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9.68 Affect: Biological, Psychological, and Social Aspects of "Feelings"
Spring 2009

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**MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Brain and Cognitive Sciences**

Spring Term 2009

**9.68 -- Affect: Neurobiological, Psychological,
and Sociocultural Aspects of "Feelings"**

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Syllabus

"Images removed due to copyright restrictions."

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1 Summary/Overview of Subject

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II Introduction

“Everything that is said, is said by someone.” (H. Maturana)

The following advertisement for this subject appears on page 438 in the current ('08-'09) "Courses and Degree Programs Issue" of the MIT Bulletin:

9.68 Affect: Biological, Psychological, and Social Aspects of "Feelings"

Prereq.: 9.00

U (Spring)

2-2-8 HASS

Affect is to cognition and behavior as feeling is to thinking and acting, or as values are to beliefs and practices. Considers these relations, both at the psychological level of organization and also in terms of their neurobiological and sociocultural counterparts. In addition to attending weekly class sessions and doing regular homework assignments, students are required to participate in small study groups that meet independently for two hours per week.

S L. Chorover, Jessica Laviolette¹

WE COMPLETE "BENCHMARK" FORMS AND EXCHANGE SOME PRELIMINARY INFORMATION

"So (here we are – in the middle way – having spent many years)
 Trying to learn to use words, and every attempt
 Is a wholly new start, and a different kind of failure
 Because one has only learnt to get the better of words
 For the thing one no longer has to say, or the way in which
 One is no longer disposed to say it. And so each venture
 Is a new beginning, a raid on the inarticulate
 With shabby equipment always deteriorating
 In the general mess of imprecision of feeling,
 Undisciplined squads of emotion. And what there is to conquer
 By strength and submission, has already been discovered
 Once or twice, or several times, by those whom one cannot hope
 To emulate – but there is no competition –
 There is only the fight to recover what has been lost
 And found and lost again and again; and now, under conditions
 That seem unpropitious. But perhaps neither gain nor loss.
 For us, there is only the trying. The rest is not our business.

Home is where one starts from.”
(T.S. Eliot, “Four Quartets”)

“Home”: Broadly speaking, the “place” (in space/time) to which we have come in the course of the process of living our lives and having our own experiences. It is where we start from in approaching any subject. It is further identifiable – in visuospatial metaphor -- with the particular personal and social “point-of-view” perspective or vantage point that we presently call our own.

Needless to add: the mental (cognitive, affective), and behavioral (postural/expressive/verbal/gestural etc.) particulars of our perspectives condition and constrain the scope and penetrativeness of our perceptions in ways that are, in turn, conditioned and constrained by the particulars of our own personal backgrounds and social experiences.

(Note how intimately and recurrently, perspectives and perceptions are interrelated.)

It follows that the particular attitudes (thoughts and feelings; mental sets) that each of us has brought with us into this room this evening are bound to influence our perceptions of what is going on here and our behavior in response ... and so on and so forth, in recurrent cycles ...

Now, based on your knowledge of the "MIT system" and applicable nomenclature, please

(1) “unpack” the foregoing subject description

(2) reflect, insofar as you can at this point of entry, on your own inwardly experienced thoughts and feelings about the present situation. For example:with which particular constellation of attitudes have you come? And how might your present attitudes be related to your present and future behavior in this class? Might your attitudes be expected to influence (for example) the “seriousness” with which you are ready, willing and able to approach the subject before us?

(3) share with others your understanding of the stipulated "workload". Try to make explicit your expectations (hopes, fears) regarding the average amount of time per week to be spent working on it and say something about the general quality of individual and collective effort that you expect yourself and others to be putting into it during the next few months.

III Conduct and Administration of Subject

A. STUDENTS: CAVEAT EMPTOR!

Everyone enrolled in this class and hoping/expecting to receive a first-quality final grade (i.e., an A) should expect to devote a modicum of 12 hours per week of first quality time/effort (participation/observation) to the collaborative learning process that lies at the heart of our approach to the subject.

Over the years, 9.68 has evolved into a 12 unit elective subject requiring of participants a nominal average of 8 hours of solo weekly time and effort completing stated reading and viewing and writing assignments (e.g. “reaction papers”) and other exercises. In addition, we all meet here weekly as a class and everyone meets separately – for two hours weekly at a time and place tba -- with a study group whose membership has been randomly assigned and whose task it is to make the best, most appropriate, and most constructive possible contribution to the overall organization and development of the 9.68_09 into a collaborative learning system of the highest possible educational quality and of the greatest possible personal value to those who comprise it.

In this class, insofar as it resembles its predecessors, your learning experience is going to be something much more than and different from involvement in a mere spectator sport. Your active participation in and observation of the organization and development of the collaborative learning system is required in both the formation and evaluation of the collaborative learning process that serves as a key element in our main method of procedure. Ultimately, the quality of your learning experience in this class will be decisively determined by – and play a role in determining – the quality of everyone else's. For starters, anyone sincerely aspiring to come away from this semester-long learning experience not only with a quality final grade but also with a credible, trustworthy and useful understanding of nature and scope of the subject before us should be ready, willing and able to put the stipulated modicum of weekly time and effort into the 9.68 learning process, for the next 13 weeks.

B. FINAL GRADES will vary and be commensurable with the quality and timeliness and regularity of that effort. Regular and faithful attendance, punctuality, attentiveness, honesty, sincerity, as well as, frequent, timely and concise formative evaluation

(preferably constructive and to the point) are also keys to success. Tapping into the relevant information and framing feedback in an efficacious way is not a completely straightforward process. The scope and acuity of our perspectives –like the incisiveness and comprehensiveness of our descriptions of our lived experiences -- are ultimately limited by the multifariously diverse and inescapable partiality of our own particular personal and social experiences.

What knowledge and skills are you hoping and expecting to be able to take away with you from this class?

What about the amount and quality of time/effort that you are ready, willing and able to put into it?

What final grade are you hoping and expecting to get out of it? Adjust the quality of your performance accordingly.

Did you satisfactorily answer the previous questions in your Benchmark paper?
If not, please do so now.

C. INSTRUCTOR

Steve Chorover

TA

Jessica Laviolette

We like to think of ourselves – together with you – as comprising so many different members of an annually recurring, constantly evolving, semester-long, collaborative learning system. We have benefitted greatly from the opportunity to work on the development of this subject over many years with many different cohorts of MIT undergraduates. Each year we endeavor together to organize ourselves in ways that enable us to become – within definite conceptual and material limits – a scientifically credible, ethically appropriate and pedagogically effective group of more or less serious students of the subject(s) before us.

D. COMMUNICATION

Our experience teaches us that it is extremely important for us to be as clear and concise and as open as possible in communicating with each other and with you, our students, regarding what we see as key substantive and procedural issues before us.

We encourage you to do the same. This means making serious and sustained efforts to provide the learning process as a whole with pertinent and timely inputs and feedbacks. Serious human inquiry – in order to be credible, trustworthy and useful – needs to proceed in a way that values honesty, attentiveness, constructive criticism, conciseness, coherence and clarity of communication.

In addressing 9.68-related emails to each other, within or between study groups, please feel free to cc. group members and classmates and us as appropriate.

You are encouraged to be yourself as well as being a serious student of the subject before us. Issues will arise about which you will feel strongly. Feel free to voice your opinions regarding substantive or procedural issues directly, to each other and to us either publicly (if appropriate), in study group, in class, or privately during office hours, by chance or appointment. Please do not be surprised if we suggest that the issues you are raising really deserve to be considered by the entire class.

E. BEING THERE: ATTENDANCE AND PARTICIPATION

As already noted, collaborative learning is not a spectator sport. Full, timely and complete attendance at and conscientious participation by everyone in all regularly scheduled 9.68 activities is expected.

F. CONSIDER YOUR ATTITUDES

Beginnings are important. How are you feeling at the point of entry? Here is some good advice to would-be learners, from Alexander Bain and John Stuart Mill:

"Take care to launch yourself with as strong and decided an initiative as possible."

"Seize the very first possible opportunity to act on every constructive resolution you make, follow every emotional prompting you may experience in the direction of the habits you aspire to gain."

"Keep the faculty of effort alive in you by a little gratuitous exercise every day."

"Pedagogical soundness lies in teachers learning to connect matters to be newly learned with the sort of material with which the pupils' minds are likely to be already spontaneously engaged."

Please examine – re-evaluate and adjust as need be – your customary "default assumptions" about what is going to be happening here.

In order for you to be able to work together with each other and with us within stipulated time/effort limits toward the attainment of the hopefully common and explicitly stated subject-related objectives, we need to agree on some guidelines.

G. STUDY GROUPS

(Read: "Working Groups" – Handout;)

Study group formation is a prototypical instance of a process that can be found (*mutatis mutandis*) in the organization and development of myriad other human social systems.

H. FIRST MEETING

As already noted, beginnings are important. You should take some time at the outset to consider the suitability of the "social architecture" of the environment in which you are intending to meet. Get comfortable in your meeting place and start becoming suitably acquainted with each other.

If, as seems likely, this line of inquiry initially leads you to recite the usual facts in the locally time-honored way: (e.g. with clichés relating to past or present MIT courses of study, MIT living groups, MIT classes, etc.) that's ok. But please try not to stop there. Once you've gotten that altogether commonplace part of your introductions out of the way, what else do you have to say to each other? What is special or unusual about you? Who are you? Where are you coming from? Where are you heading? Why are you taking this class? What do you make of it thus far?

9.68 is what you all have in common here, and all of you have just completed the benchmark questionnaire and been through the first class session. The instructors claim to be trying to take a somewhat unorthodox pedagogical approach (aka "collaborative learning"). What do you think about that? This would be a really good time to talk together with your group members and classmates about what you are all getting yourselves in for and how you are hoping and expecting to deal with the demand characteristics of the situation. What are your expectations and default assumptions now – has anything changed in regard to your hopes and fears (if any) – concerning the likely developmental trajectory of the 9.68 collaborative learning system and your own involvement in it?

Of course, no two human systems (no two people, families, groups, 9.68 classes, etc. etc.) become organized and develop in exactly the same way. Nevertheless, we do know and can say a few things with some confidence about the process.

I. DEVELOPMENTAL TRAJECTORIES

Generally speaking, the organization and development of all human social systems is comprehensible as following a characteristic trajectory from beginning to end. Starting out with random assignments – the study group development process as a whole is already underway. We are participating in and observing the organization and development of a process which, from within, is discernible as a prototypical instance of a human system life cycle, with a particular trajectory traversing an ordered sequence of more or less fixed and invariant stages or phases; phases analogous to those of conception, gestation, birth, infancy, childhood, adolescence, maturity, old age, and death.

By an hypothesis that you are invited to critically evaluate, parallels in the developmental stages or phases of individual and group systems development are discernible and the demand characteristics of each is marked by the imperative of confronting and

endeavoring to resolve certain "crises" (e.g. Approach/Avoidance Conflict, Basic Trust/Basic Mistrust, Power and Control, Autonomy/Interdependence; competition/collaboration; Generativity or Stagnation).

Thus all classroom learning systems – including this collaborative model -- are comprehensible as conceptually and materially complex, composite unities having a beginning, a middle and an end, and operating in accordance with the demand characteristics of a particular organizational and developmental model. (See: “Developmental Schemes” handout.

J. FORMATIVE EVALUATION

How are you doing in this class? (No, it is not too early to be asking this question. It should be asked and answered frequently throughout the term.) The concept of formative evaluation is applicable to any goal-oriented activity. What is going well? What needs improvement?

We expect you to participate fully in all stages and aspects of the observation/evaluation process. The TIMESHEET (see below) is intended to provide a first step in the process of monitoring the amount of time, and the quality of the effort per week that you put into making the collaborative learning system work as it is intended to.

K. WORKLOAD

The workload is not meant to be light weight. The catalog description sets out the terms of the contract implicit in the mere fact of our participation here. In order for the class to succeed in its objectives, everyone involved needs to put in a good faith modicum of time and effort. The class as a whole will succeed if everyone puts into it, on the average, 12 hours per week of high quality time and effort. Let us reiterate the point for emphasis: experience teaches us that success in creating a workable collaborative learning system depends on the readiness, willingness and ability of everyone involved to make a genuine good-faith effort to devote the stipulated modicum of time and effort to the process.

L. THE MFA FIELD TRIP

According to the official MIT calendar there will be no class meeting on Tuesday, February 17. Following the observance of Presidents Day holiday (Monday, February 16), the MIT administration has defined Tuesday the 17th as a Monday! This calendar change is actually a handy one for us. It enables us to schedule one of our key learning activities: going together on a Field Trip to the Boston Museum of Fine Arts (MFA). As it happens, it is only on Wednesdays that the MFA has evening visiting hours.

Accordingly, the MFA Field Trip will take place on Wednesday evening, February 18, from 7-10 pm.

A chartered bus will be waiting at the Vassar Street entrance of Bldg. 46 at 6:50 pm. Departure will be promptly at 7:05 pm with arrival at the MFA around 7:25. We will remain at the museum until closing time (9:45 pm) and then re-board the bus to go back to MIT. Drop-off stops on the return trip will be in Boston, at Beacon

Street/Massachusetts Avenue, and in Cambridge in front of 77 Mass. Ave. After stopping briefly at our starting point, the last stop will be at East Campus – around 10:20 pm.

The Field Trip is a key 9.68 activity. All students are expected to participate and it is important that everyone does so on the same occasion. PLEASE MARK YOUR CALENDARS ACCORDINGLY. DO IT NOW. In case of any irreconcilable conflicts, the problem must be worked out to the mutual satisfaction of your entire study group and the proposed resolution must be approved by one or both instructors-in-charge at or before the second class meeting, on February 13.

M. ASSIGNMENTS

The completion of weekly assignments in a systematic, timely and conscientious fashion means doing some things before others. Assignments are meant to be done in the order indicated in the syllabus. Your study group should discuss and agree on a schedule that ensures timely completion of required tasks.

N. REQUIRED TEXT

We will begin as 9.68 classes have been doing for more than two decades: with several weeks of reading (perhaps many of us re-reading) and discussing Robert M. Pirsig's *Zen and the Art of Motorcycle Maintenance* (William Morrow and Co., 1974). Notably, *ZAAMM* is a book whose subtitle identifies it as "An Inquiry into Values". How do "values" relate to "affect"?

You should acquire your own personal copy of this text to have and to hold (and to mark up as need be). There is a cheaper, more compact Bantam or Pocket Book edition, but you are advised to get the larger format paperback edition that the Tech Coop appears to have in sufficient numbers. (A copy of the full text of the book is available online at:

[Zen and the Art of Motorcycle Maintenance: An Inquiry into Values](#)

As befits a work that has become something of a "cult classic", *ZAAMM* is also the subject of many websites. (Not all of them equally trustworthy.) A useful list of links to relevant web resources has been prepared by a professor at Kansas State University: http://www.k-state.edu/english/baker/english287/Links-Pirsig_ZAMM.htm

Some interesting information on Pirsig and the Chautauqua movement will be found at: http://www.univie.ac.at/Anglistik/easyrider/data/zen_and_the_art_of_motorcycle_ma.htm.

Additional Chautauqua info is available at: <http://sdrc.lib.uiowa.edu/traveling-culture/essay.htm>

O. ADDITIONAL READINGS

See Readings section:

P. VIEWING FILMS

The videos that you are required to watch (and will subsequently discuss in study groups and class).

Feel free to watch videos alone or with classmates/group members (in the latter case, the time spent together should not be understood as going toward fulfilling the study group meeting requirement).

Q. JOURNAL-KEEPING

Would-be serious students are expected to begin at once keeping their own personal 9.68_09 Journal. It is up to you to determine what to put into it, but it is also incumbent upon you to make clear to each other and to us the form that your Journal will take and the manner in which you propose to keep track of and evaluate the quality of your 9.68 experience, including (but not necessarily limiting yourself to) the account of the quality and amount of the time and effort that you will actually be putting into 9.68.

Arguably, we don't really know what we think and feel until we hear (or read) what we have to say (or write). If you are about to do some learning in this class, and want to be in a position to formatively and summatively evaluate it, you'd better start keeping track of the experience. In this connection, you are advised to get yourself a hard-bound "composition book" in which to make regular entries. If some would prefer to use a portable computer and electronic workfile we will need to have some further discussion before accepting that as a substitute for a hardcopy notebook. If you decide to keep part of your journal electronically, it makes a difference whether or not you also maintain a hard copy version. Searching the web for "keeping a journal" is a good way to find links that discuss the benefits of diligent journal keeping.

At very least, a journal devoted mainly to this class will assist you in keeping track of your own progress through the 9.68 learning experience. It will also enable you to formulate pertinent comments and/or relevant questions for study group and/or classroom discussions. In this way, the quality of your interventions in the proceedings will be enhanced and likewise the quality of class and group discussions. Use your Journal as a place to jot down "random" ideas and questions that may come to mind while you are reading (and at other times). Journal entries will also be useful in planning and writing assigned reaction papers. Use your journal as a place to keep track of your thoughts and feelings about the class, the instructors, your classmates and group members, the form and content of the subject matter, the relevance of the collaborative learning process to you.

It is important for all of us to take this most personal aspect of the workload seriously. We will not normally require you to submit your journals to us for examination.

However, it is incumbent upon "serious" students to keep it handy, to use it consistently, and to have it in hand at all 9.68 activities (class and study group meetings, fieldtrips, etc.) Get used to using it on a regular basis. Our aim is to encourage you to feel safe enough to take some real-world personal risks without fearing unwonted self exposure.

The only foreseeable circumstances under which we would be inclined to ask to see the contents of your journals would be in the unlikely event that you end up feeling or believing that our evaluation of the quality of your performance (as reflected in the final letter grade assigned to you by us) significantly underrates the quality of your actual performance and this becomes a seriously contested issue between us.

In evaluating your 9.68 performance, we will generally rely on a five-point scale as specified in the MIT course catalog (excellent, very good, good, fair, poor or failing). It's the Amount and Quality of your own personal participation that matters!

R. KEEPING A TIMESHEET

Many people find this a difficult discipline to adopt, but our experience tells us that it is very important to keep track of your own performance. To help you monitor day-to-day, week-to-week, quantitative/qualitative overall time and effort of your 9.68 performance in real time, a printed form is appended. You should make entries no less frequently than three times per week (even if you need to consciously force yourself to do so). Learn to use it conscientiously: make timely and truthful entries and please bring it with you to class and be prepared to make it available for occasional inspection.

S. WRITING REACTION PAPERS

These will normally be 1-2 pages in length on topics to be assigned. You are responsible for printing your own papers. "Everything that is said is said by someone." Insofar as possible, all assignments and reaction papers for 9.68 should be written in the voice of the first person singular and be the product of your own mind and hand (*mens et manus*). Please do not misunderstand. We are not trying to discourage you from consulting or discussing or quoting from or otherwise relying on the work of others. On the contrary, conscientious reliance on the work of others is both a necessary and a desirable hallmark of all serious scholarship. Insofar as the views of others are relevant in this connection, you should feel free to use their ideas and words as frequently and freely as necessary. Just make it a point to acknowledge your sources in each and every case.

A Caveat: The advent of the internet and the ease of access to information of dubious credibility via the world wide web presents us with the problem (to put it crudely) of "distinguishing shit from shinola." Some entries (not to mention whole web pages) are here today and gone tomorrow. It is advisable to be extremely cautious in evaluating such information. You will surely get into trouble in this regard if you don't carefully check and cross-check both the credibility of the source and the validity of the information.

T. PLAGIARISM

Intellectual property law defines it as a form of grand theft, and in the context of academic life, borrowing words and phrases – whole paragraphs, even – without properly

acknowledging your source is the kind of larceny that poses a perpetual threat to the integrity of serious scholarship. Do you understand this? You are probably not the first or only one who has come to hold more or less strong opinions of the kind you are endeavoring to articulate. Sometimes it seems like something you read has an unmistakable ring of truth for you or someone else seems to have already put into words something very like what you believe to be your own present conclusions. That's ok. Use your own words and voice, insofar as possible. If you feel your thesis would be strengthened by weaving into it the eloquent testimonies of others, including recognized authorities, that's perfectly alright too. Feel free to copy or quote whole sentences (paragraphs, even) from the written or spoken work of others as need be. But, whenever you do so, make sure that you use "quotation marks" and fully cite the sources that you're borrowing from.

U. PAPER CHASE FORMAT

Assigned reaction papers and other submitted texts are to be conventionally footnoted (if necessary), carefully composed and legibly typed and proofread. The instructors may sometimes ask your permission to redistribute submissions so that each of your papers may be read/reviewed and commented on by one or more of your classmates/study-group mates. Please, submit no handwritten papers unless absolutely necessary and unavoidable (and approved by us).

Unless otherwise arranged in advance, all students will personally submit each and all of their own assignments to the instructors per their request, by hand, and in hardcopy form, at weekly class meetings. Please, no proxies. The use of group-mates as surrogates to hand in YOUR hardcopy in you're absence is not permitted, except by prior arrangement. You should also have it available for email transmission, if necessary.

Ideally, your scheduling of tasks will permit you to develop a routine in which the reaction papers that you have drafted in a timely way can be circulated back and forth among study group members, thus affording opportunities for giving/receiving corrective feedback to/from group members before submitting your own final versions to the instructors.

Except for the final term paper (see below) no letter or number grades will be assigned to the written work that you turn in. However, it is our intention to carefully and completely read all timely submissions and to provide prompt feedback, in writing, on the quality of content and/or form – if possible at or before the following class session. Tardy submissions will be received and recorded as such and may be returned unread.

V. WHAT IS COLLABORATIVE LEARNING?

We define the groups that we have randomly formed (and their individual members) as 9.68 subsystems. This leads into a discussion of the "systems approach" to be taken. At the outset, a distinction needs to be drawn between cooperative and collaborative learning. See, e.g.

<http://www.city.londonmet.ac.uk/deliberations/collab.learning/panitz2.html>

We aim to create a classroom environment conducive to meaningful collaborative learning. We hope and expect that each and every one of you will find it to be both fun and informative – a quality learning experience.

Quality collaborative reaction papers (and term papers/proposals explained below) are welcome; However, don't be tempted to engage in collaborations with expectations conducive to mere dilution, rather than meaningful concentration of effort all-around. Quite the reverse should be the case.

Several heads are only better than one if there are no freeloaders and all are "operating on all cylinders". To be worthwhile, the process of producing collaborative projects or papers should involve more than merely stitching together a series of separate sentences written by different people. Meaningful collaboration means working together to achieve a high degree of effectiveness through constructive interdependence. Accordingly, expect it to require significant co-operation between and among authors for papers to exhibit a high level of internal consistency, coherence, and continuity.

W. PLANNING/PRODUCING END-OF-TERM PROJECT OR PAPER

This can be on almost any topic and can take almost any tangible form (which must include documentation), provided only that its form and contents be clearly and coherently topically relevant to the subject matter learned and discussed in 9.68.

Generally speaking, the choice of topic should be based on your own personal/social (e.g. academic/professional) experience and interests. It is up to you to show in your proposal how what you want to do relates to an aspect or aspects of the material dealt with in this class during the term.

Term project/paper proposals will be submitted for prior approval. Proposals (not to exceed 2 pages in length). Proposals will be reviewed and returned to you with comments on or before 6pm, Sunday April 26

Unless other arrangements are made beforehand, term papers are not to exceed 15 double-spaced pages in length, including notes and references.

The deadline for submission of fully completed term projects/papers is the beginning of the final regularly-scheduled class (i.e. 7 pm – Class Meeting 13, May 12). Extensions will be granted only by prior arrangement and only under extreme circumstances.

X. INTERIM AND FINAL GRADES

Final grades will be based on the instructors' evaluation of the quality of individual term-long performance in all aspects of the subject, including our assessment of the timeliness, conscientiousness and skill with which assignments have been undertaken and completed, our perception of the overall quality of your (1) written work, (2) study group involvement, (3) classroom participation (in general) and (4) final term paper/project (in particular).

Y. A FINAL NOTE ABOUT THE 9.68 LEARNING PROCESS

Each element of the curriculum is intended to be approached in a particular way – with everyone encountering each activity in the same sequential order.

This means that

- (1) everyone is expected to start out "at home" – doing solo" homework – reading, writing and viewing assignments; before
- (2) meeting with study group mates to discuss the material.
- (3) identify class and homework and study group organizational issues needing to be discussed.
- (4) arrange for timely submission of completed assignment(s) as required.

The collaborative learning systems approach as a whole has grown up in connection with a broader conceptual framework that envisages human systems as arising and existing in a more or less concentric matrix of “levels” (e.g. neurobiological, psychological and sociocultural) and being characterized – at each level -- by counterpart cognitive, affective and expressive “aspects.” See Table 1.

In 9.68, we take what we all personally and inwardly experience as “feelings” and sometimes confuse with “emotions” as our point of departure for a survey of “affect” its multifarious manifestations, and its relations to other things previously and concurrently ongoing in human systems at “underlying” organismic, molecular, genetic, (e.g. neurobiological, individual and collective species specifics), personal psychological (i.e. individual phylogenetic and ontogenetic mental and behavioral) and cultural/social (e.g. ecological context, time and place, local, familial, tribal, regional, religious, socioeconomic, national, linguistic, ethnic, socioeconomic, organizational, collective, institutional) levels of organization and development, and “surrounding” levels (biosphere, ecosphere, technosphere, solar system, galaxy, universe)

IV Detailed Syllabus

Class Meeting 1

February 3

Themes: "Getting Acquainted"
Introduction and Overview: Why Study "Feelings?"
Conduct and Administration of Subject (see above).

HANDOUTS:

- 1 Syllabus
- 2 Preliminary Information Form and Benchmark Questionnaire
- 3 Timesheet
- 4 Study Group roster form
- 5 "Working Groups"

At door: Distribution of Preliminary Information forms and Benchmark Questionnaires. Students complete and turn in Info Form and then start working (for 10 min. max.) on completion of Benchmark Questionnaires. Benchmark Questionnaires collected and prepared for later random redistribution.

We need to do some initial stock-taking.

WE COMPLETE "BENCHMARK" FORMS AND EXCHANGE SOME PRELIMINARY INFORMATION

Who is here? What are our backgrounds? Where are we coming from?

Who is addressing whom?

On what subject?

What are our expectations (hopes/fears) at the point of entry?

On which default assumptions are we approaching the present situation?

Where are we heading or hoping to go?

What are our objectives? Aspirations? Dreams? Desires? Future goals?

How do we envisage our personal/social (e.g. academic and professional) trajectories and destinations?

What are we hoping/expecting to get out of this class (gradewise and otherwise)?

What are we ready, willing and able to put into it, quality time-wise and otherwise?

RATIONALE:

“How do you feel?” "Affect at the point of entry"

Who is addressing whom? A Definition of the situation.

Introduction and Overview: what is “affect”?”

Limitations of awareness, language and communication

Epistemologies and Methodologies: How “paradigms” define the nature, scope and limits of what presently passes among us for trustworthy ways of knowing

Introduction and Overview: Why Study "Feelings?"

Conduct and Administration of Subject:

What’s new (and what’s the same) this term?

Why study "feelings?"

The instructors introduce themselves, ask: "Why study "feelings?" and briefly summarize what lies ahead, invite questions and comments and then call for a

SHORT BREAK

to enable people to leave who are not yet ready, willing and able to commit themselves to carrying the stipulated workload as "serious students."

To those leaving, we return the forms they have turned in.

"GETTING ACQUAINTED"

To those remaining, the instructors pledge a good faith effort to do what we can to make 9.68/09 into the best possible learning experience for everyone concerned.

"Who are we? Where are we coming from? Where are we heading? Why this class?"

Look closely at the picture on the next page. What do you see? Does your experience of encountering it have an affective dimension? Does your perception of it change over time?

In endeavoring to comprehend the image immediately below, as in all sorts of other matters, due attention must be paid to affective aspects of experience. Quality time/effort must be spent. Are any noteworthy relations involving humanity and nature discernible? What do you think you are looking at? How do you "feel about it?"

This image demonstrates (among other things) that the serious study of any subject requires time and effort; patience and fortitude. Learning is a process. Attention must be paid. Perceptions, attitudes and actions can change, but not without an ongoing commitment of quality time and effort can we ever hope to make credible, trustworthy and useful sense of the world and its contents – including ourselves and each other. We need to do some initial stock-taking.

WE COMPLETE "BENCHMARK" FORMS AND EXCHANGE SOME PRELIMINARY INFORMATION

Who is here? What are our backgrounds? Where are we coming from?
 Who is addressing whom?
 On what subject?
 What are our expectations (hopes/fears) at the point of entry?
 On which default assumptions are we approaching the present situation?
 Where are we heading or hoping to go?
 What are our objectives? Aspirations? Dreams? Desires? Future goals?
 How do we envisage our personal/social (e.g. academic and professional) trajectories and destinations?
 What are we hoping/expecting to get out of this class (gradewise and otherwise)?
 What are we ready, willing and able to put into it, quality time-wise and otherwise?

RATIONALE:

"How do you feel?" "Affect at the point of entry"
 Who is addressing whom? A Definition of the situation.
 Introduction and Overview: what is "affect"?"
 Limitations of awareness, language and communication
 Epistemologies and Methodologies: How "paradigms" define the nature, scope and limits of what presently passes among us for trustworthy ways of knowing

SOME ISSUES TO CONSIDER AT YOUR FIRST STUDY GROUP MEETING:

- (1) Did everyone make it on time and w/o mishap?
- (2) Evaluate the suitability of your surroundings. Are you in an environment conducive to the conduct of a "study group meeting"?
- (3) If not, is there a better alternative available?
- (4) If so, try to get comfortable; say "hello!" politely and "how are you?" This (by the luck of the draw) is your study group and will remain so for the rest of the term. Prepare to listen to each other. Be open to possibly having to revise/update assumptions in accordance with new information;
- (5) How do you want – hope, expect – the class/study group to develop?
- (6) How educationally valuable to you will it be?
- (7) As you introduce yourselves, think about the terms in which you and your peers "normally" define/identify yourselves in MIT undergraduate academic contexts such as this one?

- (8) Try to identify some of the explicit and implicit loyalties (both "visible" and "invisible") in the study group and the class as a whole.
- (9) Compare/contrast your "first impressions of this class").
- (10) We are all constantly and invariably and inescapably engaged in endeavoring to manage the impressions that we make on other people. How are these commonplace efforts at "impression management" influencing your interactions with each other.
- (11) What is your view of the "other study groups?"
- (12) Why is the class being defined as "collaborative" and being thus organized into "study groups?"
- (13) Are these arrangements intended to be cooperative or competitive?
- (14) Are there any "serious" students in this group? In the class? What do we mean by "serious" in this context?
- (15) Share (insofar as you honestly can) your own "feelings about the class thus far" with one another.
- (16) Discuss "Preparation for next class"

In endeavoring to comprehend the image immediately below, as in all sorts of other matters, due attention must be paid to affective aspects of experience. Quality time/effort must be spent. Are any noteworthy relations involving humanity and nature discernible? What do you think you are looking at? How do you "feel about it?"

This image demonstrates (among other things) that the serious study of any subject requires time and effort; patience and fortitude. Learning is a process. Attention must be paid. Perceptions, attitudes and actions can change, but not without an ongoing commitment of quality time and effort can we ever hope to make credible, trustworthy and useful sense of the world and its contents – including ourselves and each other.

We need to do some initial stock-taking.

WE COMPLETE "BENCHMARK" FORMS AND EXCHANGE SOME PRELIMINARY INFORMATION

Who is here? What are our backgrounds? Where are we coming from?

Who is addressing whom?

On what subject?

What are our expectations (hopes/fears) at the point of entry?

On which default assumptions are we approaching the present situation?

Where are we heading or hoping to go?

What are our objectives? Aspirations? Dreams? Desires? Future goals?

How do we envisage our personal/social (e.g. academic and professional) trajectories and destinations?

What are we hoping/expecting to get out of this class (gradewise and otherwise)?

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RATIONALE:

“How do you feel?” "Affect at the point of entry"

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Introduction and Overview: what is “affect”?”

Limitations of awareness, language and communication

Epistemologies and Methodologies: How “paradigms” define the nature, scope and limits of what presently passes among us for trustworthy ways of knowing

Section 1: Chronology
 Section 2: Map
 Section 12: Analytic Index

VIEW:

2-5 (Film #1) C.& R. Eames and P.&P Morrison, "Powers of Ten" (1978)
 (8:04)

WRITE: Reaction Paper #1:

What is Good? And What is Not Good?
 Do We Need Anyone to Tell Us These Things?
 (1-2 page "reaction paper")

CLASS NOTES:

How are you feeling?

What is "affect" in human systems? Levels and aspects of organization and development of human systems from cells to societies.

What are "emotional" signs and symptoms?

Systems involving cognitions, affects and actions.

NOTES ABOUT ASSIGNMENTS:

2-1 This syllabus and accompanying handouts

Read carefully. Underline important passages. Do you feel a need for clarification on any of the issues mentioned? Do you have any questions? Comments? Take note of them in the margins. Write about them in your Journal. Discuss them with your group members – via email or at your first study group meeting. Bring list of significant resolved and unresolved issues to class next time.

Reaction Paper #1

What is good,? And what is not good? Do we need anyone to tell us these things? Before too much more time passes and you begin to get too "contaminated" by the opinions of others, write reaction paper #1. The point here is for you to get a further preliminary fix on your present view of those ancient and still abiding questions: "What is good? What is better? What is best? What is not good? What is bad? What is evil? What is quality? Who is to say? How do we know?"

You are about to begin reading a difficult book (Zen and the Art of Motorcycle Maintenance)

Before beginning: Read and heed the following essay full of good advice.

2-2 Adler, *How to Read a Difficult Book*

2-3 ZAAMM Part I: Chapters 1-7

And so we embark with Robert Pirsig's nameless (autobiographical?) narrator, his son Chris, and a couple of friends, the Sutherlands, on what is – on one level – a narrative recounting of a cross-country motorcycle trip.

familiar with "Aronson's First Law" or what social psychologists call the "ultimate attribution error"?)

h.) Who (what?) is "Phaedrus?" How does Pirsig have his narrator introduce and develop his character. Is he to be understood as the former's or the latter's former self (or alter ego)? How do you know? Can we trust the narrator (author?) to offer a credibly valid and accurate picture of "Phaedrus" and his "insanity"? Does it matter either way? Why or why not?

i.) What do you think of the narrator's description of his past and present relationship with his son, Chris? Does Chris seem to you to be a particularly troubled boy? Or is he just a typical kid impatient with his father's behavior? Who do you think was a better father to Chris – Phaedrus or the narrator?

NOTE: THE LENGTH OF THE FOREGOING LIST OF QUESTIONS IS PARTLY INTENDED TO SUGGEST THAT YOU "JIGSAW" SUCH BIG ASSIGNMENTS, WITH EACH PERSON BEING RESPONSIBLE FOR ADDRESSING A DIFFERENT ONE (OR TWO) OF THE ITEMS IN YOUR GROUP DISCUSSION

Class Meeting 3

Wednesday, February 18, 7-10 pm NOTE DAY/DATE/TIME CHANGE

Theme: "Things of Beauty and Beholder's Eyes":

MFA Field Trip: "in Search of Quality"

ZAAMM Part II

PREPARATION:

READ: 3-1 ZAAMM Part II: Chapters 8-15 (pages 97-184)

WRITE: Reaction Paper #2: What is quality? ...

Your paper will be collected on the bus to the MFA. We will read and comment on it during your time at the MFA and return it to you on the bus at the end of the Field Trip.

READ:

3-2 MFA Field Trip Guide and Workbook
including the MFA Reaction Form (see writing assignment #3)
(Please download and print out your own copy)

WRITE: Reaction Paper #3 MFA Reaction Form

Please do not fail to fill-out the form before you leave the MFA. We will collect it on the bus at the end of the trip.

compares the then-current (circa 1970s) consciousness of his (our) culture to a stream that has gotten out of control and is overflowing its channels, causing destruction and havoc ... "There are eras of human history (he writes) in which the channels of thought were too deeply cut and no change was possible, and nothing new ever happened, and 'best' was a matter of dogma, but that is not the situation now. Now the stream of our common consciousness seems to be obliterating its own banks, losing its central direction and purpose . . . Some channel deepening seems to be called for" (p. 8).

Now, in 2009, we are reading these words in what some see as a culturally transformative moment. What is the present state of "our common consciousness"? Are we at a decisive turning point? Amid national and international economic collapse and escalating violence, facing the specter of drastic climatological alteration and extreme local, regional and global impacts, and awed by the outcome of our recent presidential election, it certainly seems arguable that we are living in a watershed moment. Can you relate to and explain this metaphor? What sorts of change is he referring to? What does he mean by "channel deepening?" Is the image compelling? Do you find merit (value?) in his analysis? (cf. William James: "The stream of consciousness.")

e.) As a writer of technical manuals, the narrator decries what he sees as extreme alienation in contemporary society and at one point he focuses on the question of "what or who a person is" and "what a person does." In this connection, he argues (among other things) that in our ideas about what it means to be a specifically human being are seriously confused and that in this state of affairs lie some clues to "what the hell has gone wrong with the twentieth century." How does this concept strike you? Can you point to any contemporary situations in which the concept of "person" has become seriously problematical? How does this issue relate to Pirsig's classical/romantic dichotomy? (see g. below).

f.) Despite his disclaimers, the title and theme of Pirsig's book clearly reflect the author's interest in Zen Buddhism – an ancient religious tradition that is notable, among other things, for its celebration of the oneness of the universe and all of life. Here we aim to bring the matter of who we are and what we do still closer to home: How do you feel about the quality of the relationship between who you are and what you do? Is the person that you are at one with the personal and social (e.g. academic/professional career) path that you are following? Explain why or why not. If not, what prevents you from feeling totally identified with what you are training to do for a living? Would you feel more or less satisfied, or be a better/worse student/worker, if you did feel that connection more completely? How would you characterize your present "frame of mind"? (optimistic or pessimistic).

g.) Over and over again, Pirsig has his narrator dividing human understanding up and breaking it down into two categories: "romantic" and "classical". Discuss the distinction between the two as you see it. How do you relate to this dichotomy? Are these best understood as attributes of persons or modes of response to situations? Give examples of any tendencies that make you think of yourself as either a classical or romantic person. Is there any sensible alternative to thinking about people in such either/or terms? (Are you

familiar with "Aronson's First Law" or what social psychologists call the "ultimate attribution error"?)

h.) Who (what?) is "Phaedrus?" How does Pirsig have his narrator introduce and develop his character. Is he to be understood as the former's or the latter's former self (or alter ego)? How do you know? Can we trust the narrator (author?) to offer a credibly valid and accurate picture of "Phaedrus" and his "insanity"? Does it matter either way? Why or why not?

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Class Meeting 3

Wednesday, February 18, 7-10 pm NOTE DAY/DATE/TIME CHANGE

Theme: "Things of Beauty and Beholder's Eyes":

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ZAAMM Part II

PREPARATION:

READ: 3-1 ZAAMM Part II: Chapters 8-15 (pages 97-184)

WRITE: Reaction Paper #2: What is quality? ...

Your paper will be collected on the bus to the MFA. We will read and comment on it during your time at the MFA and return it to you on the bus at the end of the Field Trip.

READ:

3-2 MFA Field Trip Guide and Workbook
including the MFA Reaction Form (see writing assignment #3)
(Please download and print out your own copy)

WRITE: Reaction Paper #3 MFA Reaction Form

Please do not fail to fill-out the form before you leave the MFA. We will collect it on the bus at the end of the trip.

Class Meeting 4

February 24

Theme: Learning from Experience: Comparing/Contrasting MFA Observations
ZAAMM Part III

NOTES ABOUT ASSIGNMENTS:

3-1 ZAAMM Part II: Chapters 8-15

Keep going. Prepare for some rough passages through here! Hard problems will be raised; tough questions will be asked; go slow, but keep going!

- a. What is a motorcycle?
- b. What is a system?
- c. What is the scientific method?
- d. At the start of this section of the book the Chautauqua picks up on some earlier remarks about "the machine" and proceeds through a component systems analysis (what is that?) of a motorcycle and a discussion of the scientific method. This leads back into the history of the development of scientific ideas. The section ends with a passage in which Pirsig has his narrator recall an episode from Phaedrus' past in which we find his familiar with "Aronson's First Law" or what social psychologists call the "ultimate attribution error"?)
- h.) Who (what?) is "Phaedrus?" How does Pirsig have his narrator introduce and develop his character. Is he to be understood as the former's or the latter's former self (or alter ego)? How do you know? Can we trust the narrator (author?) to offer a credibly valid and accurate picture of "Phaedrus" and his "insanity"? Does it matter either way? Why or why not?

What do you think of the narrator's description of his past and present description of his past and present with his son, Chris? Does Chris seem to you to be a particularly troubled boy? Or is he just a typical kid impatient with his father's behavior? Who do you think was a better father to Chris – Phaedrus or the narrator?

NOTE: THE LENGTH OF THE FOREGOING LIST OF QUESTIONS IS PARTLY INTENDED TO SUGGEST THAT YOU "JIGSAW" SUCH BIG ASSIGNMENTS, WITH EACH PERSON BEING RESPONSIBLE FOR ADDRESSING A DIFFERENT ONE (OR TWO) OF THE ITEMS IN YOUR GROUP DISCUSSION

Class Meeting 4

February 24

Theme: Learning from Experience: Comparing/Contrasting MFA Observations
ZAAMM Part III

PREPARATION:

WRITE: Reaction Paper #4 Searching for a quality experience.
(1-2 page "reaction paper")

Bring a hard copy of your paper with you to class, and be prepared to read or refer to its contents as appropriate during the discussion.

READ: 4-1 ZAAMM Part III: Chapters 16-26 (pages 187-326)

CLASS NOTES:

MFA Field Trip Follow-up: Reflect upon your thoughts and feelings about the Field Trip experience in a way that enables you to draw some conclusions about your own attitudes and actions..

Compare/contrast facial expressions and postures or gestures of affective significance in artworks from different traditions/cultures. What similarities and differences are observed? Any evidence here either for or against the idea that there are cross-cultural "affective universals?" Feel free to discuss in some depth and detail any relevant cognitive and affective aspects of your encounter(s) with specific object(s) as well as with each other from the time you board the bus to the time it drops you off back at MIT.

Share the contents of your MFA reaction form and reaction paper with your group members in advance of the class discussion. This will enable you to participate more constructively. Bring a hard copy of your paper with you to class, and be prepared to read or refer to its contents as appropriate during the discussion. The aim of the discussion is to highlight both the differences and similarities in our affective responses to various artworks (encounters with other objects, individuals, situations, etc.) . The diversity (disparity) and the unity (consistency) of our responses to persons and things in contexts.

The first part of our search at the MFA proceeded in a roughly chronological way through a number of genres and styles and cross-cultural contexts. In the second part, you were asked to return to something previously encountered that you found moving or which evoked in you something at least vaguely approaching a noteworthy "emotional response" (This might be among the initially assigned objects or something else noted briefly in passing.)

In the discussion during our class meeting, we will reprise the field trip in an effort to attain some clarity on your feelings about the experience and the objects encountered. A class presentation will be prepared with images including some or all of the objects singled out by fieldtrip participants in their reaction forms.

IMPORTANT: To facilitate our follow-up, it would be most helpful for students who have access to a digital camera to bring it with them to the museum. For further details, see the MFA Guide.

(See notes about the MFA Fieldtrip Guide below.)

NOTES ABOUT ASSIGNMENTS:

3-1 ZAAMM Part II: Chapters 8-15

Keep going. Prepare for some rough passages through here! Hard problems will be raised; tough questions will be asked; go slow, but keep going!

- a. What is a motorcycle?
- b. What is a system?
- c. What is the scientific method?
- d. At the start of this section of the book the Chautauqua picks up on some earlier remarks about "the machine" and proceeds through a component systems analysis (what is that?) of a motorcycle and a discussion of the scientific method. This leads back into the history of the development of scientific ideas. The section ends with a passage in which Pirsig has his narrator recall an episode from Phaedrus' past in which we find his familiar with "Aronson's First Law" or what social psychologists call the "ultimate attribution error"?)

h.) Who (what?) is "Phaedrus?" How does Pirsig have his narrator introduce and develop his character. Is he to be understood as the former's or the latter's former self (or alter ego)? How do you know? Can we trust the narrator (author?) to offer a credibly valid and accurate picture of "Phaedrus" and his "insanity"? Does it matter either way? Why or why not?

What do you think of the narrator's description of his past and present description of his past and present with his son, Chris? Does Chris seem to you to be a particularly troubled boy? Or is he just a typical kid impatient with his father's behavior? Who do you think was a better father to Chris – Phaedrus or the narrator? Who do you think was a better father to Chris – Phaedrus or the narrator?

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Class Meeting 5

March 3

Theme: Wrapping up ZAAMM

PREPARATION:

READ: 5-1 ZAAMM Part IV: Chapters 27-32 (pages 329-412)

WRITE: Reaction Paper #5 On the Experience of Reading ZAAMM... in the
Context of 9.68

NOTES ABOUT ASSIGNMENTS:

5-1 ZAAMM Part IV: Chapters 27-32

Zen and the Art of Motorcycle Maintenance is at once the story of a motorcycle journey across the country; a meditation on values and the concept of Quality; and an allegorical tale of a man coming to terms with his past. No doubt it can be described in many other ways as well. What is your definition of it?

Some Further Questions to Think About:

- a) In the penultimate chapter comes the climactic confrontation between father and son. The setting is the Mendocino coast. The episode starts in a crowded restaurant and moves to the roadside on a foggy cliff overlooking the ocean. Voices of the narrator and Chris alternate and then the italicized voice of the narrator's alter ego is heard. The two male adult voices overlap and combine with the son's voice as the three voices negotiate the denouement. Do the conditions of mutual and reciprocal agreement arrived at allow for both reconciliation and differentiation? Are the concluding circumstances – as described – adequate to justify the narrators/authors relatively unguardedly optimistic final paragraph?
- b) Does the book leave you (the reader) pointing in an intellectually defensible, emotionally satisfying, and practically effective/useful direction? Please elaborate. Pay particular attention to the evidently intended convergence, in the conclusion, of the narrator's monologue with its dialogical counterparts (e.g. the father/son relationship, the travelogue ("a journey through the high country"), the chautauqua.
- c) How would you characterize work as a whole? Is it an informal but ambitious and wide-ranging philosophical treatise? a passionate paean to virtue, a plaintive plea for ethical lifeways and faithful scholarship, a call to honest teaching and genuine learning (e.g. "the need for caring"; the "church of reason"), a "how-to" guide, a handbook for those in search of right livelihoods." Point is that ZAAMM plainly is a text of many meanings; a multidimensionally relevant treatise-in-novel-form ...

- d) What significance (if any) do you read into the episode in which Chris and his father remove their helmets for the remainder of the journey?
- e) The last two sentences of the book are: "It's going to get better now. You can sort of tell these things." How does this "resolution" strike you? Hopefully, you will have also read the author's Afterword, and done so after completing your reading of the text. If so, please comment on the cognitive/affective impact of having done so. With respect to the central issue of "conflicting perspectives" (differing points of view?): what are your present thoughts and feelings about the classical /romantic dichotomy with which ZAAMM has been so centrally concerned?
- f) Identify and briefly describe (at least 3) "take-home lessons, key questions or issues needing to be further discussed" with which the book leaves you.

writing assignment #5

- a) Relate form/content of book to form/content of the present learning situation. Which parts/aspects of the book/class have you been finding the most/least interesting? The easiest/hardest to get through/relate to? Which do you find the most challenging? The least/most credible, the least/most encouraging/disturbing, and why? What (if anything) of any immediate personal/social significance and value to you are you finding at this still relatively preliminary point in the process of undertaking this course of inquiry into affect?
- b) Discuss the fact that you've been reading the book at a particular point in your own life (and/or at a particular moment of world history -- if you want to take a broader and more long-term view). Have you learned anything of use to you in dealing with your present personal/social predicament? Quality: what is it? in art? in music? in movies? in words? in gestures? in worldviews, in value systems? in lifestyles?

Class Meeting 6

March 10

Theme: What is Quality in Education?

PREPARATION:

READ: 6-1 Smith, P., (1990) Killing the Spirit: Higher Education in America (excerpts) Chapter 1: "Mapping the Desert" (pp. 1-21); and Chapter 14: "Teaching" (pp. 199-222)

WRITE: Reaction Paper #6 Quality and My MIT Education

CLASS NOTES:

What is good and what is not good in education?

Particularly in its latter parts, "ZAAMM..." had rather a lot to say about this question.

How is the question relevant to our inquiry into values? In respect to the MFA experience, our stress was largely upon the basic constancies and the great diversities of opinion among us regarding the aesthetic value of particular works of art. Last week, we considered some of the ways in which the distinction between "classical" and "romantic" plays itself out in the domain of scientific inquiry. This week, we shift our attention to a realm "closer to home" and inquire into the prospects for achieving consensual agreement. (Why might we be inclined to seek such a consensus?)

To begin with, compare and contrast Pirsig's comments on education with those of the noted historian Page Smith, whose contention it was that the crisis in American universities is connected with the trend toward research and away from teaching.

Recalling what was said earlier about the complementarity of differing perspectives, we presume at the outset that all of us (1) have our own unique educational experiences and (2) can this lay claim to an equipotentially legitimate modicum of knowledge and skill when it comes to evaluating the quality (or lack thereof) of their own educational experiences in general, and of their MIT learning experience as an MIT undergraduate student, in particular.

Do you recall Pirsig's discussion of "platform" problems? Taking the proverbial "step back," we will endeavor to get beneath the surface details (which are always uniquely specific and particular) and bring into focus some of the more general conceptual and material universals that characterize, epitomize and exemplify the beliefs, values and practices prevailing within the MIT academic community of which we are all presently a part.

This is not intended to be a "bitching session."

By hypothesis: human social systems (families, tribes, communities, churches, temples, academic, vocational or professional associations, schools and universities, cliques, claques, clubs, teams, leagues, gangs, cohorts, fraternities, sororities, local, regional or global membership organizations, corporations, nationstates, and all sorts of other groups) universally exhibit a particular self-maintaining and recurrently self-reinforcing homeostasis – a dynamic equilibrium blended of cognitive, affective and behavioral (receptive/reactive) aspects that can be understood as comprising a "paradigm" (prototypical pattern of beliefs, values and practices).

Do our respective and collective experiences as members of the MIT community enable us to arrive at consensual agreement regarding the beliefs, values and practices that are most central to this community and its subsystems?

NOTE: This is a kind of "experiment." It poses as an empirical question whether or not it is possible for you – this particular subset of MIT undergraduates, belonging to 9.68/07 – to arrive in a scientifically credible, ethically appropriate and pedagogically sound way at a consensually valid working definition of "the MIT paradigm"?

Can you meaningfully identify and effectively "unpack" at least a few of the key worldviews, value systems and lifestyles with which MIT is most readily associated and widely known? What do you know about locally prevailing institutional norms? What beliefs, values and practices tend to predominate? Is that which is "professed" consistently practiced in actuality?

Are there any worthwhile beliefs, values and practices that tend to be subordinated in the process of "getting an MIT education."?

By hypothesis, the "MIT value system" and "MIT worldview" are associated with a variety of lifestyles (home lives, work lives). Which lifestyles do you most positively (or negatively) associate with the Institute's motto: "Mens et Manus"?

In class, we will make some time available for in-depth discussion of these and other aspects of the concept of "quality" as it relates to the presumably meaningful/powerful phrase: "an MIT education".

Is it possible for human individuals and groups to arrive however provisionally, at broad and fundamental agreement on a range of basic propositions relating to the world and its contents, including ourselves (e.g. to human/ecological relations).?

NOTES ABOUT ASSIGNMENTS:

writing assignment #6

"Home is where one starts from." MIT is a topic regarding which all of you can unquestionably lay claim to equipotentially credible first-hand "expert" opinions! Thus, in your remarks, begin, if you must, with the usual clichés. But also try to go beyond them as much as possible. Be as precise and specifically detailed as you can about your

own first-hand experience. For example, you might choose to identify and describe some aspect(s) of student life and learning during the freshman year; or focus on an activity or activities that you participated in and/or observed and which you regard as having been of spectacularly "high" or abysmally "low" educational quality. Consider (if you wish) your "homelife" experience with peers in living groups; your "real life" (family, friends, sports, recreation, hobbies or other extracurricular activities), as well as your MIT "worklife." How mentally and behaviorally well prepared were you for your encounter with the first year science core curriculum? With this assignment, we're consciously touching upon a subject of broad current concern in the MIT community (the GIRs) and inviting you to take it as a basis from which to begin making a serious effort to describe and to evaluate – in a scientifically informed and consensually credible way, insofar as you can in this context – what it means to speak of "quality" in relation to the MIT educational experience. Bring this reaction paper with you to class. Be prepared to use it as a basis for your participation in the discussion.

Class Meeting 7

March 17

Theme: *Problématique du changement I:*
Sustainable Paradigms Lost and Regained
What are "Crises?" What is a "Scientific Revolution?"
Changing Beliefs, Values & Practices in Science and Society

PREPARATION:

READ: 7-1 Kuhn, T.S., (1962) *The Structure of Scientific Revolutions*,
University of Chicago Press, Chicago. (excerpts)

READ: 7-2 C.P. Snow (1956) *The Two Cultures*

VIEW: 7-3 (Film #2) *Mindwalk Mindwalk* – (1991) (111)

WRITE: Reaction Paper #7 Summary and Evaluation of Main Points in Kuhn
and Snow Readings

NOTES ABOUT ASSIGNMENTS:

7-1 Kuhn, *The Structure of Scientific Revolutions*

Is the term "paradigm" clearly comprehensible to you?

It was our former MIT colleague, the late Thomas S. Kuhn, who is generally credited with first using the word "paradigm" (from an Ancient Greek word meaning both pattern and exemplar) to denote a core set of beliefs, values and practices prevailing within scientific communities at particular points in their organization and development.

Kuhn saw the scientific enterprise, as most of us still do, as a quintessentially human inquiry process transgenerationally evolving through successive cycles. In a typical case

(of which he explored several) experiments/observations/interpretations predicated on the particular set of core beliefs, begin to generate findings that simply do not fit within the prevailing conceptual and material framework (paradigm).

Insofar as the perception grows within the community in question that the prevailing paradigm is incapable of accounting for or explaining away the disparity, disagreements widen and a controversy grows that eventually leads to a "crisis". The need to resolve the disparities and to "normalize" the anomalies come to be taken more and more seriously and more and more participants begin casting about for a conceptually and materially more satisfactory alternative to the prevailing framework.

The prototypical case of a "paradigm shift" – as discussed by Kuhn – is the case of Copernican astronomy.

What, precisely, was it that made heliocentric cosmology so profoundly "controversial?" How do you account for the fact that the ecclesiastical authorities of Galileo's time felt moved to bring the power of the church to bear upon the old man who had brought new meaning into astronomy? What did the church find so threatening about Galileo's Copernican convictions that he was brought to his knees and forced to publicly recant them? Is this touchy interplay of "meaning" and "power" applicable to any other specific instances that you know of?

A Paradigm shift is not uncommonly a bitterly contested process. For our present purposes, however, an important point to consider is whether, and in which respects, scientific paradigms (which are themselves human social products) exhibit cognitive, affective and expressive modes of organization and development having their counterparts in the organization and development of other human systems at neurobiological, psychological and sociocultural levels.

By now it should no longer surprise you to learn that the answer to be arrived at generally is affirmative.

Do we know of any cases in which a significant conceptual and material change occurred in some other complex human system at biological, psychological and/or sociocultural levels of organization? In a recent book based on interviews with and writings by 29 astronauts and cosmonauts, Frank White shows how experiences such as circling the Earth every 90 minutes and viewing it from the moon have profoundly affected the space travelers' perceptions of themselves, their world, and the future. He also shows how the rest of us, who have been able to participate vicariously and imaginatively in these great adventures, have also been affected psychologically by what has been called "the overview effect." White argues forcefully and at length (if ultimately unconvincingly) for further space exploration, but for us in the present context, the important point is that by conceptually distancing ourselves from – and especially by rising above – our accustomed surroundings, it becomes possible to bring a new perspective to bear on what Albert Einstein once called "the problems of our social life."

7-2 C.P. Snow on "the two cultures"

Almost two decades before Pirsig's book appeared (1974) the British scientist and academic administrator, C. P. Snow famously introduced an obvious precursor and counterpart to Pirsig's "classical" and "romantic" perspectives.

The notion that the paradigm prevailing in our own society, in its education system and its intellectual life, is seriously flawed is demonstrated, according to Snow, by the associated splitting and fragmentation of experience, sensibilities, paradigms and cultures. Plainly Pirsig's opposed "classical" and "romantic" perspectives thus owe a debt to Snow's view of the split between the arts or humanities on one hand, and the sciences on the other. And the public debate is still raging in the media (and to some extent in the academy) today.

For those of you who wish to pursue the matter further, please be advised that there is a recent reissue of Snow's "The Two Cultures" and a successor piece, "A Second Look" (in which Snow responded to the controversy four years later). The introduction by Stefan Collini, does a good job of charting the history and context of the debate, its implications and its afterlife. The importance of science and technology in policy run largely by non-scientists, the future for education and research, and the problem of fragmentation threatening hopes for a common culture are just some of the subjects discussed. 'Probably the most important statement on the role of science in society yet available.' – Discovery; 'One cannot fail to take Snow seriously or to recognize his commitment to the cause of peace, intelligent action and human betterment.' Scientific American; 'Obvious authority and moral intelligence.' The New Yorker 'Effective because of its obvious generosity of mind and basic sanity.' The Sunday Times.

7.3 Mindwalk– (1991) (111) a film directed by Bernt Amadeus Capra, based on his own short story, based in-turn on the book The Turning Point by his brother Fritjof Capra, the author of the book The Tao of Physics. The majority of the movie is a conversation between three characters: scientist Sonia Hoffman (Liv Ullmann, politician Jack Edwards (Sam Waterston), and poet Thomas Harriman (John Heard) as they wander around Mont Saint Michel, France. The movie is, in effect, an introduction to systems theory and systems thinking, in which the implications of findings in post-Newtonian physics (e.g. quantum mechanics and particle physics) are also articulated. All of this is also extended and applied to the task of defining and dealing with personal, political and social problems. The notion that a systems approach offers potential alternative solutions for human and ecological problems, is another major focus of the film. But specific present-day problems and the need to seek sustainable solutions for them are not the main focus. Rather, the main point is that there is no one singularly and universally true and correct way to define and deal with human/ecological issues of broad scope and urgent moment. A multiplicity of uniquely different

perspectives – each one altogether partial in its particular way -- is needed to view the human condition at all comprehensively. Sonia Hoffman is definitely the main protagonist here and her perspective is basically a holistic, or systems-theory, perspective – a post-modern scientific perspective – partial, complementaristic, relativistic and uncertain.. Thomas Harriman, the poet, -- endeavoring to mediate between scientific and political perspectives, recites the poem "Enigmas" by Pablo Neruda (based on the translation by Robert Bly) at the end of the movie, thus concluding the core of the discussion.

Spring Break

March 24

You might use the time to catch up with work on which you may have fallen behind, and/or get started on the readings for next class.

Class Meeting 8

March 31

Theme: The Neuropsychology of Affect;
 The Emotional Brain and Mental Life

PREPARATION:

READ: 8-1 Damasio, A. (2004) Looking for Spinoza: Joy, Sorrow, and the Feeling Brain, (excerpts: Chapter 1: "Enter Feelings", pp. 1-8; Chapter 2: Of Appetites and Emotions, pp. 25-80; Chapter 3: Feelings, pp 81-133), Harcourt.

READ:8-2 Oatley, K., & Jenkins, J.J. Understanding Emotions, Chapter 5, Brain Mechanisms of Emotion pp. 133-159.

VIEW: 8-3 Powers of Ten (videotape – viewing time 8 mins.)

WRITE: Reaction Paper #8 Three Key Ideas about the Neuropsychology of Affect

CLASS NOTES:

Organisms as congeries of systems within systems; of atoms within molecules within macromolecules within organelles within cells within tissues within organs, within organ systems, (pulmonary, cardiovascular, digestive, musculoskeletal, reproductive, nervous, central and peripheral – incl. autonomic – divisions) brains and spinal cords, triune mode of organization and development, within organisms, within sociocultural contexts (families, groups, collectivities) within surrounding geopolitical jurisdictions and local, regional and global environments. We introduce some evolutionary, experiential, neuropsychological, psychodynamic, literary, poetic, dramaturgical and sociological aspects of affect in human systems; discuss the distinction between feelings and emotions as it relates to the neuropsychology of affect; and look more closely at some earlier

contributions to our understanding – beginning with what Egyptian high-priests told the first Greek historian, Herodotus, about practices dating back more than 12 centuries before their own time; we go on to identify some significant neuropsychological developments associated with the names (among others) of: Alcmaeon and Hippocrates, of Socrates, Plato, Aristotle and Galen, of Rene Descartes and Blaise Pascal, of Franz Josef Gall, (and Spurzheim), of John Harlow (Phineas Gage), Herbert Spencer, Charles Darwin, William James, Claude Bernard, Walter B. Cannon, Sigmund Freud, John F. Fulton (and C.B. Jacobsen), James W. Papez, Paul MacLean, Heinrich Klüver, Karl Lashley, Theodore C. Schneirla, Daniel S. Lehman, Donald O. Hebb, Karl Pribram, Hans-Lukas Teuber, James Olds and Peter Milner, Mortimer Mishkin, H. Eger Rosvold, Larry Weiskrantz, Allan F. Mirsky, Arthur Kling, William H. Sweet, Vernon H. Mark and Frank R. Ervin (Leonard Arthur Kille – aka "Thomas R." and "Harry Benson") – to be continued next week ...

Class Meeting 9

April 7

Theme: Psychosurgery: The Science of Violence and Vice Versa

PREPARATION:

READ: 9-1 Chorover, S.L. "The Pacification of the Brain: From Phrenology to Psychosurgery", in Morley, T.P. (ed.) (1976) *Current Controversies in Neurosurgery*, W.B. Saunders Co., New York.

READ:9-2 Mark, V.H. and F.R. Ervin, (1970) *Violence and the Brain*, Harper & Row, New York. (excerpts)

READ:9-3 Chorover, S.L. "Physician vs. Researcher: Values in Conflict?", *Wellesley*, 4, 1979, pp. 21-27.

READ: 9-4 Chorover, S.L. "Violence: A Localizable Problem?", in Valenstein, E. (ed.) *The Psychosurgery Debate: Scientific, Ethical and Legal Perspectives*

WRITE: Reaction Paper #9 Psychosurgery: The Key Issues in the Controversy as I See Them

NOTE:

Looking ahead through the syllabus at topics still to come, you should already be thinking about the topic of your term paper. Proposals no longer than two pages in length may be submitted for approval at any time between now and the proposal deadline (April 22).

NOTE ON ASSIGNMENTS:

Here, we're asking you to go through a lot of material. Everyone should read the first two articles. Groups feeling overwhelmed by the volume of the assigned readings should feel free to jigsaw the other two articles (9-3 and 9-4) among themselves.

CLASS NOTES:

We focus on a neurobiologically psychologically and socioculturally complex medical and legal case study in which you will learn something about the true and tragic tale of Leonard Arthur Kille (1933-1996) – the man dubbed "Thomas R." by Drs. Vernon Mark and Frank R. Ervin in their 1970 book "Violence and the Brain."

Drs. Mark and Ervin describe "Thomas R. ... as a brilliant 34-year old engineer with several important patents to his credit." According to them, his principal presenting complaint was "episodic dyscontrol" characterized by uncontrollable outbursts of unprovoked rage often accompanied by violently abusive verbal and physical assaultiveness – most of it aimed at his wife. At MGH, after chronically indwelling electrodes were stereotaxically implanted bilaterally in a particular portion of his brain's limbic system (the amygdala), Mr. Kille was intermittently and repeatedly subjected to many weeks of observations (including electroencephalographic recording of his "brain waves" or EEG) and occasionally, the implanted electrodes were used to "stimulate" his amygdalae, thereby provoking a wide range of affectively-charged reactions. In due course, he was given a neuropsychological diagnosis.

More to the point, those in charge of his case identified him as a man afflicted by a previously unknown neuropsychological disorder of their own discovery or invention (namely "episodic dyscontrol syndrome due to limbic brain disease"). And on that basis they proceeded to employ "psychosurgery" to "treat his unfortunate illness." Using methods of procedure that had long been employed in other contexts to selectively destroy brain tissue at the tips of implanted electrodes, Mark and Ervin subjected Mr. Kille to what is technically known as bilateral stereotaxic amygdalotomy. For a calibrated period of time on several successive occasions, brain tissue in the vicinity of the electrode tips in Mr. Kille's brain was "cooked" by passing into it, through the uninsulated tips of the previously implanted and chronically indwelling arrays of electrodes, some very high frequency currents with a relatively high coefficient of heating. He was a real engineer. His real name was Leonard Arthur Kille and he really did have some patents to his credit in connection with his work on the design and manufacture of the Polaroid Land Camera, among other things.

We'll tell his story at some length – from the time he came into the world in the usual way in Cambridge, MA (1933), until he died – a longtime chronically hospitalized and incurable mental patient at the VA hospital in Bedford MA.

What is bilateral stereotaxic amygdalotomy? What is "episodic dyscontrol syndrome"? How did the former come to be proposed and actually used as a "treatment" for the latter?

What we know about Mr. Kille and what happened to him, comes largely from some family sources, and even more so from some of the materials that began coming to light after 1973, when his mother – acting as his legal guardian – brought on his behalf a complex medical malpractice suit against the doctors. Kille's case is socially, scientifically, technically, clinically, and legally complex one – and valuable in illustrating some of the scientific/ethical issues involved in the use of brain stimulation and/or destruction as a means of controlling putatively deviant or pathological human thoughts, feelings and actions. (The multi-count legal case came to trial in a Boston courtroom in 1978 and lasted for several weeks. It ended with the jury rendering a verdict in favor of the defendants on all counts.)

Note: the novelist Michael Crichton – who had been a medical intern or resident at MGH when Mr. Kille was a patient there – based "Harry Benson", the title character in his 1971 bestseller "The Terminal Man", on Mr. Kille. A somewhat self-serving "official" website of the author offers the following summary of the book:
<http://www.crichton-official.com/terminal/index.html>

NOTES ABOUT ASSIGNMENTS:

reading assignments

On the one hand, psychosurgery has been proposed as a "perfectly rational" form of "therapeutic intervention." Indeed, during the 1960s and 70s many articles and books appeared promoting this view (notably, reading assignment 9-1).

On the other hand, psychosurgery has been described by critics as a socially unwarranted form of brain manipulation or "mind control;" expedient neuropsychological species of crude mechanistic reductionistic biological determinism (a pseudoscience). Here we will concentrate on an examination of the scientific defensibility of a particular dissenting view (reading assignments 9-2, 9-3, and 9-4).

writing assignment # 10

By this point in the term, it probably goes without saying – but since the bulk of this reading assignment consists of stuff written by the instructor, it possibly deserves re-emphasis – that you are expected to express your own considered opinion and not to tell us what you think we want to hear. If you agree/disagree with what you are reading, please feel free to say so, provided only that you back up your opinion with evidence and argument as needed.

Class Meeting 10

April 14

Theme: Ethics of/in Science

PREPARATION:

READ: 10-1 Frayn, Michael, Copenhagen (a play): text and Postscript

VIEW: 10-2 (Film #3) Copenhagen, BBC television adaptation of Michael Frayn's play, adapted and directed by Howard Davies. (viewing time 117 mins.)

WRITE: Reaction Paper #10 Ethics of Science in the Modern National Corporate State: Some Key Values in Conflict in Copenhagen, as I See Them

Patriots Day Vacation

April 22 (No Class)

Deadline for submission of term paper proposals via email

WRITE: Reaction Paper #11 Term Paper Proposals (not to exceed 2 pages)

Proposals will be reviewed and returned to you with comments ASAP, but no later than 6pm Sunday April 27

Class Meeting 11

Apr. 28

Theme: "Sustainability" as a Worldview, Valuesystem, and Lifestyle
What Does It Have to Do with Affect?**PREPARATION:**

READ: 11-1 Orr, David W., (1992) Ecological Literacy: Education and the Transition to a Postmodern World, SUNY Press, Albany. (excerpt: Chapter 1: The Problem of Sustainability)

READ: 11-2 Sections 1 & 2 from the hardcopy (WORKBOOK) portion of an "electronic book" project intended to promote "sustainability" in a time of human/ecological crisis. (HomeWork: An Environmental Literacy Primer ©1995 Stephan L. Chorover/MIT), pp. 36-39.

READ: 11-3 Bateson, Gregory, (1980) Mind and Nature: A Necessary Unity, Bantam, New York. (excerpts)

READ: 11-4 Worldwatch Institute: "State of the World 2005" (excerpts) The Foreword (Mikhail Gorbachev); Preface (Christopher Flavin); Year In Review (Lori Brown), Chapter 1: Security Redefined (Michael Renner); and Chapter 5: Managing water conflict and cooperation. (Aaron T. Wolf, Annika Kramer, Alexander Carius and Goeffrey D. Dabelko)

WRITE: Reaction Paper #12 Sustainability and Environmental Crisis as Emotional Issues
 CLASS NOTES:

Early on in ZAMM, Pirsig has his narrator meditate on "a kind of force that gives rise to technology, something undefined but inhuman, mechanical, lifeless, a blind monster, a death force, something hideous ... " One implication is that technology has had deleterious effect on our quality of life. Another way of putting it is that technology has played a role in making material conditions of our lives unsustainable.

What is "sustainability?"

We consider the concept of "humanecological sustainability".

What would such a thing "look like" if we had it?

How are the answers that we give conditioned and constrained by our "images of humanity and nature"?

When the sustainability (resource management) rationale is presented, it appears perfectly logical and rational. And yet it continues to appear controversial and problematical. Why?

This is our 9.68- related problem to consider.

What is quality of life? How do we determine it? (Orr: 9-10)

Quality of life can be perceived in resource context (economy, technology) and social-psychological context. Can you imagine quality of life without the existence of social and natural environment? Quality between individuals and community – systemic ethics (Orr:17-18); bioregional perspective (Chorover: 6)

We'll have a pertinent exercise and discussion in class.

Class Meeting 12

May 5

Theme: *Problématique du changement II:*
 Is a Paradigm Shift Happening?

PREPARATION:

READ; 12-1 Melucci & Chorover (1997) "Knowledge and Wonder: Beyond the Crisis of Modern Science?" in Flower, R.G., Gordon, T.F., Kolenda, N., and Souder, L. (eds.) *Overcoming the Language Barrier: Problems of Interdisciplinary Dialogue*, The Center for Frontier Sciences at Temple University, pp.76-90)

READ: 12. 2 Chorover, (1990) "Paradigms Lost and Regained: Changing Beliefs, Values and Practices in Neuropsychology", in Greenberg, G. and Tobach, E. (eds.) *Theories of the Evolution of Knowing*. Lawrence Erlbaum, Hillsdale, NJ., pp. 87-106

READ: 12-3 Chorover, S.L. (1995) "Comparing and Contrasting Scientific Paradigms.", table from the hardcopy (WORKBOOK) portion of an "electronic book" project intended to promote "sustainability" in a time of human/ecological crisis. (HomeWork: An Environmental Literacy Primer, pp. 36-39.

WRITE: Reaction Paper #13 Main Argument(s) in Melucci/Chorover Article
Make comments on the main argument(s) – criticizing or supporting them, not summarizing!

WRITE: Reaction Paper #14 Interim Self-evaluation: The Quality of my Learning Experience in 9.68 thus far

CLASS NOTES:

Learning means changing – perceiving and responding differently.

Memory: Integrating, retaining and applying the lessons of experience.

Relations involving both Stability and Change.

What is the aim? To maintain preserve and protect prevailing conditions?

To promote change?

Evaluating behavior. What is good? What is not good? Who is to say?

Moral reasoning and ethical decision-making in a domain of complexity and uncertainty.

Class Meeting 13

May 12

Term Project/Paper Presentations

Closure Discussion

Last Class. PREPARATION:

WRITE: Paper #15 Term Paper