solfege in that it is always combined with movement. Another component of the method concerns improvisation, which helps students sharpen their spontaneous reactions and physical responses to music.

Types of movement

Each movement involves **time**, **space**, and **force**, and all three should be taken into account when moving, paying close attention to the musical attributes of the movement.

- **Time:** Tempo (rate of speed) and duration (fast, moderate, slow)
- **Space:** Direction, distance covered, level, dimension (large, small), path (straight, twisted), and focus
- **Force:** Energy or power expended, quality of the movement, and any adjectives to describe the movement (e.g., heavy, light, sharp, energetic, gentle)

Movement that stays stationary is called non-locomotor, while movement that moves through space is locomotor.

- **Non-locomotor** (movement in place):
 - Stretch, curl, clap, snap, patsch, tap, stomp, twist, turn, conduct, sway, jump, bend, speak, stretch, swing, reach
- **Locomotor** (movement through space):
 - Walk, slide, skip, run, leap, gallop, hop, jump, slither, creep, roll, jog

Regardless of the type, movements should above all be musical. Movements should also be focused and thoughtful; i.e. preparation should occur before each movement; the movement should take into account the full length of the beat; and the movement should return back to pre-preparation status. It is essential that the movement coordinate with the beat of the music, the rhythm, and the phrasing (depending on the exercise).

Dalcroze's exercises are always sequential, beginning with the simplest and becoming more complex as students master and develop their skills. Children are introduced to key musical elements such as meter, dynamics, rhythms, tempo, duration, melody, form, phrase, and pitch.

Types of eurhythmics

There are four types of basic eurhythmic exercises:

1. Follow
2. Quick reaction

3. Interrupted canon
4. Canon

A **follow** exercise is a basic music-movement response exercise. Students physically respond to the sounds they hear.

Examples:

Students walk to the beat of music (piano, drum, etc.) and respond to changes of tempo (speeding up or slowing down), rhythms (walking on quarter notes, running on eighth notes, skipping on dotted rhythms), etc.

A **quick reaction** exercise requires students to respond to verbal signals or cues.

Examples:

Students move while the music is playing and freeze when the music stops or the teacher yells out a command. Students also can change their movements on a given signal, such as switching from a loco-motor to a non-loco-motor when they hear a drum beat or chime or when the music stops.

An **interrupted canon** is similar to an “echo” where students imitate or echo a beat, pattern, etc. The interrupted canon is a preparatory exercise for the canon.

Examples:

Students hear a rhythm and then echo it back on their body (lap, clap, etc.).

A **canon** requires students to echo back a pattern, but one measure later. While they are performing their pattern, they are simultaneously listening and memorizing the new pattern.

Examples:

The teacher claps patterns. Students respond one measure later while continually absorbing the pattern currently being performed. Pass the pattern: A more challenging version of this is to have students form two straight lines. The teacher stands in front and “passes” a pattern to the first student in one of the lines.

That student then “passes” it to their partner across the aisle, who then passes it across the aisle, etc. All the while, new patterns are being formed and passed.

Dalcroze movement requires that children listen and respond simultaneously. The music mirrors the physical motions expected. For example, music for walking or marching is in duple meter and uses steady quarter notes, running music contains eighth notes, skipping music uses dotted rhythms, jumping music contains large interval leaps, and so forth.

Examples of music for Dalcroze movement exploration

First example of music for Dalcroze movement exploration. It consists of two staves (treble and bass clef) in 2/4 time. The melody in the treble clef is labeled with "(walk)" for the first two measures (quarter notes), "(run)" for the next two measures (eighth notes), and "(walk)" for the final two measures (quarter notes). The bass clef provides a steady accompaniment of quarter notes.

Second example of music for Dalcroze movement exploration. It consists of two staves (treble and bass clef) in 2/4 time. The melody in the treble clef is labeled with "(walk)" for the first two measures (quarter notes), "(run)" for the next two measures (eighth notes), and "(walk)" for the final two measures (quarter notes). The bass clef provides a steady accompaniment of quarter notes.

Third example of music for Dalcroze movement exploration. It consists of two staves (treble and bass clef) in 2/4 time. The melody in the treble clef is labeled with "(run)" for the first two measures (eighth notes), "(step) (step) (stop)" for the next two measures (quarter notes with accents), "(run)" for the next two measures (eighth notes), and "(step) (step) (stop)" for the final two measures (quarter notes with accents). The bass clef provides a steady accompaniment of quarter notes.

Fourth example of music for Dalcroze movement exploration. It consists of two staves (treble and bass clef) in 2/4 time. The melody in the treble clef is labeled with "(run)" for the first two measures (eighth notes), "(step) (step) (stop)" for the next two measures (quarter notes with accents), "(run)" for the next two measures (eighth notes), and "(step) (step) (stop)" for the final two measures (quarter notes with accents). The bass clef provides a steady accompaniment of quarter notes.

5.3.4 Suzuki Method

History of Suzuki Method

Dr Shinichi Suzuki was the founder of the worldwide music education movement known as the Suzuki Method. Born in Nagoya, Japan in 1898, he was the son of Japan's first and largest violin manufacturer. Although he worked in the factory as a child, he had never learnt music formally.

Inspired by a recording by Mischa Elman of Ave Maria, Suzuki began to teach himself to play the violin. Over the next few years, he dedicated himself to the study of the instrument and then, at the age of 22, travelled to Berlin to study with the renowned violinist, Karl Klinger. It was here in Germany that Suzuki became a friend of Albert Einstein and through him, associated with many of the world's leading artists and thinkers. Suzuki met and married Waltraud Prange, a concert soprano and they returned to Japan in 1928 where he began teaching and performing with the Suzuki Quartet.

Suzuki was asked by a colleague at the Imperial Conservatory to teach his young son and became stimulated to think about the ways in which children learn. Then with the outbreak of World War II, Suzuki was separated from his wife as she was classed as a foreigner. With food very scarce and conditions less than ideal, Suzuki became very ill, taking months to recover. From this experience grew a determination to positively influence the lives of children.

In Germany he had observed how easily the young children learnt to speak German, a language he was struggling to master. He also realised that all Japanese children easily learn to speak Japanese, a highly complex language. All children are able to learn their mother tongue effortlessly through listening, imitation and repetition. He concluded that children could also learn music this way, if taught with love and dedication.

Suzuki taught using the concept 'character first, ability second'. His goal was to embrace the whole child, nurturing a love of music and the development of a fine character rather than just the mastering of a musical instrument. Suzuki called his idea 'Talent Education' and soon established a school in Matsumoto.

Talent Education refers to the development of skill, knowledge and character. The word 'saino' (talent) in the Japanese language means both ability and talent. There is no distinction between the two meanings as there can be in English. 'Saino' can also be used to mean the development of ability and talent in a skills area such as music and in a personal development area such as one's character.

Suzuki took a great deal of time and care developing the repertoire, which presents technical and musical concepts in a logical sequence. Eventually other teachers heard of his work and came to Matsumoto to study. Teaching of the method then started to spread around Japan and materials were developed for cello, flute and piano.

In 1958, a film of young Suzuki children performing was shown to a group of string teachers in Ohio. The film provoked a great deal of excitement amongst the musical establishment and prompted many American teachers to learn about the method. Suzuki took a group of Japanese students to the USA to perform at a music educators conference in 1964 which continued to fuel the desire for knowledge about this amazing man and his work. Since that time, the ideas of Talent Education have spread throughout the world. Many teachers have been to Japan to study directly with Dr Suzuki.

Today there are over 8000 Suzuki teachers worldwide and more than 250 000 children learning by the Suzuki Method.

Wow does Suzuki work?

Dr Suzuki called his teaching method the Mother-Tongue Approach, inspired by the fact that children so effortlessly learn to speak their native tongue. Prompted and encouraged by the

parents' love and the family environment, the child responds and develops this most difficult of skills, that of intelligible speech.

When a child learns to speak, the following factors are at work:

- Listening
- Motivation
- Repetition
- Step-by-step mastery
- Memory
- Vocabulary
- Parental Involvement
- Love

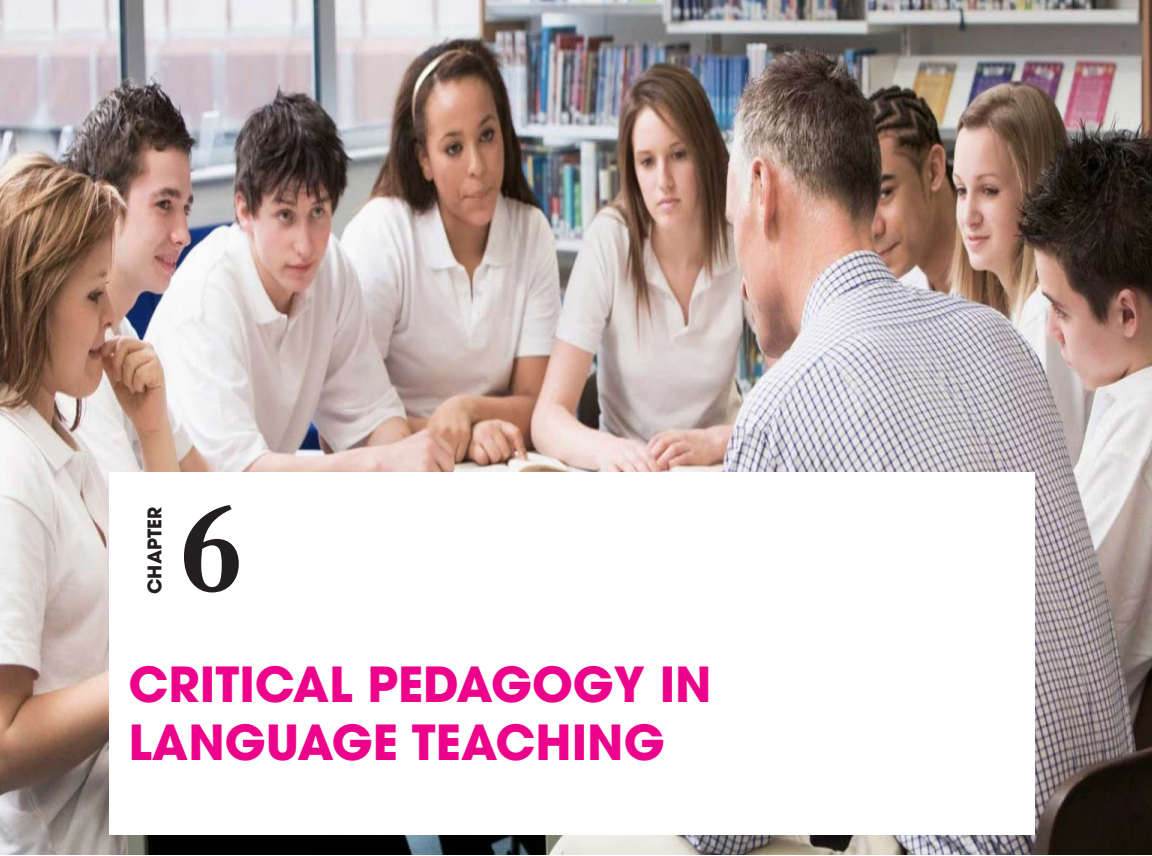
In the Suzuki approach each of these principles is used in the learning of an instrument (piano, violin, viola, cello, double bass, flute, guitar, voice, harp and recorder). The mother-tongue approach has successfully been applied to other fields such as art, poetry and mathematics.

Dr Suzuki closely follows the parallel with language learning and recommends that music should become an important part of the baby's environment from birth (or even before). When the infant's environment includes fine music as well as the sounds of the mother-tongue, it is understandable that the child will develop the ability to speak and to play a musical instrument (with technical guidance) before being required to read in either language. Formal lessons frequently begin as early as 3 years of age.

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CHAPTER

6

CRITICAL PEDAGOGY IN LANGUAGE TEACHING

INTRODUCTION

Critical pedagogy in language teaching is a perspective in language curriculum theory and instructional practice that supports and advances teaching and the study of languages in ways that would promote social justice. In this case, the popular term social justice is based in one or more critiques of present-day society (or societies) that reflect the interests of the working class, women, non-heterosexuals, ethnic minorities, marginalized peoples, and includes perspectives that valorize environmental conservation and peace. 'Critique' refers to systematic and constructive criticism based on empirical and theoretical study of society, language, and the person reflecting alternative, progressive, or radical theories of societies, individuals, and languages. Language is understood here broadly, as having both structural and functional

dimensions, socially implicated as discourse and thus involved in the construction of individuals and the maintenance and change of societal structures. Critical teaching is principled and it has a coherent view of society and the role of power in forming relationships in society. The critical language educator relates knowledge of grammar and vocabulary to knowledge of social problems and how to act to solve these problems. Learners are active in the classroom and in society in critical pedagogy. We focus on a critical pedagogy in teaching education because of the goal of preparing citizens for participation in a democratic society. It is not always easy to distinguish critical pedagogy, active learning, and the learner-centered or learning centered approaches. Each is predicated through student engagement and suggests involvement via such strategies including collaborative and cooperative learning and problem-based learning. Whether or not a teacher is philosophically content with the principles of critical pedagogy, applying it in the classroom presents teachers with the same dilemmas that become apparent when using active learning or learner-centered approaches.



6.1 FOCUS ON CRITICAL PEDAGOGY

The term ‘critical pedagogy’ was attached to the work of Brazilian literacy educator and curriculum specialist Paulo Freire, its central figure, during the late 1970s, that is, some years after his writings became popular outside his home country. According

to Henry Giroux (<http://www.freireproject.org/content/henry-girouxinterview>), he and Freire discussed what useful label could be attached to this line of work and considered 'radical pedagogy', but discarded it as too challenging. They substituted the less transparent, perhaps more inclusive term 'critical' for 'radical'. This suggests a connection to the area of social theory known as 'critical theory', but the link is not close in early work in this area. Given the breadth of developments in this area, the very-longstanding and unconfined term 'radical pedagogy' might have been a better choice, but the fact remains that 'critical pedagogy' is the most widespread term for social justice oriented tendencies in applied linguistics and in language teaching.

Initially, Freire's critical pedagogy was an approach to first and second language literacy based in Catholic, progressive, and radical critiques of society, in which literacy was to be taught in such a way that the poor and the working class could interpret reality so as to be able to act on it to improve their lives. Class was the primary unit of analysis in Freire's work, along with the idea that the 'human vocation' involved one's ability to care for others and improve oneself.



What critical pedagogy has become is much broader than that. Freire originally thought of oppression as mostly what is experienced by the working class at the hands of the ruling class. But as radical social thinking and theorizing developed along with the growth of social movements over the decades of the end of the twentieth century, other important aspects or sites of

oppression became more visible and organized. Thus the feminist movement entered its second wave after the late 1960s; race-based social critique became more obvious; gender orientation became recognized as a site of oppression and a place of pedagogy; and issues of peace and environmental protection all developed curricular manifestations. These areas developed instructional and theoretical manifestations within applied linguistics and language teaching. Mainstream critical pedagogy continued to develop as well.

Core elements of practice, both in Freire's L1 literacy work and in L2 language teaching of a critical nature, can be sketched without in any way suggesting that there is one fixed "Method" implied by these elements. One central feature is that the elements of the language curriculum should relate to the issues of the students' life and the things in their life that are problematic, which they might be able to change and improve through the tool of literacy or an additional language, and the changed consciousness that would come from that. When Freire's original literacy courses were delivered within the students' home communities, the instructional team spent time living in the community, to develop an ethnographic critical needs analyses. A characteristic feature was and still is the use of visual images (pictures or photos) or realia, concerning aspects of the students' life. Pictures may be used as projective devices; through commenting on them and discussing them, students develop or articulate some aspects of the topics or language content they wish to learn, that they wish to be able to command. In addition, since one underlying goal of the approach is to foster the freedom and ability to act of the students, the students themselves play a substantial role in the development of curriculum content and even of materials.

L2 specialists began to take up Freire's work from the late 1970s on, but much more substantially after the mid 1990s. Foreign language teaching in the US early witnessed publications identifying

a critical pedagogy for languages such as French or Spanish in the high school or university. Crawford derived principles for language critical pedagogy from Freire's work, and these illustrate core values in critical pedagogy as well as alerting teachers to some of the challenges of implementing it are. They include -

- the purpose of education is to develop critical thinking by presenting [students'] situation to them as a problem so that they can perceive, reflect and act on it
- the content of curriculum derives from the life situation of the learners as expressed in the themes of their reality
- the learners produce their own learning materials
- the task of planning is first to organize generative themes and second to organize subject matter as it relates to those themes
- the teacher participates as a learner among learners
- the teacher contributes his/her ideas, experiences, opinions, and perceptions to the dialogical process [of the course]
- the teacher's function is one of posing problems
- the students possess the right to and power of decision making

Feminist pedagogy has been promoted in language teaching particularly by Vandrick, who draws on elements of feminist process to describe feminist classroom participation practices, which ensure female students have equal time and assist and direct male students in fulfilling this goal. Feminist language curriculum means the teacher makes sure the classroom content is bias-free, avoids stereotyping, and puts women-related matters at the center of content.



For language teaching, race as a form or site of oppression has been worked on only quite recently. A special issue of the flagship journal TESOL Quarterly was devoted to it. Oppression based on societal insistence on a particular sexual orientation and oppression of those not conforming (heterosexism) has been recognized by radical educational practitioners, has begun to manifest in some theoretical literature

It has been suggested that critical pedagogies are inappropriate for use in some cultures. This view wrongly generalizes temporary historical-cultural conditions or the characteristics of some parts of mainstream schooling to cultures or, to countries or cultures as a whole.

Reports of language critical pedagogy tended to favor ESL settings, though an increasingly number of explorations are reported concerning the teaching of English in EFL contexts.

The number of publications on language critical pedagogy continues to grow, reflecting (though perhaps exceeding) practice. In recent years the area has acquired a journal (Critical Inquiry in Language Studies) and a professional society (the International Society for Language Studies) notably hospitable to ideas of critical language pedagogy and associated positions. A research agenda for the area has become clearly specified. The conceptual and theoretical expansion of the area, as well as the growth of language educational programs both as well as inside a public sector that is itself no longer monolithic allows the proponents of

language critical pedagogy to view the future for their initiatives with optimism.



6.2 TENETS INHERENT IN CRITICAL PEDAGOGY

Although no one can present a procedural guideline for applying critical pedagogy in a program of teacher education there are three tenets that are inherent in a critical pedagogy. These tenets are viewpoints stated by several critical theorists including Giroux, McLaren, Delpit, Ladson-Billings, Dillard, hooks, and others.

These three tenets are as the followings:

- reflection upon the individual's culture or lived experience;
- development of voice through a critical look at one's world and society, which takes place in dialogue with others;
- transforming the society toward equality for all citizens through active participation in democratic imperatives;

The language class is a place where people learn new ways of communication and understand the world through a special perspective (Wink, 1999). Suppose that one's understanding of the world is affected by one's views and values, any practice of language learning and teaching is intrinsically political and socially constructed (Auerbach 1995; Pennycook, 1989). As a result, the macro social, cultural, and political contexts where the learner is situated should be integrated in the curriculum, and teachers should play an envisaging role in critical educational practice. The

student often initiates as a member of the group or process (such as religion, national identity, cultural norms, or expected roles) he or she is critically studying. After the student reaches the point of communication where he or she begins to see present society as deeply problematic, the next behavior prompted is sharing this knowledge, paired with an aim to change the oppressive nature of the society. A good picture of this development from social member to disagreeing to radical teacher/learner is presented in both Paulo Freire's book "Pedagogy of the Oppressed" and bell hooks' book "Teaching to Transgress." An earlier proponent of a more active classroom, where students direct the epistemological method as well as the actual object of inquiry is the late Neil Postman, who, in his "Teaching as a Subversive Activity" offers creating a class where students themselves are fully under control of the syllabus, class activities, and grading.

Grounded in lived experience:

Curriculum should be rooted in student/classroom concerns, interests, and experiences. It respects students innate curiosities. What issues are important to them? What issues affect them?

Artistic practices address real world concerns and directly involve diverse publics by utilizing community locations and attempting to affect public life. Artistic practices include audience participation, the expertise of other disciplines, and the involvement of the community.

A critical pedagogy is required to manage the complex social system of the classroom and identify the need of individual students. There is always disorganization regarding teacher's role in the society: transmission or transformation. In fact, this issue overlooks the experiences and abilities of the students. Their creativity is lost and become more dependent upon the teachers. Now the pedagogical paradigm has been moved toward

transformation and teachers can cooperate with the students and other stakeholders, e.g. community people, colleagues, educationists, education administrators etc. to transform. Critical pedagogy calls for cooperation. Teachers are the agents who work in complex social sites and who have the power to help transform. But it is difficult to practice it in existing school environment. Firstly, we need to perceive that knowledge and production of knowledge might be made less external so that transformation is possible even if it takes a longer time.

Critical pedagogy encourages teachers to consider their practice critically and complexities of the educational process through various viewpoints. Moreover, critical pedagogues share an end of academic success for each student, demonstrated in the preparation and experience of children to be active citizens in a fully democratic society. For critical pedagogues, the goal of education is for social transformation towards an entirely democratic society, where

- each comment is shared and heard in an equal way;
- one critically investigate oneself and one's society and;
- one acts upon decreasing social discriminations;

6.2.1 Critical ESL Pedagogy

Through the perception that society is actually unequal and unfair, critical approaches to second Educators of English as a Second Language (ESL) who believe in critical pedagogy find it significant to adapt the theory of critical pedagogy into their curriculum and syllabuses particularly as ESL teaching mostly deals with racial and language minorities (i.e. immigrants and foreign students). Language teaching and learning must be connected to the objectives of educating students, to understand why things are the way they are and how they got to be that way. Critical ESL pedagogy is the “pedagogy of hope”.



6.2.2 Critical EFL Pedagogy

While educators in the fields of literacy education, ESL, and English for Academic Purposes (EAP) have discussed a great number of articles and descriptions of the actual application of critical pedagogy, much less has been reported in the EFL context, since critical pedagogy has been set aside as culturally inappropriate especially for the East Asian contexts. One of the few studies carried out in an EFL context is reported by Shin and Crooks. The study investigated Korean high school students' responses to critical dialogues and non-authoritarian interactions with teachers. The results of the study indicated that students were not resistant to the materials including critical topics, and that East Asian students are capable of coping with critical approaches.



EFL learners are quite different from ESL learners, since many of them involve the category of future bilinguals. Within the EFL context, learners come from different backgrounds of gender, sexuality, social classes, and the endeavors within micro-relations of power always exist. In addition, when the learners are actually the elite members of the society who exercise power, critical pedagogy might play an important role in education since the language learning could be a tool for them to understand how to dominate societal power, how to convert that power to the less-powerful, and how to exercise their influence in a right way to make the world a better and more equal place. Increased sensitivity to diversity, to different types of oppression, is likely to make radical pedagogical initiatives more relevant in a variety of classrooms, especially in EFL contexts.

6.2.3 Critiques of Critical Pedagogy

Possibly the first critique to take into consideration is that which comes from within. The very nature of critical pedagogy requires a constant examination of its philosophies, desires and practices. Giroux and McLaren make their peers remember that many current procedures in critical pedagogy are integrated in the epidemic weaknesses of a theoretical project unduly related to developing a language of critique. Critical pedagogy is immersed in a posture of moral indignation toward the iniquities created in American public schools. Unfortunately, this one-sided emphasis on critique is parallel to the lack of theoretical and pragmatic discourse upon which to ground its own insight of society and schooling and to form the direction of a critical approach. Critical Pedagogy has been subject to similar and identical criticisms. Claims that Critical Pedagogy is “rationalistic” that its denoted reliance on “open dialogue” indeed covers a closed conversation that it excludes issues and voices that other groups bring to educational encounters, have been stated with some force Jennifer Gore’s critique of critical pedagogy presents that there are two critical pedagogies, or at least two distinct components within critical pedagogy and these

components are diagnosable via looking at individual figures who have dominated the discourse of each of the components. She defines this component as contributing to “pedagogical practice.” On the contrary, Gore is more severe regarding the approach taken by those who promote a ‘pedagogical project’, particularly Giroux and McLaren. She asserts their approach is through articulation of an abstract political insight and should not be called “critical pedagogy, but critical educational theory.” Gore believes that the main concern here is failure to prescribe specific practices for use in classrooms. The result is that their pedagogy might be seen to limit its audience to those readers who have the time, energy, or tendency to struggle with it and subsequently constricts its political potential.



Obviously, Gore is concerned about the realities for teachers and the tendency of some critical pedagogues to construct abstracted theories that lack applicability. The purpose of this same criticism is the notions of empowerment, a central concept in critical pedagogy. These too have been characterized by abstract theories which impose a requirement on teachers to do the work of empowering, to be the agents of empowerment, without providing much in the way of concrete guidance for that work. Freire himself, as noted earlier, challenged every teacher to focus on the realities

of students' lives and experiences and to construct learning experiences that articulate with these. There is a responsibility on the teacher to create, adapt or specify the appropriate strategies for the particular context. Gore might argue that some critical pedagogy theorists could do more to acknowledge the realities of educational contexts rather than dwell in the rarified terrain of the theoretical. Furthermore, Elizabeth Ellsworth, writing from a feminist perspective, articulates similar concerns. She suggests that the term 'critical' is a "repressive myth that perpetuates relations of domination" and hides "the actual political agendas namely antiracism, antisexist, anti-elitism, anti-heterosexism, anti-ableism, ant classism, and anti-neo-conservatism." Ellsworth proceed to claim that theorists of critical pedagogy have failed to initiate any meaningful analysis of or program for reformulating the institutionalized power imbalances between themselves and their students, or of the necessarily paternalistic project of education itself. Further concerns are addressed to critical pedagogues who she suggests are always implicated in the very structures they are trying to change.

Feminist critique is not the only voice heard in the argument over critical pedagogy. Bowers has examined the work of Freire and his followers and, while acknowledging the significant contribution made by Freire, Bowers argues that his pedagogy "is based on Western assumptions about man, freedom, progress, and the authority of the rational process." Moreover, Bowers suggests that Freire's pedagogy contributes to a modernizing way of thinking, and thus runs the risk of strengthening Western values and assumptions. The problem with Freire's position is not that he favors critical reflection but that he makes it the only legitimate source of knowledge and authority. Also, more potentially dangerous is the use of dialogue as a tool for liberty. Bowers contends that the mode of thought involved in dialogue shifts the status of authority from that of community and tradition to the individual who unifies thought and action in a new praxis. This analysis undoubtedly demonstrates a conflict between the focus of Freirean pedagogy and what Bowers perceives as the

potential outcome. Essentially, Bowers is critiquing much of the literature of critical pedagogy which has developed out of the philosophies of Freire. From this viewpoint, his criticism aimed at Marxist educational perspectives which, he contends, have failed to address the issues of the nature of the world and the ecological crisis. Bowers believes that the focus on the particular has led to a lack of focus on the wider issues.



Feminist Criticism

- Feminist criticism is the literary and critical theory that explores the bias in favor of the male gender in literature, and which reexamines all literature from a feminist point of view.



6.2.4 Postmodern Critique

The final critique to be taken into account is that from a postmodern perspective, even though the term itself and associated concepts are complicated to define and, indeed, cover a broad range of perspectives. It is beyond the scope of this paper to deal with all the extensive subjects related to critical pedagogy and postmodernism but an overview of the relationship between the two is effective. It is interesting to consider the problems inherent in this relationship. In many ways there are aspects of the two that are fully consistent, or at least there are overlapping practices. The goals related to resistance of oppression so strongly rooted in the history of critical pedagogy are not the same goals of postmodernism, where analyses of texts and multiplicity of approaches are uppermost. Burbules and Rice try to investigate the whole issue of a postmodern critique of critical educational studies. They suggest that there are difficulties inherent in any comprehensive critique beginning with the fact that a definitive interpretation of postmodernism itself is difficult. However, they extract three recurring ideas that

presented in the literature: the rejection of absolutes; the perceived saturation of all social and political discourses with power or dominance; and the celebration of difference. Having defined these ideas as the key principles, they go on to suggest that there are in fact two varieties of postmodernism that adopt fundamentally different positions relative to modernism itself and they call these two trends postmodernism and antimodernist. In a similar vein, many critics have suggested that the preoccupation with class issues that appears most commonly in Marxist discourses often results in other issues (race, gender, sexual orientation) being significantly ignored. A rightful criticism can be developed both from a feminist and postmodern position that other voices and concerns are not addressed by the promises made through some components of critical pedagogy has noted in very clear terms of the tensions she perceives between the modernist tendencies of critical pedagogy and postmodernism. She writes from the perspective of a feminist influenced by postmodern theories who wants to maintain the intuition of social justice and transformation that underlies liberatory pedagogies. Her intention is to build on rather than reject the universal goals of liberation which, she claims, do not always address the specificity of people's lives. She believes that these ideals do not directly analyze the contradictions between conflicting oppressed groups or the ways in which a single individual can experience oppression in one sphere while being privileged or oppressive in another. Further, Weiler suggests that the assumptions of a collective experience of oppression do not address the realities of the classroom. Attempting to name and struggle against oppression might be difficult if not impossible in the classroom because of the range of emotions that are engaged and even those best intentioned may well retreat to more traditional practices rather than face the various issues involved. The main question to confront is that of commonality of experience of oppression and the need to define it in the "context of historically defined struggles. In relation to this particular issue, Weiler challenges Freire's pedagogy and his premise that all people are subjects and knowers of the world.

She claims that he does not confirm the possibility of a contradictory experience of oppression and infers that she is arguing for a more situated theory of oppression and subjectivity, and for the need to take the contradictions of such universal claims of truth or process into consideration.

Many educational changes occur during the 20th century were brought about by historical facts, social movements, and political agendas. Politics is a starting point of changes in education. Comments that spoke about peace, imperialism, racism, feminism, and other social issues came from different areas of the world, and individuals, like Apple in the USA and Freire in Brazil, launched social and educational reforms that would reach the problem in its source, sociopolitical interests. Taken together, critical pedagogy was started out of the need of reforming education in a way that it would approve the influence of the social and political elements existent in each educational context. In case that critical pedagogy integrates in our everyday teaching it can possibly change the way the world is seen, organized, induced, and the ways lives are lived by minorities or in regions of the world where the social lacks organization. Critical pedagogy expects people to be independent learners, thinkers, and doers. The main tenets of critical pedagogy are that no education is politically neutral, and all education should be empowering and provide students with a model of critical behavior they can take with them to the outside world. The information collected on critical pedagogy indicates that critical pedagogy is an intricate and complicated tapestry made up of various colors and shapes. It is the outcome of diverse comments that come from different areas of the world and from people of numerous races and color. However, critical pedagogues share one common goal "to fight against imperialism and social and political injustices through education."



6.3 TEACHING ENGLISH THROUGH CRITICAL PEDAGOGY: PROBLEMS AND ATTITUDES

Critical pedagogy began its life in the works, thinking and pedagogic practice of Antonio Gramsci along with the works of key thinkers from the Frankfurt School, but in reality it became wholly recognized in the seminal writings of Paulo Freire, the Father of critical pedagogy, especially with work of *Pedagogy of the Oppressed*. Ira Shor nicely characterizes critical pedagogy as: Habits of thought, reading, writing, and speaking which go beneath surface meaning, first impression, dominant myths, official pronouncements, traditional clichés, received wisdom, and mere opinions, to understand the deep meaning, root causes, social context, ideology and personal circumstances of any action, event, object, process, organization, experience, text, subject matter, policy, mass media or discourse. It reads as being after kind of commitment to social transformation. Transformation of what's so far accepted as unquestionable truth. But to achieve such an end, individuals of the society need to become critical and

empowered enough to make their voices loud enough in order to be heard. Critical pedagogy criticizes entanglement of individuals in every-day phenomena without ever questioning it.

Individual cognitive development \longleftrightarrow Collective social transformation

Along with this line of thought, continuous problematization of the common sense is a great help. Not to mention educationalists do not aim at going to the extent of getting radical rather than critical. When social transformation comes to focus, education proves to be a political issue in the need of being dealt politically. This kind of system brings everything including curriculum, materials, teachers, and learners under its influence. Critical pedagogy through critical thinking looks to create a healthy non-alienating classroom-social relationship with no dominant policy overhanging in the minds of individuals. That is, pedagogy needs to be domesticated. Critical theorists highly criticize a one-model-fits-all look toward education. Critical pedagogy, on the whole, rejects a “blanket approach”. Looking at education through their glasses, we can see that individuals with different identities and voices are all to be appreciated, all to be discussed dialogically and all to be developed to the point of finding a place in the outside society. Critical theorists believe that adult literacy programs should not be confined to teaching specific literacy skills but rather should contextualize instruction within a framework of social activism and societal transformation. In such a democratic setting, the learners are able to attain a power to analyze their own place in the society critically using their literacy skills.

For all the above-mentioned to be appropriately fulfilled, individuals need to be intellectually developed and according to Vygotsky’s theory of social construction which takes the view that an individual’s intellectual development results from social interactions within specific cultural contexts. This kind of prerequisite community for development can be created in the classroom which is already a part of society if treated properly. Learners need to be active participants in the process of their own learning. Dewey (1933) theorized that only students

who were actively involved in their learning could become informed participants in a democracy. He believed that rote learning contributed to the passive acceptance of one's place in society, whereas learning through problem-solving and practical application would lead students to take a more active role in determining their experiences and their positions within society.

In traditional classes, the teacher is the agent of knowledge transfer and students are knowledge consumers. But in the new approach, the teacher is the agent of change and sets the right condition for the exchange of ideas, as a result, they all learn together, they all teach each other. Freire (2002) believes in a more fluid relationship between teachers and students, so that learning goes both ways; teachers are learners and learners are teachers. Taking this, classes are not expected to reflect "banking" sensibility. Akbari (2008) rightly defines critical pedagogy as "connecting word to world", but for this connection to be established, the marginalized learners (those felt to be in need of getting conscious) must learn how to tackle with their world problems. Freire and Macedo believe that marginalized learners must learn to "read the world" before they "read the word". In other words, students must come to an understanding of the cultural, political, and social practices that constitute their world and their reality before they can begin to make sense of the written words that describe that reality. As it can be seen, the approach is against what's going on traditionally. Barrera uses the concept of "culturallectomy" to refer to the processes of exclusion of the culture and non-school lives of the students from what happens in school. In such setting, the only thing that's appreciated is to maximize academic outcomes but in no way to nurture socially intellectual individuals.

Critical pedagogy attempts to act through post-modern discourse. And as Giroux claims, it is through these discourses that it tries to problematize the modernity's universal project of citizenship, and its narrow understanding of domination; the kind of domination that aims at "disempowerment". So in addition to bringing about changes in looks, some deconstruction and reconstruction of long-

accepted discourses and ideas should be brought about. In other words, a critical kind of pedagogy rejects being overwhelmed by market discourses, identities, practices and voices; that is, in order to be critical, one should consciously reject totalizing certainties. As Giroux states: Educators need to develop a language of possibility for both raising critical questions about the aim of schooling and the purpose and meaning of what and how educators teach... In doing so pedagogy draws attention to engaging classroom practice as a moral and political consideration animated by a fierce sense of commitment to provide the conditions that enable students to become critical agents capable of linking knowledge to social responsibility, and learning to democratic social change.

Critical pedagogy encourages students to respond to text not as consumers but as active and conscious members of society.

What language has to do with all this?

Language is the thing that is quite acceptably ideological in one way or another. Language can be a best tool to empower the learners. They can have a desirable language experience without ever having their real identities hurt. Such a language classroom favorably goes beyond linguistic knowledge. Things are handed on to the learners to be negotiated and challenged. Language is pragmatically dealt with in an ideal sociocultural atmosphere. So language is not just a tool for communication. It's a good approach that makes the learners engage in a fluid relationship between society and texts. As it was mentioned at the very beginning many studies has attempted to bring critical pedagogy into language classes. By presenting dependable evidence on its working influence in language learning Thinsain (2008) in his semester-long self-study with his students came to a belief that kind of "compromisation" should be exercised in classes. He concludes that in a language class the dominant issue should not be put aside in its totality; rather, the marginalized issues should be worked on as an alternative in order to be given a voice in turn. He sees the tension, as a result of opposing issues in the class or as a stimulator

of learner development in the class. Learners' discomfort works to their own good and triggers their development. He states that total alienation of learners from mainstream would obviously do disservice to them. The table below presents the gist of what he came to:

Table 1

Banking education's assumed teacher-student relationships	His lens:
The teacher teaches and the students are taught;	We should not go to the opposite extreme. Teachers can teach and learn, but teachers cannot teach. Balance must be found.
The teacher knows everything and the students know nothing;	Teachers know more about certain things, but not everything. Freire (2002) also thought "the teachers must be expert and knowledgeable to be a responsible critical-democratic educator
The teacher thinks and the students are thought about;	Who is in charge? Don't students as human beings have the innate ability to think and challenge? (action <-> reaction!)
The teacher talks and the students listen meekly;	This is not true in the real world. No teacher wants to talk too much and the students cannot do so either
The teacher disciplines and the students are disciplined;	Students at least need self-disciplines; and teachers can help arrange the agreeable mechanism.
The teacher chooses and enforces his choice, and the students comply;	Both parties can contribute. Yet, the goals must be firm, and teachers can have an agenda while students can learn to read the worlds.
The teacher acts and the students have the illusion of acting through the action of the teacher;	This depends on what kind of actions and the given roles and situations
The teacher chooses the program content, and the students (who were not consulted) adapt to it;	Teachers as authority of knowledge that is not ill-structured need to set up the program. However, flexibility and space can still be embedded and negotiation can exist

The teacher confuses the authority of knowledge with his or her own professional authority, which she and he sets in opposition to the freedom of the students;	The freedom of the students can be constrained by many factors, linguistic needs, background experiences, etc. and the teachers usually can help to provide guidance.
The teacher is the Subject of the learning process, while the pupils are mere objects.	Where is the line? How far can the students be in taking care of their learning? The ground may vary in different cultures, fields of study and profession
Learners are regarded as adaptable, manageable beings.	Do we not want the students to be adaptable and manageable

On a study conducted in Venezuela on critical pedagogy and EFL, as it is stated in Carmen's (2001) paper, BruttGriffler & Samimy used EFL learners' reflection through discussion and diary writing in order to empower learners through critical praxis generated from within. They emphasize ongoing process of self-reflection and a "construction of subjectivity". There are many other researchers presenting models of teaching through consciousness-raising activities in the language classroom. Morgan (2002) uses Quebec Referendum as a generative theme to involve the learners in a meaningful activity in order for them to master the modals; so grammar is taught critically by employing some hot issues. This way, such community-based ESL programs become different from generic ESL programs. Students own their learning and generate the knowledge and extend it from classroom to community and they are said to gain "double consciousness"; themselves as learners and themselves as creators of learning. The point is that the teachers and students all participate in co-constructing the class through a process of negotiation. The current study sets out to shed more light on the issue of critical pedagogy in a language class.

A. Participants

Ten language M.A. language teachers were randomly chosen from three popular language institutes in Ardebil, Iran. They were all interested in the topic and quite too eager to participate in the study.

B. Instruments

The study was conducted through observation and a semi-structured interview. Interview questions were aimed at investigating the extent to which language learners feel empowered or disempowered by the language they're getting to know about and to what extent features of critical pedagogy are employed by the teachers objectively and these teachers define their role as a teacher, then how they define the teacher-learner relationship. I also asked them questions to get on their perceptions on critical pedagogy and ELT. The commonly used activities and techniques exercised in the class were explored through interview and observation.

After the data collection, the responses were coded. Some of their responses regarding their role as a teacher were as the following:

1. Role as a guide: Introducing other materials; showing them how the learning process can be facilitated; telling them about their own learning experiences.
2. Role as a perfect model of language: Students mostly try to imitate their teachers in all aspects and rely on their teachers for their problems so a teacher should serve as a perfect model.
3. Role as a provider of the knowledge: students expect their teacher to provide them with anything they wish to know.
4. Role as an activator of learning process: the teacher acts as a trigger so the learners can act upon themselves.

They actually import the ideas instead of creating their own ideas of specific and local significance. In the account of the teacher-student relationship they mostly described themselves as being in authority for different reasons as to prevent chaos. They didn't seem to appreciate the learners' autonomy in terms of choosing issues and matters to be discussed, activities to be done and making changes to the materials. All the teachers seemed not to associate critical pedagogy with their own teaching but as they were describing the activities they practice in the class, they

unswervingly seemed to work on activities that suit the interests of the learners and because they were locally debated activities they obviously worked toward the learners' consciousness-raising. I have listed some of those activities below:

- Setting up discussions on hot, current issues of their own country, Iran, and working on problem-solving activities
- Writing activities with the topics suited to the area of interest of the learners
- Diary writing which made kind of reflective writing; the kind which combines experience and knowledge

These activities, if wheeled correctly, can work toward the learners critically conscious as they are all problem oriented and not one-dimensional. Although the attitudes of all the teachers toward critical pedagogy were positive, they claimed not to be expert enough to pronounce on such issue. I have brought some of their quotes below:

- "I cannot deviate too much from the material at hand. This is not suggested by policy of institutes and the syllabus is highly structured and time-limited"
- "We try to make them think creatively and generatively but cannot ensure social transformation later on by these individuals"
- "Those who are instrumentally motivated don't care about such things and those who are interactively motivated enjoy entanglement with new culture other than their own".
- "Tackling with problem-solving issues especially of relevant type makes the learners' mind so generative and creative in their writings and this is quite evident when it is compared with those of irrelevant type"

So language teachers should go beyond words and texts. The learners should own their learning and question the discourse, ideas, words and their implications. Language is a good mind activator. It is an appropriate tool to trigger the mind to start

thinking critically. Sometimes what language classes lack is creativity, so to fill this gap, individuals as social entities need to be able to connect the class to their community and as a result the activate their mind to solve problems they encounter, and work for the transformation of some kind; this is simply means “going beyond words”. Taken three different models of class activities, according what studies including mine indicate, language classes mostly follow “transmission model” and at the best “generative model”.

What about “transformative model”?

The question in the first place should be directed to policy-makers, material developers, curriculum designers, and then teachers. That’s true that some programs may lack the necessary resources to update curricula or materials to better match learners’ needs, interests and experiences. Sometimes it is better to look at the programs in terms of the degree to which they reflect critical pedagogy rather than labeling them as critical or non-critical. The four tables in the appendix show the different degrees of critical pedagogy you may refer to for more information. As a concluding point, let’s focus on the question below:

Is English considered a vehicle of cross-cultural understanding or a symbol of dominance?

The idea of universal transfer of English discursive and pedagogical norms is on its way of total destruction. Cultures are on the way of gaining their true identity and the people of those cultures are voicing those identities; and language is no exception as a tool to achieve the goal. A different language as EFL/ESL is used to voice the identity differently.

6.4 METHOD AND PEDAGOGY IN LANGUAGE TEACHING

Language-teaching methods such as audio-lingualism or task-based instruction have been promoted at different times as the 'best' way to teach a foreign language. Each such method prescribes a set of learning procedures rooted in a particular theoretical conceptualization of the nature of language and language acquisition, based on linguistic and applied linguistics research. It is suggested in this article that the principles guiding teachers in selecting procedures should not be dictated by any particular method recommended by researchers or theoreticians, but should be rather defined as a pedagogy of language teaching, shaped by various general pedagogical – not only language-learning – considerations, as well as by local factors, and determined by the teacher her- or himself.

6.4.1 Language-teaching Method

A language-teaching method may be defined as a coherent set of teaching learning procedures and behaviors based on a theory of what language is and how it is learnt. Some examples are provided below, shown more or less in chronological order of their popularity over the years. It should be noted, however, that methods based on grammar translation have continued to be used worldwide, whereas the popularity of audio-lingualism was relatively short-lived. In fact, none of these, even at the height of their popularity, were ever actually implemented in their 'pure' form as specified here; but the descriptions provide a useful overview and guide to trends and movements over the years.

Some prominent language-teaching methods

Grammar translation

Grammar translation was the predominant method used for language teaching all over the world for most of the 20th century, though from 1950 onwards it was superseded in many places by audio-lingualism and, later, methods based on the communicative approach. It is probably the most well-known traditional language-teaching method, widely used up to the present day. Its rationale is that language is, essentially, a set of vocabulary items and grammatical structures, and that it is the forms and meanings of written, formal language, as defined in grammar books and dictionaries, which is the target variety. Language is to be learned, like many other subjects, by memorizing facts (grammatical rules, vocabulary items etc.) and implementing them in exercises, very often based on contrast with and translation into the mother tongue. Hence the main procedures used are grammatical explanations and exercises, the learning of bilingual vocabulary lists, translation exercises to and from the target language. The language is written and read, but spoken little if at all: hence most of the lesson is typically conducted in the learners' mother tongue. There is a clear emphasis on accuracy: correct grammar, spelling and punctuation.

Audio-lingualism

Audio-lingualism arose in the United States, partly as a reaction against the overformal, cerebral nature of grammar translation, and was greatly influenced by the structuralism school of linguistics and by the learning theories of behaviorism. It stresses the teaching of oral, informal language rather than formal written, and sees language learning as a skill, rather like learning to play a musical instrument, acquired by reinforcement of successful performance through repetition. Classroom techniques include a large amount of learning by heart, mimicry and repetitive drills; there is no

translation from L1, grammar explanations are not encouraged, and there is little explicit teaching of vocabulary. However, it is, perhaps not quite as different from grammar translation as appears at first sight: the main objective remains the production of correct sentences rather than successful communication; and grammar is still seen as the central aspect of language to be mastered.

Task-based instruction

Task-based instruction is the most prominent method associated with the communicative approach. It is based on the assumptions that language is primarily a means of communication, and that a second (or additional) language is learned essentially the same way as the first: through interaction with more proficient speakers and through intuitive or implicit cognitive processes, rather than explicit instructional procedures. It assumes that since the target is communication, procedures in the classroom should also emphasize communication; grammatical explanations and the learning of vocabulary lists are therefore seen as less valuable, and the main lesson components take the shape of communicative tasks: activities where the students are required to receive or convey meaningful messages in order to achieve a given objective. The teacher is seen primarily as a facilitator and monitor of communicative activity rather than as an instructor. The stress is on successful, fluent communication, in both speech and writing, rather than on the production of correct sentences.

6.4.2 A post-method era?

Opposition in principle and practice to the concept of 'method' as a basis for language teaching

In the case of Pennycook, this was because of the political implications of topdown, native-speaker dominated methods unjustifiably imposed on teachers worldwide. Prabhu emphasized the teacher's 'sense of plausibility' as the optimal criterion for

the choice of a methodology rather than a generally approved method. Kumaravadivelu suggested a set of 'macro-strategies', or overriding principles, rather than a set of procedures, thus providing for more teacher choice. Pishghadam and Mirzaee see method as an over-rigid framework imposed on the teacher, but disapprove of this not so much because of a political implication, but rather because they feel it is incompatible with a post-modernist approach, characterized by subjectivism, relativism, and freedom from pre-determined constraints.

There is some research evidence that method, in any case, is not the critical variable in successful teaching. Clarke et al. (1996) identified three outstanding teachers of early literacy in first-grade learners in elementary schools in Denver, Colorado. In all cases, the children in their classes were outperforming those in most other schools in the area; but the three teachers used three quite different methods. One was using traditional procedures that included dictations, tests, and learning lists of words; the second was using the 'Whole language' approach; and the third was using a project method, creating classroom displays of subjects children had explored and written up. What they did have in common were qualities that we associate with good teaching of any subject: such things as personal authority and an orderly classroom process; consistent demands that students perform at a high level; respect and care for each individual student; an explicit set of values and rules implemented on a daily basis.

6.4.3 'Method' in Professional Discourse Today

In spite of all this, the concept of 'language-teaching method' is still predominant in professional discourse. In 2003, David Bell published an article entitled 'Method and post-method: Are they really so incompatible?' – and drew the conclusion that they were not. Similarly Waters demonstrated that there is still a strong strand of what he calls 'methodism' in the professional literature. The question therefore needs to be asked: Why, given the evidence and argument described in the previous section, do so many

people still believe that ‘method’ should be the basis for successful language teaching?

I would suggest that one reason might be a matter of maintaining power in the hands of the traditional authorities such as universities and ministries, rather than handing it over to the practitioner; it is clear that if such bodies were deprived of the right to say how teachers should teach, much of their authority would be undermined. Another reason is that method is a very convenient basis for teacher training programs and materials design, with ready-made recommended procedures and teaching strategies to be taught. A third possible cause is the modernist approach, still predominant today that practice should grow out of a clear set of theoretical concepts and assumptions, rather than that practice and theory should interact within an organic process of professional development. Thus task-based instruction, which is clearly a method by the definition provided at the beginning of this article, continues to be promoted, largely for the reasons given above.

6.4.4 Problems with Task-based Instruction

Task-based instruction, however, has encountered some opposition. Swan contends, based on both theoretical argument and research evidence, that it is inappropriate for the majority of language teachers in the world, who teach children or adolescents in state schools for three or four hours a week. Hu and Carless have reservations about its application in Asian contexts; and there is substantial research evidence that explicit teaching of grammar and vocabulary may have a far more important function in successful second language learning than is recommended within a task-based method.

Some theorists have responded to these criticisms by moving towards a ‘weaker’ task-based model. Ellis, for example, suggests that ‘task-based teaching need not be seen as an alternative to more traditional, form-focused approaches but can be used alongside them’. But then communicative tasks become only one component

of a methodology, and it is arguable that this is no longer 'task based instruction' at all. If not, then what is it?

The situation in many countries, as evidenced by personal discussion with teachers and teacher trainers in various places round the world, is that on the one hand a communicative task-based method is promoted in the literature, by the education ministry, and by teacher training programs and that on the other, most teachers in classrooms are in fact teaching 'eclectically', with a strong component of traditional explanations and practice, reminiscent of grammar-translation exercises and audio-lingual drills, side by side with occasional communicative tasks. The most popular textbooks are similar: they consist of plenty of explicit language work with the stress on 'getting it right'; reading texts with comprehension questions; and comparatively few activities that actually have students using the language for interpersonal communication.

6.4.5 An alternative: Language Pedagogy

Such a pedagogy would be principled and localized, determined by the teacher(s), informed by reflection on experience and other professional knowledge sources.

A language pedagogy

This is a pedagogy, not a method because, unlike a method, it is not based primarily on assumptions as to the nature of language and theories of language acquisition, nor is it limited to a set of procedures that accord with these assumptions. Certainly it will be informed by linguistic and applied linguistic research (see under informed by ... below), but the rationale for choice of appropriate procedures will be based at least as much, if not more, on general pedagogical considerations that apply to the teaching of all subjects. These include factors such as classroom management, the arousal and maintenance of student motivation and interest, dealing with large and/or heterogeneous classes, the creation of a

positive classroom climate, lesson planning, the use of homework, and so on.

Principled

A language pedagogy must be principled: it should not be opportunistic, or based on superficial goals like 'keeping the students busy' or 'getting through the textbook': teachers who claim to be 'eclectic' in their methodology should be clear as to why they choose to use the procedures they do.

Localized

Many decisions on teaching principles and procedures will be based on considerations that are specific to the particular context in which the course is taking place. Chief among these are the nature and culture of learning of the student population; the teacher's own personality, talents and preferences; the goals of the course; the culture of the surrounding population; the influence of stakeholders such as parents, school principals, a ministry of education; the content and grading of any upcoming exams.

Determined by the teacher

It is in principle the teacher who decides on her or his own pedagogy and who selects materials; though some decisions may be taken together by a group of teachers working in the same institution.

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6.4.6 Rethinking Pedagogy

Education, pedagogy and change are watchwords of twenty-first century educators and researchers. They are interrelated on theoretical, as well as practical levels. The renewed attention given to pedagogical changes in the education sphere is propelled by globalization and its knowledge economy forces. As the need to engage with these 'forces' arises, so does the need for communication in a 'global language'. This gives rise to this question: which language is a global language? As indicated by the work of 'scholars' who have an interest in linguistics, that global language is English. This paper looks at English Language teaching approaches for learners whose Mother Tongue is not English.

Rosen advances the outlook that English is "a language that has grown to world domination". Admittedly, not everyone has a total positive outlook on English language 'domination' since this can bring about the abandonment of native tongues. However, one cannot ignore the importance of English language as a vital communication tool for the knowledge economy – knowledge and skills specialism by means of technology. It seems therefore that education systems' interest in the teaching of English language is not misplaced if they are to engage in 'an international communication' that has the potential to improve their educational status as well as enhance nationbuilding activities. Strategy consultant, Dorie Clarke, in commenting on whether English is a preferred language for global business notes:

English will maintain and grow its dominance, moving from "a marker of the elite" in years past to "a basic skill needed for the entire workforce, in the same way that literacy has been transformed in the last two centuries from an elite privilege into a basic requirement for informed citizenship."

Clearly, "the global spread of the English Language", has not escaped the attention of educators around the world. Little

wonder that in this era of educational change and pedagogic reform, education ministries see the teaching of English language as a priority curriculum matter. This paper reports on English Language teaching approaches that are now being used by Gambian English Language teachers. It contends that English should be taught using content, activities and resources that are specifically tailored for learners whose Mother Tongue is not English. And as such, assert that basic grammatical structures and related principles should be at the heart of teacher training, which is crucial in equipping teachers with the professional skills they need to attain and maintain high English literacy levels in the national community, and beyond. To this end, the paper promotes a cross-concept poetic/musical approach. It argues that this approach is practical and advantageous in situations where English is a second language, or considered as a foreign language; and makes the case that English Language teaching should be a pleasurable experience for teachers and learners alike. It draws on personal experiences, and experiences of some English Language teachers in The Gambia. The background information that is presented in the next subheading provides the context for this paper. It gives insight into my interest in the educational experiences of Gambian teachers, pupils and students.

Framing the Case

This is done in collaboration with the University of The Gambia (UTG). To this end, the enhancement programme purposes to raise the content knowledge level of all English and Mathematics teachers in Lower Basic Education (LBE) (Grades – 6, referred to as Primary Education in some education systems). The upgrading of teachers' content knowledge is being done via a programme of in-service training.

Old Content, New Pedagogic Approaches

A sizeable proportion of the material presented under this subheading formed part of the discussion presented in the

Teachers' Guides produced as resource material for the training sessions. It justifies the position taken on content chosen for the training programme.

The 'old content' that was the focus of the training exercise is the 'Parts of Speech'. This content theme was deliberately chosen because the 'Parts of Speech' are the basis for meaningful communication. They are words we read, speak, hear and even think! They occupy a particular position in any given sentence. This suggests that it is not just the word itself that matters; how it is used in the sentence, its position in the sentence and its meaning also need some consideration if one is to know what part of speech a specified word is. Knowing the parts of speech, as well as their various meanings and functions, are important in understanding how sentences are constructed, how what is written, spoken or heard should be interpreted, which in turn should help to improve writing skills. Such level of importance necessitates that teachers should know, and teach the parts of speech well, if learners are to benefit fully. More importantly, in the Gambian context, English is the official language but other main languages such as Mandinka, Fulfulde, Wolof, Soninke and Jola are widely spoken. It is not unusual for speakers to switch between languages. In fact, in some communities English is hardly spoken. Undoubtedly, such a situation will affect the way the English language is taught and learned; and given that English is the official language of the Gambia, its grammatical structure should be taught in a way that shows a 'respectable' degree of excellence.

The 'language' situation explained above necessitates a renewed emphasis on, and a fresh approach to the teaching of the Parts of Speech. It was in this light that eight Guides (one for each Part of Speech) were produced to be used as the core material for the training of the teachers. The Guides employ a back-to-basics style with a poetic/musical base. The reason for this method is to allow teachers to gain mastery of the foundation principles of the grammatical structure of the English Language. I assert that this technique does not only provide a solid basis for teachers to tackle

the higher tiers, but it also boosts their confidence to perfect the 'complex' aspects of language.

Why a Poetic, Musical Style?

The 'poetry-music approach' opens up many opportunities for teachers to present lessons in a variety of interesting and exciting ways. Poetry and music are inextricably linked. A famous quote by Henry Wadsworth Longfellow states: "music is the universal language of mankind". Another well-known quote by William Hazlitt notes: "poetry is the universal language which the heart holds with nature and itself". Given that poetry and music are universal, this Guide advocates the use of these 'universal tools' in the teaching of English Language, which itself is universal in scope. Both poetry and music are easy to 'digest' because of their rhythmic nature. They also have the power to evoke deep-seated feelings, which suggests that these tools can be used not only to help children to learn, but also to help them 'bring back to mind' what they have been taught. The all-embracing nature of poetry and music puts them in a strong position to be the 'perfect' catalysts for teaching and learning.

Thinking – the Fifth Essential Skill

It is generally accepted among English Language teachers that the four essential skills necessary for mastering a language are speaking, listening, reading and writing. Undoubtedly, these skills are essentials for the attainment and maintenance of high literacy skills. But none of these seems fully functional without thinking – the fifth skill that I have added to the language skills list. I view thinking as having as much value as the other four skills. Thinking is ever present throughout the learning process. I contend that whichever mode (receptive or productive) is engaged, neither of the two is complete, or is fully operational without a degree of thinking.

For every lesson, teachers should have structured activities that will allow the five language skills to work in harmony so that learning the fundamental principles of the English language is seen as a necessary good, rather than a difficult chore. This helps to create an 'our', rather than an 'us-and-them' atmosphere, where the teacher is seen to be 'the guide on the side' rather than 'the sage on the stage'. Teaching and learning go hand in hand, so teachers and pupils alike should participate fully in a given lesson. Pupil participation not only aids understanding and memorization, but also gives pupils a sense of importance as a 'facilitator in the teaching learning process, a position that can only encourage more thinking. As noted earlier the content in the Guide is underpinned by a constructivist philosophy. The next subheading explains.

The Theories behind the Practice

Constructivism, and by extension, social constructivism, is the main theoretical position employed in the Guide. Constructivist theorists contend that children are active participants in their learning in that they actively construct new knowledge whenever they interact with their environments. In other words, new knowledge is processed mentally, when the 'old' meets the 'new', and then the action follows. Social constructivist, Lev Vygotsky contends that learning cannot be, and should not be separated from social context. He further stresses that social interaction aids cognitive development. Drew sees school as school as the perfect place to begin cultivating student's social interaction.

The main theoretical perspectives used are from Piaget, Bruner and Vygotsky:

- Readiness (Piaget)
- A spiral organization of content and activities (Bruner)
- Zone of Proximal Development (ZPD) (Vygotsky)
- Scaffolding (Vygotsky)
- Cognitive development happens in a social space where people influence each other (Bruner, Piaget, Vygotsky)

Maslow's motivation theory – Hierarchy of Needs, Gardner's multiple intelligences and learning styles, Ausabel advance organizers and Bloom's Taxonomy of learning Objectives also influenced the content used for teacher training. Within the discussion of the appropriate use of this broad range of educational theories, care was taken to emphasize the 'pedagogic shift' that has evolved over time. The shift is played out on this theoretical continuum: from instructivism to constructivism to social constructivism. In practice, this is demonstrated as: a teacher-centered approach, to a teacher-learner interaction, to learner-learner-teacher interaction with the teacher as a guide or facilitator.

6.5 A FRAMEWORK FOR MOBILE ASSISTED LANGUAGE TEACHING AND LEARNING

Mobile pedagogy is an unusual term since it is more common to talk about mobile learning. The use of mobile devices, which is often accompanied by learner mobility across diverse contexts and settings, puts a spotlight on learners and their experiences, but in so doing it may obscure the vital role played by teachers. This guide redresses the balance by exploring what it means for teachers to implement a mobile pedagogy in the classroom and when designing learning activities that may be carried out beyond the classroom. Our approach to mobile pedagogy for English language teaching is based on the belief that teachers and learners are active participants in making and shaping language learning. By 'language learning' we mean the development of interpersonal communication resources which are multimodal, but among which language is the primary resource. Language resources comprise knowledge of the language system (phonology, lexis, grammar and discourse) and language use (the exploitation of the system in order to communicate meaningfully in context).

Active participation in language teaching and learning implies that learners take responsibility for their own learning and that teachers

play their part in enabling this. This has long been the philosophy of good English language teaching. Mobile technologies enable the implementation of this philosophy in ways that were previously impossible. Students now carry with them powerful devices with which they can:

- create and share multimodal texts
- communicate spontaneously with people anywhere in the world
- capture language use outside the classroom
- analyse their own language production and learning needs
- construct artefacts and share them with others
- provide evidence of progress gathered across a range of settings, in a variety of media.

What does all this imply for the language teacher, the 'language lesson' and the teacher-learner relationship when the boundaries between the classroom and the outside world are dissolving?

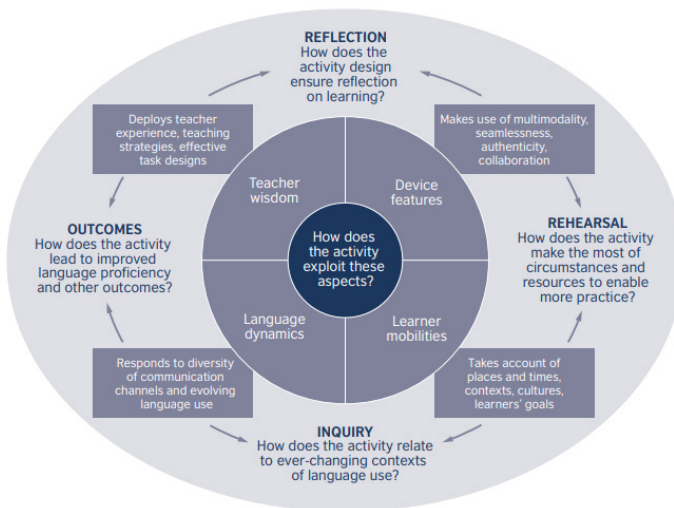


Figure 1: A pedagogical framework for mobile assisted language teaching and learning.

A pedagogical framework

English language teachers have always aimed to make learning relevant to their learners' lives and language needs. Mobile learning facilitates this by strengthening connections between people, and between the places where language is learned and used. Mobile learning takes advantage of powerful features on mobile phones and other devices that make it easy for users to create simple content (photos, videos, texts, recordings) and to share them with others. It can also make use of device features that detect a user's location and their movements.

Teacher wisdom: highlights the teacher's personal role and experience in enacting pedagogy. Enacting a mobile pedagogy means considering pedagogy in relationship with the other three spheres of the framework

Device features: Mobile technology can be understood in simple terms as the mobile device features that enable multimodal communication, collaboration and language rehearsal in the course of everyday or professional settings. These features are relevant for teachers and learners, both of whom may need to keep enhancing their knowledge and skills over time. Mobile technology partly depends on the ability to connect to the internet in different locations, ideally seamlessly, but we still need to be aware of aspects such as availability of Wi-Fi or how much it may cost to download a very large file.

Learner mobility's: Learner mobility's include the places and times when people can learn, the range of contexts and cultural settings they occupy and the personal goals that motivate learners to keep on learning beyond the confines of the classroom.

Language dynamics: Language is dynamic, and, partly due to the rapid evolution of communications technology, is in constant flux. New channels and media become available for learning and interpersonal communication, and these may be used to conduct language teaching (e.g. via social media), to practise the target language, and to initiate inquiries about language meanings and language change.

Our Pedagogical Framework (see Figure 1) is intended to help teachers think about how any new language learning activities they might design for their mobile learners will be different from activities they may have planned or designed before. We highlight four important ‘connecting concepts’ that link the four spheres described above:

Outcomes

How does the activity lead to improved language proficiency and other outcomes? Teaching practice involves consideration of learning outcomes, both those that can be predicted and other outcomes that may arise as a by-product of participating in a lesson or language learning activity. Teacher wisdom informs the ‘design’ of outcomes while remaining open to other possible outcomes including those that will likely arise from the dynamic nature of language and contemporary communication channels and media. Mobile learning outcomes may include some of the following:

- identifying gaps in knowledge
- developing a habit of reflection on language learned
- learning to notice (how language is used, how I use the language)
- connecting language users (more expert and less expert)
- using language for real purposes in real world contexts
- developing ability to respond to a context
- rehearsing, experimenting
- developing multiple perspectives
- learning to learn, developing autonomy
- developing digital (mobile) literacies.

Inquiry

How does the activity relate to ever changing contexts of language use? Mobile devices are not only tools for teaching and learning

but should also be viewed as instruments to help teachers and learners conduct inquiries into changes within disciplinary knowledge. The mobile device can be used to capture and share language data, for example new expressions or pronunciations that are encountered. Since language evolution is influenced by use of communication channels and media, mobile devices should also be instruments to pose questions and seek answers to how language is used in emerging social networks supported by communications media.

Rehearsal

How does the activity make the most of circumstances and resources to enable more practice? A classroom environment can only do so much when it comes to helping learners practice their target language and become more aware of specific individual gaps and problems that should be addressed. It offers a supportive environment in which to prepare for target language communication outside the classroom and receive helpful personal feedback. Mobile technologies expand and extend the territory where language may be rehearsed and practiced. Mobile learning can support a greater variety of language forms, including succinct forms of expression such as 'tweets' and summaries.

Reflection

How does the activity design ensure reflection on learning?

Teachers deploy their teaching experience, for example by using specific strategies that they know will work with their learners. They enable the learning process and provide feedback. The teacher role includes modelling good practices (e.g. correct language forms) and crucially, helping learners reflect on their learning – what has and has not been learnt or understood, how it may be applied, how to improve and progress, what new learning goals may be set and so on. Mobile devices can assist in this process, enabling more frequent reflection.

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CHAPTER 7

CRITICAL PEDAGOGY FOR SCIENCE

INTRODUCTION

The world of education cannot deny the importance of science, which are constantly used to understand and make sense of the nature and accepted to be the fundamentals of natural sciences. There are several studies conducted with the aim of teaching life sciences better. Despite all these efforts, the academic success of students is not on a desired level. It may be argued that education, which is accepted as a fundamental right based on its contribution in personal development and human enrichment and provided by the state as a public service, gained a pragmatic and functional nature. In this sense, it is desired that education and training has a central role in individuals' adaptation to changes they encounter by gaining the necessary knowledge and skills, they encourage individuals to gain new information, and most importantly, act as a bridge between the education and business worlds. Therefore,

education is expected to provide the knowledge and skills that will lead individuals to adapt to the information society, the learning society, and changes and transformations in economics and technology. This situation leads to an increase in the importance paid to education, and in parallel to this, it leads capital sources to consider education as a new investment area, a profitable sector.



Considering that humans are constantly changing beings and they cannot escape from this change, we may understand why traditional pedagogy that tries to define humans is criticized. The basic argument of traditional pedagogy which aims to shape the individual is based on the behavioral approach. It tries to define and implement education based on this argument. According to this pedagogy, education is defined as the process of changing behavior in the desired direction. That is, education is limited to shaping the individuals. However, this definition of education is considered to keep the individual away from the power of critical thinking. The actual think questioned in this approach is who wants these behavioral changes, and the ambiguous meaning of the word shaping.

7.1 SCIENCE

Humans are curious by nature. This curiosity has driven them since time immemorial to explore the world around them. Over time, manipulation and controlling nature for the benefit of humans has become an objective of exploration.

Initially the pace of exploration was slow. But with the availability of better tools of exploration in the last few hundred years and also as a result of industrial revolution in the west, the pace of exploration has increased manifold. Unfortunately, the industrial revolution introduced an undesirable element into the exploration of nature. Exploration became a tool for not only modifying and controlling nature for the benefit of all, but also for controlling natural resources for the benefit of a select few.



Humans' exploratory activities have resulted in the accumulation of a vast source of knowledge called natural science. In natural science, we study about nature which means the entire universe. The knowledge is now organized in several disciplines for the convenience of study. This knowledge is based on inquiry, observations and logical extensions, and is testable by experiment or has logically convincing explanation. It is this organized knowledge with inquiry, logical reasoning and experimentation

as its central themes, that we call science. Science may rightly be said to be a domain of inquiry.

7.1.1 Nature of Science

Science has certain characteristics which distinguish it from other spheres of human endeavor. These characteristics define the nature of science. These also set the terms on which you can engage with science. These are discussed as follows:

Science is a particular way of looking at nature

- A morning walker looks at the rising sun, pays obeisance to the sun-god for bestowing the earth with light and energy and may offer prayer to propitiate Him. Another walker with a scientific bent of mind or scientific attitude, while recognizing it to be the source of all energy on the earth, may wonder where the sun gets its energy from, tries to understand the process of energy generation and may think of duplicating this process on the earth for the benefit of humankind.
- At the time of an epidemic, people take to praying and seek divine intervention to save humanity. A scientist, on the other hand, seeks to isolate the pathogen responsible for the epidemic and develops preventive and curative strategies to fight the disease and save people.
- At the time of an eclipse, people pray, observe fast, and give alms as insurance against any ill effects flowing from the phenomenon. A scientist considers eclipse a natural phenomenon, enjoys the sight and tries to understand what caused the event and investigates whether it could have any ill effects.



Science is a rapidly expanding body of knowledge

Newer disciplines are being discovered and established every day and the older ones are being enriched by researches being carried out in institutes of higher learning. Not only is the volume of knowledge increasing at a furious pace, but the newer knowledge is also replacing some of the older knowledge. Look around and you notice that the technology at the base of almost everything that you use has been overhauled in the last five to ten years. For example, the audio tape is now almost obsolete; its place has been taken by compact disc, which itself is being rapidly replaced by other media devices. In this respect science is a highly dynamic body of knowledge

Science is an interdisciplinary area of learning

Science flourished in ancient cultures like Indian, Chinese, Greek, Egyptian and others. But the science as we know today is not older than a few hundred years. In fact, the words science (meaning

knowledge) and scientist are of comparatively recent origin. Earlier, science was called Natural Philosophy, alluding to the fact that science inquired into all natural phenomena—be they on the earth, be they in the sky, be they under water in the oceans, or be they inside the human body. However, when the volume of knowledge became too large, scientists started specializing in certain areas. It is then that knowledge was organized for convenience into disciplines like physics, chemistry, biology, geology, astronomy, etc. though no natural phenomenon falls completely under just any one of these disciplines. Therefore, there cannot be any rigid demarcation of one discipline from another. Several scientific topics fall under more than one discipline. In fact, at the present time the trend is towards studying more than one discipline, or interdisciplinary subjects. Consider, for example, the new and powerful disciplines like biotechnology, molecular biology and biochemistry which have emerged in recent times that necessitate the study of biology along with physics, mathematics and chemistry. Can you imagine the disease diagnostic tools of today being developed without the experts from the fields of physics, chemistry, biology, mathematics, computer science, and others, pooling their expertise and cooperating with one another?



Science is a truly international enterprise

There is another aspect of modern science that needs consideration, i.e., it is a truly international enterprise. Men and women of all countries participate in the progress of science and its applications. Most big projects in science are undertaken by teams of scientists drawn from many countries. This is because the human and financial resources needed for most big projects are beyond the reach of any single country. The mapping of Human Genome involved scientists from many countries. The Large Hadron Collider, at the European Organization for Nuclear Research (CERN), has been built by scientists drawn from many countries including India. The experiments on this machine is being conducted by scientists from many countries including many Indian scientists. The payloads to carry out experiments on space satellites bear international imprints. International collaboration in most projects is the order of the day. In this sense, science does not belong to any single country or a group of countries, and it would be morally and ethically wrong to deny the fruits of scientific development to any country in the world.

7.2 SCIENCE EDUCATION: TYPES OF VALIDITY

Science education is the teaching and learning of science to non-scientists, such as school children, college students, or adults within the general public. The field of science education includes work in science content, science process (the scientific method), some social science, and some teaching pedagogy. The standards for science education provide expectations for the development of understanding for students through the entire course of their K-12 education and beyond. The traditional subjects included in the standards are physical, life, earth, space, and human sciences.



There are three factors involved here: the learner (child), the environment - physical, biological and social (life) in which the learner is embedded, and the object of learning (science). We can regard good science education as one that is true to the child, true to life and true to science.

This observation naturally leads to some basic criteria for validating a science curriculum, as suggested as follows:

- a) *Cognitive validity* requires that the content, process, language and pedagogical practices of the curriculum are age appropriate, and within the cognitive reach of the child.
- b) *Content validity* requires that the curriculum must convey significant and scientifically correct content. Simplification of content, which is often necessary to adapt the curriculum to the cognitive level of the learner, must not be so trivialized as to convey something basically flawed and/or meaningless.
- c) *Process validity* requires that the curriculum engage the learner in acquiring the methods and processes that lead to generation and validation of scientific knowledge, and

nurture the natural curiosity and creativity of the child. Process validity is an important criterion since it helps in 'learning to learn' science.

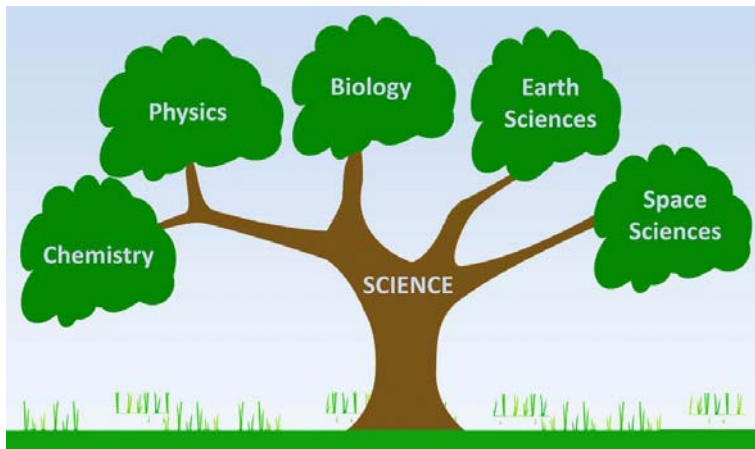
- d) *Historical validity* requires that science curriculum be informed by a historical perspective, enabling the learner to appreciate how the concepts of science evolve with time. It also helps the learner to view science as a social enterprise and to understand how social factors influence the development of science.
- e) *Environmental validity* requires that science be placed in the wider context of the learner's environment, local and global, enabling him/ her to appreciate the issues at the interface of science, technology and society, and preparing him / her with the requisite knowledge and skills to enter the world of work
- f) *Ethical validity* requires that the curriculum promote the values of honesty, objectivity, co-operation, freedom from fear and prejudice, and develop in the learner a concern for life and preservation of environment.

7.2.1 Fields of science education

Science is a universal subject that spans the branch of knowledge that examines the structure and behavior of the physical and natural world through observation and experiment. Science education is most commonly broken down into the following three fields: Biology, Chemistry, and Physics.

Physics education

Physics education is characterized by the study of science that deals with matter and energy, and their interactions.



Physics First, a program endorsed by the American Association of Physics Teachers, is a curriculum in which 9th grade students take an introductory physics course. The purpose is to enrich students' understanding of physics, and allow for more detail to be taught in subsequent high school biology and chemistry classes. It also aims to increase the number of students who go on to take 12th grade physics or AP Physics, which are generally elective courses in American high schools.

Physics education in high schools in the United States has suffered the last twenty years because many states now only require three sciences, which can be satisfied by earth/physical science, chemistry, and biology. The fact that many students do not take physics in high school makes it more difficult for those students to take scientific courses in college.

At the university/college level, using appropriate technology-related projects to spark non-physics majors' interest in learning physics has been shown to be successful. This is a potential opportunity to forge the connection between physics and social benefit.

Chemistry education

Chemistry education is characterized by the study of science that deals with the composition, structure, and properties of substances

and the transformations that they undergo.



Chemistry is the study of chemicals and the elements and their effects and attributes. Students in chemistry learn the periodic table. The branch of science education known as “chemistry must be taught in a relevant context in order to promote full understanding of current sustainability issues.” As this source states chemistry is a very important subject in school as it teaches students to understand issues in the world. As children are interested by the world around them chemistry teachers can attract interest in turn educating the students further. The subject of chemistry is a very practical based subject meaning most of class time is spent working or completing experiments.

Biology education

Biology education is characterized by the study of structure, function, heredity, and evolution of all living organisms. Biology itself is the study of living organisms, through different fields including morphology, physiology, anatomy, behavior, origin, and distribution.



Depending on the country and education level, there are many approaches to teaching biology. In the United States, there is a growing emphasis on the ability to investigate and analyze biology related questions over an extended period of time.

7.3 DIFFERENT APPROACHES TO TEACHING OF SCIENCE

A set of human behaviors is infinite. Similarly a set of teaching behaviors which is a subset of human behaviors is also infinite one. For every element belonging to the first set, there exists a corresponding element in another set. In short, these two sets are equivalent. Then question arises, what is the distinguishing characteristic between these two sets of behavior? The distinguishing characteristic is the difference between their intentions. Teaching behavior is intentional; its basic intention is: Somebody learns something.



The intentions can be simple as knowing the name of an object and as complex as development of the character of students. The complexity of the teaching varies directly according to the complexity of its intentions. This complexity is greatly increased when the teacher interacts with different types of the students in different classroom settings and that too under numerous constraints of time, resources etc. Many experts have tried to define teaching but there is no agreement on the definition of teaching. But generally they agreed upon the following definition as:

“Teaching is an interactive process between the teacher and the students in classroom situation with predetermined objective to be achieved, and its effects can be measured in terms of both immediate and intermediate product variables.”

7.3.1 Expository Approaches or Transmission Approach

Expository Approach is also known as Transmission approach. In this approach the teacher is communicating maximum information to the students in minimum of time. This approach helps the teacher to cover the content to be taught to the students. This approach is widely used across all the subjects and different levels of education by the teacher. The main proponent of this method is David P. Ausubel. The word expository is derived from exposition which means an explanation or interpretation in

which commentary by the teacher is given that seeks to clarify the meaning of and implications of the object of exposition. In this approach there are various methods such as Expository Method, Tell and do method, deductive method etc. are included. The approach is totally teacher centered.

Expository Method: If the initial move of the teacher is the statement of the rule or generalization or principle (followed by clarification, justification and application of the rule) then the sequence of moves is known as Expository Method.

SR—CR—JR—AR.

Depending upon the combination of these moves and number of moves used by the teacher while teaching, the expository method takes different forms such as telling method, tell and do method, lecture method, and expository method. In order to be effective expository teacher the teachers must use all the four moves in a sequence that is mentioned.

Statement of Rule

If two liquids mix very well with each other than the liquids are known as miscible liquids. If the two liquids do not mix well then the two liquids are known as immiscible liquids

The teacher can make use of different media to show this rule to the students such as writing on the board or use of PPT slide or preparing a worksheet specially prepared by the teacher to record the data.

After introducing the rule to the students, the teacher will give different examples by demonstration of miscibility/immiscibility of two liquids. All the cues are provided by the teacher hence the observations also should be from the teacher only.

Clarification/Explanation of Rule

In order to clarify the rule to the students, the teacher will conduct the experiments to demonstrate miscibility-immiscibility of any

two liquids. He will have to use a number of liquids to clarify the rule.

Materials Required

Test tubes, Liquids such as Water, Alcohol, Milk, Kerosene, Lemon Juice, Mustard oil, Vinegar, Coconut oil, Butter milk and many others.

<i>Sr. No.</i>	<i>Liquid 1.</i>	<i>Liquid 2</i>	<i>Observation as reported by the teacher</i>
1	Water	Milk	
2	Water	Kerosene	
3	Water	Alcohol	
4	Water	Mustard oil	
5	Water	Coconut oil	

Many examples need be used by the teacher.

The teacher should demonstrate a number of examples to clarify miscibility and immiscibility of two liquids. Each example should be related to the rule stated in the beginning. This will help the students to assimilate the rule meaningfully

Justification of the Rule

This is the rare move used by the teacher in the classroom. The justification of the rule can be done by various techniques such as historical development of the rule, proving. The rule by different methods, asking the students to perform the experiment and reporting of the observations. In this example, the teacher can justify by changing the sequence of the mixing the liquids. If liquid A is miscible with B then B is miscible with A.

Application of the Rule

- The teacher can apply the rule to more than two liquids
- If A is miscible with B, B is miscible with C then A is miscible with C.

- What would have happened if milk would not have miscible with water?
- What would have happened if kerosene would not have miscible with diesel/if petrol?

Every time the teacher will relate to rule that is stated in the beginning. Ausubel has termed it as an Advance Organizer. This advance organizer is differentiated in terms of examples. Every time examples are anchored with Advance organizer, resulting in to Meaningful Verbal Learning

Advantages

This is mostly preferred method/approach by the teacher all over the world. This method has definite advantages over two other approaches. These are given as follows:

- Effective in communicating new knowledge in short period of time. The teachers always complain shortage of time to complete the syllabus. If this method is judiciously used the teacher can 'Cover' the syllabus.
- Gestaltic view of the subject is presented to the students resulting into meaningful verbal learning.
- Effective for knowledge and comprehension objectives. There is no conclusive proof.
- Suitable for all types of subject matter and high levels of education. Hence it is still used to large extent at all levels.

Limitations

- Although this is widely used approach/method, it suffers from the following limitations.
- Students are passive to a large extent. All the cues provided by the teacher.
- Rote memorization is encouraged.

- Not effective for higher level of objectives especially analysis, evaluation and creativity
- Students depend on teacher all the time.
- No scope for the creativity of the students.
- Not at all suitable at lower level (Elementary and secondary)

In order to be effective transmitter of information/knowledge, the teacher should make all the four moves while teaching in the classroom. He/she will have to use first move as statement of the rule.

7.3.2 Discovery Approaches

The main proponents of this category of methods are Jerome Bruner, Hilda Taba, Robert Davies and many others. Warren Colburn published a book entitled “First Lessons Intellectual Arithmetic upon the Inductive Method of Instruction”. Since then a number of educators trying to popularize these group methods, but this method is rarely used by the teachers in the classroom. According to Bruner, discovery is a process, a way of approaching problems rather than a product or a particular item of knowledge. Many educators developed instructional strategies based on ideas proposed by Bruner.

The discovery approach is a type of teaching that encourages students to take a more active role in their learning process by answering a series of questions or solving problems designed to introduce a general concept. While teaching any rule from any discipline, the same moves are to be used as given in the Expository method but its sequence is different while using the discovery approach. There are three types of methods that are included under discovery approach- Open Discovery method, Guided Discovery method, and Deductive discovery method. The first two types Open Discovery and Guided Discovery methods are based on Inductive thinking and Deductive Discovery based on Deductive Thinking. Open Discovery method is mostly followed by Scientists whereas the teachers use Guided Discovery method

while teaching to the students. The pattern that is used in Guided Discovery method is Example-Rule. The teacher starts with the examples of the rule and then the students generate rule on the basis of similarities and difference between different examples presented to them by the teacher.

Since the moves used in the discovery approach are the same as those used in the expository approach, the distinguishing factor between the two is the position of the assertion move or statement of rule move. Hence guided discovery method can be defined as a sequence of moves in which the assertion move, if at all appears, appears late in the sequence.

The typical sequence is as under:

CR—JR—SR—AR

Let us study this method by taking the same unit of Miscibility and Immiscibility of liquids. In this method the teacher does not state the rule in the beginning but starts with the examples of the rule as follows

Clarification of the Rule

At this stage the teacher will make available all the material required for conducting the experiment related to miscibility/immiscibility of two liquids. The teacher should provide data sheet where in the students are required to record the data/observations of the experiment.

Materials Required

Test tubes, Liquids such as Water, Alcohol, Milk, kerosene, lemon juice, Mustard oil, Vinegar, Coconut oil, Butter milk and many others. The teacher will start demonstrating experiment related to mixing of two liquids. Here is one more option available to the teacher as providing experimental kits to each student asking the students to write their observations in the data sheet.

<i>Sr. No.</i>	<i>Liquid 1.</i>	<i>Liquid 2</i>	<i>Observations by Students</i>
1	Water	Milk	
2	Water	Kerosene	
3	Water	Alcohol	
4	Water	Mustard oil	
5	Water	Coconut oil	

Students are free to select any two liquids provided they do not choose harmful liquids such as Concentrated Sulfuric acid. The students should classify miscible and immiscible liquids in the context of Water.

Justification of the Rule

This is the rare move used by the teacher in the classroom. The students should be encouraged by the teacher to justify by changing the sequence of the mixing the liquids. The students should generalize as if liquid A is miscible with B then B is miscible with A.

Statement of the Rule

Through interaction between the teacher and the students, the students will generate the rule related to miscibility and immiscibility of two or more liquids. The teacher should help the students to verbalize the rule.

Application of the Rule

The items which have been given in Expository method can be dealt in discovery method also. The difference is that the students should do the experiment first and then based on observation the students can generate rules.

- a) The students can take more than two liquids and mix with each other and observe.

- b) The students mixes A with B, B with C and A with C then generate rule. The students can discuss in small groups the following questions and report in the class.
- a) What would have happened if milk would not have miscible with water?
- b) What would have happened if kerosene would not have miscible with diesel/ petrol?

The example given is of Guided discovery method. Some cues have been provided but the thrust is always from example to rule and that too rule is to be generated by the students.

Advantages

Since the students are involved in the teaching-learning process this method has certain advantages which are given As follows:

- a) Process of teaching is more important than product of teaching. This creates interest among the students with respect to the subject of study. All the time the students may not be able to generate rule and put it in verbal form. In the beginning of discovery lesson the teacher should help in developing rule. As students exposed to such lessons they will learn to generate rules very easily.
- b) Ability to analyze, organize knowledge in attacking problems is developed because students are actively involved in all the learning experiences created by the teacher.
- c) Students enjoy learning because they themselves discover knowledge.
- d) There is always constant interaction between content, teacher and the students. This results into development of information processing abilities of the students.

Limitations

Although the teacher is moderately monitoring the teaching learning process, if it is not properly handled then it may lead to

the following limitations.

- a) Time consuming; students may not progress beyond basic notions in any discipline.
- b) Frustration may be there with low ability students because they may not discover any relationship.
- c) A lot of efforts should be put in by the students and the teacher. The school should have enough resources to be provided to the students.
- d) All teachers may not be comfortable with this method.
- e) Costly method in terms of time and other resources.

It is generally found that teaching by discovery is more effective for achieving higher level objectives, and retention of the content taught by guided discovery method than that of expository method.

7.3.3 Inquiry Approaches or Process Skills

There are number of inquiry approaches suggested by different experts. The common element in all these approaches is that the process skills are developed of the students when this approach is judiciously used by the teacher. This approach is proposed by Richard Suchman, Oliver and Shaver, Schwab, among others. The Inquiry Approach is the extension of the discovery approach. In any inquiry discovery is always there but vice versa is not true. In this method cause and effect relationship is established and the teacher provides no cues to the students. This is truly learner centered method. In this method teacher presents the students a problem/discrepant event to solve. Then the students ask questions to the teacher and collect the data. Then the students test the different hypotheses and finally find the satisfactory explanation to the discrepant event.

The typical sequence is as under:

CR—JR—SR—AR.

Although the sequence of Discovery and Inquiry is the same, the students ask questions to the teacher to collect the data related to a discrepant event presented by the teacher in the initial stages of the teaching episode. The following method is based on Inquiry Training Model proposed by Joyce and Well.

The ground rules for asking questions are as follows

- Questions should be phrased so as to answer by 'yes' or 'no'.
- Once called upon student can ask as many questions as he may wishes.
- The teacher does not answer 'yes' or 'no' of theory verifying questions.
- Any student can test any theory at any time. Any time if the students feel to confer, they can do it.
- Inquirers are allowed to work with experimental kits

Inquiry training has following phases.

- Encounter with the problem.
- Data Gathering- verification.
- Data gathering—Experimentation.
- Hypothesizing.
- Testing of hypothesis /Formulation of an explanation.
- Analysis of the inquiry process.

Discrepant Event / Problem for inquiry

The first step in Inquiry Training model is the teacher demonstrates the experiment to all the students.

The teacher takes 20 cc of one liquid in one of the test tube and it was mixed in 20 cc of another liquid.

The teacher measures the volume of the resultant mixture of two liquids which is less than 40 cc.

The teacher asks the questions to the students.-Why the volume of the mixture did is less than 40 cc?

Types of data	Type of questions	Verification	Experimental	Synthesis	Necessity
Objects					
Properties					
Events					
Conditions					

The students can questions to verify objects, events, properties and conditions with respect to verification, experiments and necessity. In all there are sixteen types of questions that can be asked with respect to any discrepant event or problem. It is generally observed that in the first encounter with this approach the students may not be able to ask 16 types of questions mentioned in the table. But once the students are exposed to this approach/method they ask different types of questions.

Clarification of the Rule

After observing the discrepant event demonstrated by the teacher, the students are allowed to ask the questions as they like so that they will collect the data with respect to the discrepant event.

Examples of each of the sixteen types of questions are given as follows:

Verifying objects	Teacher's Response
Is it water as one of the two liquids?	Yes
Is it kerosene the other liquid?	No

Verifying events

Does it happen with any two liquids?	No
Is it peculiar phenomenon with respect to these two liquids?	Yes

Verifying properties

Verifying properties Does the first liquid evaporate quickly?	No
No Does second liquid evaporate quickly in comparison with first liquid?	Yes
Yes Was there any leakage in the third test tube?	No

Verifying conditions.

Does this reduction of volume happen at room temperature?	Yes
Does it happen when glass test tubes are taken?	No
Was there any liquid left in any one of the test tube?	No

Once the students are familiar with this method they start asking experimental questions with respect to the problem/discrepant event.

Experimental Questions- Objects

If we change from glass test tube to metal tubes, does volume get reduced?	Yes
If we add color to both the liquids, do we get same result?	Yes

Experimental Questions- events

If we take 40cc of both the liquids, do we get volume less than 80cc?	Yes
Yes. If we change the experimenter do we get the same result?	Yes

Experimental questions- properties

If we take 40 degrees Celsius temperature of both the liquids, do we get same result?	Yes
If one of the liquid is not mixable, then do we get the same result? No	No

Experimental questions- conditions

If we mix second liquid to first liquid, do we get same result?	Yes
If we perform the experiment in the open air, Yes do we get the same result?	Yes

The various types of questions that can be asked have been given above. The students may not be able to ask so many different types of questions in the beginning but with repeated use of this method gradually start asking number of different types of questions. The questions may not appear sequentially. The process is more important than finding out satisfactory answer to the discrepant event. With the help of questioning the students may arrive at satisfactory solution to the discrepant event.

Justification of the Rule

This is the rare move used by the teacher in the classroom. The students should be encouraged by the teacher to justify by changing the sequence of the mixing the liquids. The reduction in volume takes place irrespective of order of mixing the two liquids.

Statement of the Rule

Through interaction between the teacher and the students, the students will generate the satisfactory explanation why there is reduction in the volume when alcohol and water are mixed together.

Application of the Rule

The rule/scientific principle can be applied to other fields also. It has been observed that the students actually applied this principle to different fields. The items which have been given in Expository method and discovery method, these can be used in Inquiry method also. The difference is that the students should do the experiment first and then based on observation the students can generate rules.

- The students can take more than two liquids and mix with each other and observe.
- The students mixes A with B, B with C and A with C then generate rule.

The students can discuss in small groups the following questions and report in the class.

- What would have happened if milk would not have miscible with water?
- What would have happened if kerosene would not have miscible with diesel/ petrol?

Advantages

This is most effective method from the students' point of view. They control the teaching learning process all the time. The advantages of this method are as under.

- a) Thought provoking method. Divergent type of thinking is encouraged and nurtured. This is reflected in different types of questions that are asked by the students during data gathering phase.
- b) Development of the inquiry processes of the students. The process consists of collection of the data, formation of hypotheses, testing of hypotheses and ultimately formulation of satisfactory explanation of discrepant event/problem.
- c) Learning becomes challenging and joyful.

- d) Students become independent learners. Develops scientific outlook.
- e) Students realize the tentative nature of the knowledge. A particular theory may be modified subsequently leading to more satisfactory explanation.
- f) Cause and effect relationship is established. This is required for development of theory from that area of specialization.

Limitations

This method is quite modern in comparison with earlier methods. It has the following limitations.

- a) Time consuming. When the students are exposed to this method first time they are not able to ask precise questions. This result in to delay in finding out solution to the given problem.
- b) All the units cannot be taught by this method. It can be applied to the situation where cause and effect relationship is to be established
- c) The students may get frustrated if there is no satisfactory explanation is reached.

7.4 METHODS FOR TEACHING SCIENCE

There are a variety of science teaching methods you can draw upon when helping students understand their world. Whilst there are several approaches to try, the most important thing to keep in mind is that our role as science educators is to help students understand how the scientific method actually works and why science impacts upon their own lives.

Things to keep in mind when considering a science teaching method

Group dynamics

Who works well with who? Who can handle cooperative group situations and who needs time to work by themselves?

Student ability

This is not simply about science understanding, this also about their ability to undertake the work with the materials at hand.

Timeframe

Is the teaching method likely to be successful given how long it takes to get students on task and the anticipated outcomes?

Context

How does the scientific concept relate to their lives?

Content

Which teaching method will help the students best understand the lesson material?

All science teaching methods come down to either teacher-centered or student-centered instruction. Both types of instruction have their place, however in practice have very different dynamics in the classroom.

Lecture (teacher-centered)

In this approach, it is the teacher that is the focus. Students either passively take notes or ask questions through the teacher's

presentation. Handy for large groups of students or for when you need to get through a large body of information. The key to this lesson style is to keep it lively by inserting graphics, video snippets, animations, science demonstrations, audio grabs or guest appearances via video conference. To help increase the engagement during a lecture, try incorporating student polling using Poll Everywhere, Plickers, Quizizz or Kahoot. The advantage of getting active student feedback is that this formative assessment can help shape your lecture and future lessons to fit the student's needs.

Hands-on activities (student-centered)

Break out the experiment materials! Whether the students work in small groups or by themselves, the lesson has a clear question that students need to find an answer to with the teacher acting as a facilitator. There are a few variations here;

- Students follow an experimental procedure with a clear set of instructions and scaffold for their scientific report.
- Students explore the materials themselves to design and test their own fair experiment, keeping variable testing in mind. This version is better for students who already have a clear understanding of the scientific method and are now ready for independent thinking
- Station-based rotations. Here the students rotate around the classroom to explore a variety of hands-on materials that all cover an aspect of your lesson topic. The trick here is to ensure that there is enough time for the students to complete each activity and that there are no bottlenecks in terms of access to resources or one particular activity taking too long to complete. A fun way to link all the stations together to pull together a scenario such as a forensics investigation; some students will enjoy the role-play.

Project Based learning (student-centered)

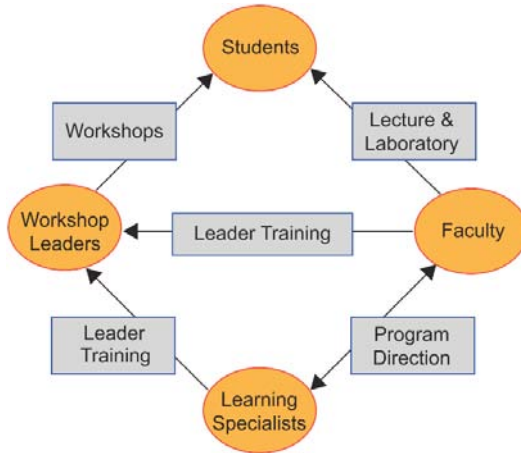
This teaching method draws on the hands-on nature of the activities above and extends this to involve students in a deep dive into a given topic. Time is the key here, as students will be engaged over an extended period of time in researching their topic, designing their experiment or model, writing a scientific report or creating a poster and presenting their findings in a short talk. When planning this in your scope and sequence, consider access to resources both within and beyond your school and how the students might be able to involve the community in their research or as an audience for the final presentation at a school science fair.

The following as a major work;

- Field journal
- Student Podcast
- Working model
- Science poster
- Research paper
- Video diaries
- Augmented reality or Virtual reality
- App creation

Peer-led team learning (student-centered)

Peer-led team learning (PLTL) is about empowering the students to teach the other students. Often employed in undergraduate studies, this approach also works in schools where it is most effective when connecting older students with younger students. Alternatively, PLTL can also be used when pairing students with a high subject aptitude with students needing help. Guidance is important here as you need to ensure that what is being covered is correct and safely performed. With supervision, this approach can be effective for students to learn leadership skills and can create a positive atmosphere around scholarship.



Flipped learning (student-centered)

Flipped learning has gained a lot of popularity in recent years. The idea is that the instructional content is given to the students outside of normal school time, with the intention that students can then come to school with deeper questions for teacher clarification. You can present this content via a series of videos, articles and books to read, podcasts to listen to, investigating a problem and so on. There is much debate on how to best implement this in the classroom; in essence, you need to consider how your students will respond to flipped learning and how you can motivate them to trial it.



Differentiation (student-centered)

Differentiation is all about ensuring that students of all levels can be involved in your lesson. You may want to create worksheets with different tasks or levels of difficulty, perhaps have a variety of activities for students to choose from or creating a variety of job roles for students when running PBL. Of course, with differentiation comes a time requirement to prepare the lesson, however it can help with students being more on task as they can choose tasks that they can achieve. You can differentiate tasks as both extension activities as well as design activities for students who need more support.

7.5 CLASSROOM CLIMATE IN SCIENCE TEACHING BASED ON CRITICAL PEDAGOGY

The world of education cannot deny the importance of life sciences, which are constantly used to understand and make sense of the nature and accepted to be the fundamentals of natural sciences. There are several studies conducted with the aim of teaching life sciences better. Despite all these efforts, the academic success of students is not on a desired level. It may be argued that education, which is accepted as a fundamental right based on its contribution in personal development and human enrichment and provided by the state as a public service, gained a pragmatic and functional nature. In this sense, it is desired that education and training has a central role in individuals' adaptation to changes they encounter by gaining the necessary knowledge and skills, they encourage individuals to gain new information, and most importantly, act as a bridge between the education and business worlds. Therefore, education is expected to provide the knowledge and skills that will lead individuals to adapt to the information society, the learning society, and changes and transformations in economics and technology. This situation leads to an increase in the importance paid to education, and in parallel to this, it leads capital sources to consider education as a new investment area, a profitable sector.



Considering that humans are constantly changing beings and they cannot escape from this change, we may understand why traditional pedagogy that tries to define humans is criticized. The basic argument of traditional pedagogy which aims to shape the individual is based on the behavioral approach. It tries to define and implement education based on this argument. According to this pedagogy, education is defined as the process of changing behavior in the desired direction. That is, education is limited to shaping the individuals. However, this definition of education is considered to keep the individual away from the power of critical thinking. The actual think questioned in this approach is who wants these behavioral changes, and the ambiguous meaning of the word shaping. For example, Illich who supports a deschooled society and Baker who opposes compulsory education argue that schools are moral and religious formatting is done on individuals in schools by persons who have certain interests. This is one of the significant, constantly debated issues for especially defenders of libertarian education. According to libertarian educators, schools managed by the state and the curricula used there, train individuals who are not able to express themselves, shy and obedient, and have low self-esteem. However, education should be a tool of liberation rather than formatting. In this sense, theoreticians of

libertarian pedagogy see education as a tool of humanization. One of the movements considered as liberating pedagogy is critical pedagogy.

An educator who defends critical pedagogy is a libertarian educator. In both traditional and libertarian pedagogy, the fundamental goal is to provide individuals with skills and qualities. However, while the traditionalist education system does this based on its conservations, the libertarian educator tries to do this by considering student expectations. The libertarian educator is focused more on concepts of autonomy of the individual, self-realization, self-management and control, knowing oneself, self-esteem and multidimensional development of personality. In addition to the work of education as an economic issue, the educator pays more importance to its social, cultural and educational characteristics. Additionally, the critical educator achieves development of an individual in a way that will ensure their multidimensional and autonomous improvement, and provide qualities of being able to determine their future.

The concept of classroom climate is a complex concept that may be used interchangeably with others such as learning environment, classroom environment, and classroom atmosphere. While the classroom climate may help students learn on a higher level, it may also act as a barrier that obstructs their learning process. There is no study has been found in the literature about the effects of science teaching provided based on critical pedagogy principles on the classroom climate. So that, we investigated how science teaching based on critical pedagogy does affect the classroom climate.

7.6 ROLE OF A SCIENCE TEACHER

You may have wondered at the significance of studying the nature of science in the pedagogy course. Science teachers face a challenging task to inculcate the essence of the scientific enterprise among students. Students should be made conversant with scientific way of knowing and thus constructing their knowledge

in science. Teacher should structure the learning experiences in such a way that the nature of science becomes an inherent part of all teaching-learning situations. Historical aspects of the development of scientific concepts should be emphasized. It would help students to appreciate how science evolved by human endeavor and resulted in the development of various technologies. It is important to simultaneously reduce the overload of memorizing facts which often cause a disinclination towards science.



Laboratory work in science, infused with the spirit of inquiry, provides students with hands-on experiences and develops a scientific attitude which is one of the important aims of teaching learning of science.

The role of the science teacher is crucial to the development of scientific temper among students. It goes without saying that the teacher should herself be competent in the area she teaches; she must be familiar with all the aspects of the nature of science; and she must have imbibed scientific temper herself. Such a teacher can exemplify the content of scientific temper from her everyday conduct. From time to time, she can engage her students in

discussions to develop scientific temper among them, and foster the values hidden in scientific method like truth, honesty and open-mindedness. She can help her students retain and sharpen further the sense of inquiry by allowing them to explore their environment and encouraging them to ask questions, even if sometimes these questions appear trivial. By her own enthusiasm for science she can transmit the excitement of doing science. During teaching-learning she can convey that science is tentative and nothing is fixed or final and the quest for progressive refinement of theories and explanations continues in which the students can participate at that time and later when they grow old.

Activities such as projects, field work, paper reading along with laboratory work and discussion would encourage students to do science. This in turn, would help them to learn the skills associated with the inquiry and processes of science such as observing, measuring, hypothesizing, predicting, analyzing and communicating.

While assigning projects the science teacher can remind her students of honesty of reporting their observations. She must herself be ready to appreciate if students report their findings honestly even if they lead to wrong results. She could also tell her students that they are not too young to do good science. She can relate to them a recent report that a science journal in England published about a scientific study by 8 year olds. The students were from an elementary school and they were investigating, as a part of their project, the way bumblebees see colors and patterns. The scientific organization, which is more than 300 years old and which includes some of the world's most eminent scientists, said that the children reported findings that were a genuine advance in the field of insect color and pattern vision. So, the science teacher must impress on her young students that projects assigned to them can lead to fruitful investigations and results, provided these are done in the spirit of genuine inquiry.

People from all over the world contribute to the progress of science. As a science teacher you must instil confidence in your students that they can also contribute in this process.

Understanding the nature of science is a valuable goal of science education and must be reflected in the process of assessment. It is not enough to merely examine students' learning of facts and principles of science. It is necessary to assess their spirit of inquiry, sceptic attitude towards existing ideas, and tendency to try out new ideas.

Science teachers help middle and high school learners understand scientific phenomena. They create engaging lessons, explain complex concepts simply, and enrich classroom time by using experiments. Science Teachers encourage students to be curious and to have respect for the natural world.

7.7 IMPLEMENT CRITICAL PEDAGOGY INTO CLASSROOM

Critical pedagogy is a teaching philosophy that invites educators to encourage students to critique structures of power and oppression. It is rooted in critical theory, which involves becoming aware of and questioning the societal status quo. In critical pedagogy, a teacher uses his or her own enlightenment to encourage students to question and challenge inequalities that exist in families, schools, and societies.

This educational philosophy is considered progressive and even radical by some because of the way it critiques structures that are often taken for granted. If this is an approach that sounds like it is right for you and your students, keep reading.

The following five steps can help you concretely implement critical pedagogy into your classroom.

Challenge yourself

If you are not thinking critically and challenging social structures, you cannot expect your students to do it! Educate yourself using

materials that question the common social narrative. For example, if you are a history teacher, immerse yourself in scholars who note the character flaws or problematic structures that allowed many well-known historical figures to be successful. Or, perhaps, read about why their “successes” were not really all that successful when considered in a different light. Critical theory is all about challenging the dominant social structures and the narratives that society has made most familiar. The more you learn, the better equipped you will be to help enlighten your students. Here are some good resources to get you started.

Change the classroom dynamic

Critical pedagogy is all about challenging power structures, but one of the most common power dynamics in a student’s life is that of the teacher-student relationship. Challenge that! One concrete way to do this is by changing your classroom layout. Rather than having students sit in rows facing you, set up the desks so that they are facing each other in a semicircle or circle. This allows for better conversation in the classroom. You can also try sitting while leading discussions instead of standing. This posture puts you in the same position as the students and levels the student-teacher power dynamic. It is also a good idea, in general, to move from a lecture-based class where an all-wise teacher generously gives knowledge to humble students to a discussion-based class that allows students to think critically and draw their own conclusions.

Present alternative views

In step 1, you, the teacher had to encounter views that were contrary to the dominant narrative. Now, present these views to your class alongside the traditional ones. Have them discuss both and encourage them to draw their own conclusions. If a student presents a viewpoint, encourage him or her to dig further. Asking questions like “why do you believe that?” or “why is that a good thing” will encourage students to challenge their own beliefs, break free of damaging social narratives, and think independently.

Change your assessments

Traditional assessment structures, like traditional power structures, can be confining. You don't have to use them! Make sure that your assessments are not about finding the right answer, but are instead about critical thinking skills. Make sure students are not just doing what they think they need to do to get a particular grade. You can do this by encouraging students to discuss and write and by focusing on the ideas presented above presentation style.

Encourage activism

There is a somewhat cyclic nature to critical pedagogy. After educating yourself, you encourage students to think critically, and they, in turn, take their newfound enlightenment into their families and communities. You can do this by telling your students about opportunities in their community where they can combat oppression, like marches, demonstrations, and organizations. You can help students to start clubs that focus on bringing a voice to the marginalized. You can even encourage students to talk about patterns of power and oppression with their family and peers.

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INDEX

A

- advanced placement (AP) 192
- African National Congress (ANC) 212
- Anecdotal approach 60

B

- Biology education 291
- Brainstorming 88, 89
- Brainstorming technique 88
- Buzz session 87

C

- Chemistry education 290
- Civil rights movement 2
- Class 114
- Classroom arrangement 85
- classroom management skills 156
- Classroom teaching 76

- conceptual and theoretical expansion 240
- Cooperative learning 77, 82, 86
- Cooperative learning possesses 77
- Cooperative learning procedures 80
- Co-operative learning situations 78
- Corpus linguistics 189
- Critical ESL Pedagogy 243
- critical pedagogy 236, 237, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 250, 251, 253, 254, 256, 257, 258, 259, 277, 278, 279
- critical reading 155
- Critical theory 153, 161, 166
- cultural politics 125, 126
- culture 1, 11, 14, 19, 20, 30, 37, 44, 45

D

Dalton plan 74, 75, 76
 decision making 179
 decision taking 107
 democracy 1, 31, 36, 44
 Democratic processes 94
 Demonstration 55, 56
 Differential teaching 76
 Differentiation 312
 digital skills 204
 Disability rights movement 2
 Domestic science 74

E

Early childhood education 198
 education 1, 5, 8, 9, 10, 11, 12,
 13, 14, 15, 20, 21, 22, 23,
 26, 29, 30, 31, 32, 33, 36,
 37, 38, 39, 40, 42
 Educational goals 93
 Educational organization 180
 Educational philosophy 161
 Educational psychologists 178
 educational psychology 191
 Educational reorganization 74
 Effective learning situations 91
 Emancipatory knowledge 117
 Expository method 294

F

Feminist pedagogy 239
 feminist theory 2
 Flipped learning 311
 foreign language 193

G

Group activity 76

Groups skills 81

H

Heuristic method 63
 Human enrichment 281
 Human rights movement 2

I

Indigenous rights movement 2
 inequity 116, 118
 Inquiry training model 302
 Instruction 157, 158, 165, 174,
 177, 178, 179, 180, 182,
 183, 186, 187
 intellectually disabled 183

K

K-12 education 287
 Karl Marx 113, 120, 127
 knowledge 105, 106, 107, 112,
 116, 117, 118, 119, 124,
 128, 135, 136, 137, 138,
 140, 141, 146

L

Laboratory method 58
 Laboratory work 315
 Leadership skills 310
 Learning behavior 49
 Learning process 72
 Learning situations 50
 learning theory 170
 Lecture-demonstration method
 58
 Lecture method 50
 linear programming 186
 Logical reasoning 283

M

- Mainstream critical pedagogy 238
- marginalized economic groups 114
- mathematical skills 202
- Metacognitive 93
- multicultural music 193
- Multi-sensory approach 58
- Musical skills 205
- Music education 191, 205, 213
- Music Educators National Conference 194, 196, 207, 234
- music theory 192, 200, 213
- music therapy 199

P

- Pedagogy 156, 169
- Peer-led team learning (PLTL) 310
- Pestalozzian System 206
- Physical science 49
- Physics education 289, 290
- Pierre Bourdieu 113, 128
- Positive atmosphere 310
- postcolonial theory 2
- postmodern theory 2
- Poulo Freire 105
- principles of critical pedagogy 236
- Problematic situation 64
- Problem-based learning (PBL) 165
- problem solving 179, 184, 187
- Process skills 301
- Programmed learning 186

- Project method 65
- psychomotor learning 176
- purpose of education 239

Q

- queer theory 2

S

- Schematic organization 51
- Science curriculum 288
- Science education 287, 289
- Science teaching methods 307
- Scientific theories 60
- social collective 114
- Social interaction 78
- Social interaction behaviors 79
- Socialization 107, 108, 109, 110, 111, 112, 113
- social justice 1
- social movement 1
- social order 114
- social stratification 114, 120, 139
- society 106, 107, 108, 109, 110, 111, 112, 113, 114, 118, 120, 121, 123, 124, 125, 126, 127, 129, 131, 132, 133, 134, 135, 137
- special education 194, 199, 208
- Structured interactive sessions (SIS) 165
- Student feedback 309
- Supervised study 72, 73
- Systematic procedure 92

T

Teaching behavior 292

Teaching learning process 86

Team teaching 181

Traditional assessment structures 319

Transmission approach 293

Critical Pedagogy and the Everyday Classroom

Critical pedagogy is not a prescriptive set of practices – it is a continuous moral project that enables young people to develop a social awareness of freedom. This pedagogy connects classroom learning with the experiences, histories and resources that every student brings to their school. The classroom is a unique discursive space for the enactment of critical pedagogy. In some ways, all classroom discourse is critical because it is inherently political, and at the heart of critical pedagogy is an implicit understanding that power is negotiated daily by teachers and students. Historically, critical pedagogy is rooted in schools of thought that have emphasized the individual and the self in relation and in contrast to society, sociocultural and ideological forces, and economic factors and social progress.

This book is intended to present the applications of Critical Pedagogy to actual classroom situations. Critical pedagogy is a teaching philosophy that invites educators to encourage students to critique structures of power and oppression. In critical pedagogy, a teacher uses his or her own enlightenment to encourage students to question and challenge inequalities that exist in families, schools, and societies. The book also explores enactments of critical pedagogy within an elementary social studies methods. Critical scholars urge teacher educators to commit to practices that promote equity and social justice for an ever-diversifying student population. Theoretically, critical pedagogy in classroom discourse embodies the practice of engaging students in the social construction of knowledge, which grounds its pillars on power relations. In utilizing critical pedagogy in the classroom, teachers must question their own practices in the process to construct knowledge and why the main knowledge is legitimized by the dominant culture. Moreover, through emancipatory knowledge educators draw practical and technical knowledge together, creating a space for understanding the relations of power and privilege that manipulate and distort social relationships. The book also addresses the shortcomings of mainstream educational theory and practice and promotes the humanization of teacher and student.

Dr. Vasiliki Bruce holds PhD in Education and twelve years of teaching experience. Her research interests include educational testing & assessment, psychometrics & measurement, social psychology of assessment, attitudes, values, & beliefs, structural equation modeling. She has keen interest in art-based education, project-based learning, cultural heritage and education, social entrepreneurship, experimental, collaborative and innovative way of learning. She has contributed several papers and research articles on mobile and ubiquitous learning, game-based learning, information technology-applied instructions, flipped learning, and knowledge engineering in education.