Exploring undergraduates’ beliefs about instruction:

a qualitative investigation.

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Introduction

Two students walk into...a library. They have just come from a 300 member biology class, where the mysteries of the ATP cycle and the mitochondrial matrix were presented in living color on a cinematic projection system, complete with attention-grabbing slide transitions and attempts at humor from the well-meaning professor. But is the material from this class they exited ten minutes prior still fresh in their minds? Heavens no! All they care to talk about is how quickly the professor scrolled through her PowerPoint and how fast they subsequently had to write to take down notes for the test! The only student commentary during the entirety of the previous lecture had been that staple of undergraduate discourse, "will this be on the test?" When the instructor had answered tersely that no, this would "not be covered in detail," the inquisitive student went back to a game of Texas hold 'em booted up on his laptop, which was running in the backdrop alongside a text file of the lecture notes. The two students in the library discuss how boring the class is, how they wish they didn't have to take it, and then exchange strategies for 'acing' the test so they can get the class "over with" - but in the course of this conversation they never once talk about the subject matter actually being studied (figuratively speaking) in the biology class.

The former scenario, although in this case fictitious, would not be at all atypical of the major problem facing higher education in the United States: the pervasive shallow attitude towards and even complete disengagement from academics often perceived to be representative of undergraduates. Unfortunately for undergraduates, higher education at the undergraduate level continues to proceed in the same tired, teacher-centric, lecture-oriented fashion it always has, despite the fact that every major cultural study of the last
40 years has shown that undergraduates perceive academics to be tangential to the college experience (Nathan, 2005). A verbal spectrum ranging from "half-hearted" to "completely apathetic" is often employed to describe undergraduates, whom are perceived to be significantly deficient in motivational resources (Hersh & Merrow, 2005). From the researchers’ perspective, this perceived lack of motivation is evidence of a greater structural problem in higher education, not an inherent deficiency in students. Educators who criticize their students, yet fail to reflect on or modify their practice or the structures in which they practice, fall victim to a tunnel vision that perpetuates the cycle of ineffective education. The present study joins the chorus of voices calling for structural change to undergraduate education, and, by studying student perceptions of learning environments, seeks to discover ways that this change might proceed.

In recent years, dissatisfaction with the present paradigm of education has emerged as a coherent criticism of the traditional model of education and the proposal of alternative visions. Educational perspectives that fall under the umbrella-descriptor *learner-centered* place students and their individual needs at the center of educational systems and look for ways that academic structures can facilitate individual and collective development. Learner-centered education recognizes the vast differences and potentialities that all students bring with them to their learning environments, and attempts to build education systems around students and their strengths. Learner-centered reform efforts seek to move higher education away from the "instructional" paradigm where learning is viewed as something to be transferred from educator to student to one that frames the educative process as a collaboration between students, educators, and the larger university (e.g. Barr & Tagg, 1995).
Overview of the study design

This study is a thematic content analysis of student perceptions, as recorded in 68 open-ended essays. The data used for the study was part of a routine classroom activity in which undergraduates engaged in self-reflection. In a larger capacity, the study is part of an ongoing research program by the researchers into the nature of undergraduate education, and a step towards later research activities.

Authenticating students’ voices

Embedded in the very semantics of the phrase "learner-centered" is the supposition that individual student backgrounds, preferences, and interests play a key role in the creation of effective learning environments. But empirical studies of student perceptions, even if ideologically inseparable from the learner-centered paradigm, remain far too scarce in the educational literature (Cook-Sather, 2002). From the researchers’ perspective, it is important that the grand theoretical systems and policy pronouncements put forth by educational researchers take into account the first-person perspectives of the very students in the classrooms they seek to understand. This study authenticates students’ voices and embraces a vision of educational systems where students are acknowledged to be the authors of their own learning and are encouraged to co-construct the environments in which their learning occurs.
Method

Initial research questions

The central question the study asks is:

What elements of their educational experiences do students regard as beneficial or deleterious to their social and academic development, and why?

Related to the central research question are several ancillary questions, which, in their answering, will facilitate the answering of the central research question.

1. What do participants understand the meaning of education to be?
2. What role do the participants see themselves playing in their own education, in the past, present, and future?
3. What motivates students in the classroom?
4. What insights have students had into their own learning process, specifically, do they know "how they learn best?"
5. What kinds of educational structures do students prefer, and why?
6. How do students understand the nature of learning and knowledge?

It is important to note that these were initial questions that guided the research process. However, due to the interactive nature of qualitative research, other questions or modifications to the initial questions arose as the study progressed. The process for the revision of the research questions is described in the section "analytic procedures."

The most basic and relevant factor influencing the formulation and eventual answering of the research questions is the researchers’ applied goal of finding ways to make classrooms more learner-centered, and consequently more nurturing of students’
self-actualizing propensities. However, the methodology also provides insight into more
general processes by linking educational theory to an actual, functioning classroom.

**Terminology**

For the purposes of the present study, the following frequently occurring terms in
this manuscript are defined as:

*Thematic content analysis:* The systematic identification and explication of
implicit and explicit themes in the data relating to subjects' psychological
experience.

*Code:* A topical marker used to identify passages of text that are similar in
meaning.

*Theme:* A descriptive and/or explanatory device derived from codes

*Case:* Refers to one subject's data. There are 68 cases in the present study.

**Participants**

Participants were all the undergraduates who chose to complete a first-week
activity during the Fall 2006 section of Social Psychology at Virginia Commonwealth
University. Participants wrote a short essay in which they described their past educational
experiences, their beliefs about effective undergraduate pedagogy, and their current
expectations for the course.

**Confidentiality**

Participants were informed that the project might eventually be used for archival
research on the principal investigator's educational practices. Participants were informed
that they would have an opportunity to earn class participation points in an alternate way
later in the semester if they elected not to engage in the activity. Participants were further
informed that additional consent would be obtained should any later analysis involve linking student's personal information to their essays. The anonymous archival data from these classes forms the sample for this investigation. No piece of data is in any way linked to the student who provided it, and there are no indicators in the data itself that could be used to link students back to the data.

**Analytical Procedure**

The analytic procedure of the present study was devised to allow an individual or small team of individuals to systematically and rigorously analyze textual data. It was formulated after piloting a small data set (N=13) of student essays similar to the ones used in the present study, but taken from a different sample of undergraduates. The construction of this ten-step method was also informed by a graduate course the first author took in qualitative methods, and an extensive review of existing qualitative methodology, including grounded theory, template analysis, interpretive phenomenological analysis, and Miles and Huberman’s procedures.

1.) **Initial research questions:** the researcher developed formal research questions that guided, not dictated, the researchers’ thinking throughout the analysis. A major difference from deductive methods is that the research questions were not formally tested. Research questions were only answered if the data was rich enough to do so, otherwise they were refined or discarded. Another distinction is that significant new questions or lines of inquiry arising throughout the investigation were incorporated into the emergent research questions. What was sought was a result that would allow the researchers to answer robust, data-supported research questions that have been "worked
through the mill," while concurrently explaining the variation in the data in an synthetic fashion, as a result of many cycles of induction.

2.) **Exposure**: The research data was read at least one time, non analytically, to give the researcher an overview of the contents. Like the subsequent memoing step, exposure was done so that when coding, the researchers would be aware of the data as a whole, and not code "interesting" areas as more important than they actually were. Exposure was therefore one of the many checks on the researcher in the analytic process.

3.) **Memoing.** Memoing was the step where the researchers’ subjectivity is allowed to fully come to bear on the data. Memoing consisted of two phases: *line-by-line memoing*, where the researchers analyzed each line and paragraph of the data and summarized its contents in the margin, in relation to the research questions and constructs under study, and *theoretical memoing*, where the researchers drew connections between cases, posed questions and thoughts to self, and constructed tentative explanations for what might have been happening in the data.

4.) **Hypothesis statement.** After the memoing stage, the researchers had fully reflected on the data and were ready to make predictions about what a more objective analysis of the data would reveal. Predictions about the structure of the data were formally stated. This was a vitally important step because it allows the researcher to then "bracket" his or her intuitions about the data before proceeding. The memoing step allowed for intuition and connection drawing, utilizing human creativity and intelligence. Latter steps would do so as well, but in a different fashion. Memos continued to inform the analytic process, but from this point on, the data was formally coded, *and every*
inference drawn was be explicitly backed up with an actual segment or segments of text directly from the data.

5.) **Categorical coding.** Using the memos, hypotheses, and first-hand knowledge of the data, a tentative categorization scheme was devised and then used to group all of the data by content. For example, all of the passages where students talk about the lecture method of instruction were coded with the category "lecture". All categories were conceptually defined. *All* of the data was coded categorically (though not thematically). Not all of the data was relevant to the research questions or the final analysis, but the only way to have known this was to have a complete catalogue of all the data. Categorization prevented the researchers from relying exclusively on intuition for the creation of the codes and forced them into the data

6.) **Thematic coding.** The heart of the analysis was step 6, thematic coding, in which the data was passed through line-by-line and coded thematically. Codes were derived from categories (top-down), but it would have been possible to do it the other way around (bottom-up). Although the basic unit of coding was the individual student essay, the goal of the project was the discovery of relevant thematic content present in the aggregate essays. Therefore, each essay was examined at the individual and aggregate level. In thematic coding, it was important that the codes had both between and within subject validity. Thematic codes are not conceptually defined; rather, the explication of the theme in the final analysis becomes the conceptual definition, in a sense.

When coding thematically, both explicit and implicit perceptions were explored. An explicit idea was one that could be found in the surface level of the text. For example, the phrase “I have always been a hands-on kind of learner...sitting in a classroom and
listening to someone lecture day after day is boring” is very easy to analyze. “Hands-on learning” could be recorded as a theme for positive educational experience and “boring lecture” could be recorded as a theme for negative educational experience. If the student provides any arguments or examples (e.g. in this case, “boring”) to support their arguments, this can be noted as part of the theme or as part of another theme. Implicit ideas will require hermeneutical excavation from the data, and are more challenging to analyze. An example of this kind of idea is “I don’t get much out of college; I’m just along for the ride.” The theme of ‘along for the ride’ may be evidence of an underlying construct, such as apathy.

In deciding how to code a passage such as this, attention was paid to contextual clues surrounding the code. If there was not enough evidence in the totality of the case to support the coding of an implicit construct, it was either left uncoded or coded broadly enough so that it could be further refined in later steps. For example, if the participant mentions had mentioned elsewhere that they were having difficulty keeping up with classwork, interpreting ‘along for the ride’ as ‘apathy’ may not have been valid.

7.) **Condensation.** Once all of the data had been coded, the codes were refined to greater levels of specificity and explanatory power. This was accomplished by a review of the entire coding scheme and the coded data both within a category (and all of its 'daughter' codes) and across categories. Many codes were merged, transplanted, or deleted.

8.) **Idiographic display.** Visually of the data was done throughout the analysis and was highly beneficial to the analytic process. Idiographic display is listed as a separate step because, in addition to the displaying going on throughout the coding steps,
and before the researcher was ready to accept the final thematic template, the entirety of
the data was displayed a final time. The display featured an idiographic component,
whereby the codes in each individual case were examined in relation to the greater coding
scheme. Another use of the idiographic display was the comparison of certain subsets of
the data to the whole set. An example would be a comparison of the structure of the all of
the cases where subjects relay that they are planning on becoming teachers to those cases
where another career path is mentioned.

9.) **Compilation.** At this point, coding was finished. The remaining task,
compilation, was a 'taking stock' of the entire process- memos, hypotheses, displays,
codes, categories, and research questions- resulting in the formal statement of the final
research questions: the questions that, given the entirety of the process and the weight of
the evidence, the researchers were prepared to answer. The themes went through their
final solidification in this step, and the themes (or aspects of the themes) were grouped
with each of the final research questions (e.g., in the answering of final research question
"x", themes "a, b, and c" were be used.)

10.) **Final analysis.** Final analysis is the formal explication of the themes and the
presentation of final displays that describe the interactions within and between them.

**Other tools**

In addition to word processing software, four software programs were used to
assist the researchers in analyzing the qualitative data.

1.) **HyperResearch:** a CAQDAS (Computer-aided-qualitative-data-analysis-
software) workbench that was used to code all of the data past the memoing stage. When
the software began to prove cumbersome, particularly in its lack of ability to code in a
hierarchical fashion, the data was re-coded into QDA Miner. HyperResearch was used primarily for code-and-retrieval functionality.

2.) *QDA Miner*: a mixed-methods CAQDAS that proved to be exceptionally useful in the later stages of analysis. In addition to sophisticated coding and retrieval capabilities, QDA miner was used continuously during the re-coding process to display codes visually, calculate word and code frequencies, and to examine cooccurrence and covariation of codes within and between cases, bringing a level of structure to the analysis that would have been excruciatingly time- if done manually. QDA miner also produced a number of the tables and charts used in the present manuscript.

3.) *ConceptQ Pro*: an artificial intelligence program used early in the program to cluster all of the data into linguistic patterns. Although the program allowed the researcher to see how the data looked at a syntactic level, the clustering process was vastly inferior to human intelligence and no real insight was gained by the use of the program.

4.) *Wordstat*, the sister program of QDA Miner, Wordstat is a textual analysis program that was used infrequently. A particularly useful feature of the program is the capability to instantaneously display a database of every word in the data, in context, and cross-tabulated with every other word. Some of the words displayed by Wordstat that assisted in the coding process were variations of "lecture", "professor", and "knowledge".

**Results**

Bracketed hypotheses from the memos

(See "analytic procedures" in the methods section for more information on how theses hypotheses were arrived at).
1.) Students are apprehensive about work distribution in groups.

2.) Interaction and discussion = comprehension.

3.) Professor positives: availability, clarity, intrinsic motivation.

4.) Poor lectures: no visual aid, straight from the book. Good lectures include opportunities for interaction, are properly paced, use real life examples and visuals.

5.) Visual learners abound.

6.) A constant desire of students is the application of academic knowledge within and beyond the course.

7.) Students perceive tests and assessment to be coercive.

8.) There is a lot of variance in how students see the teacher as a motivator.

Final research questions

(See analytic "procedures" in the methods section for information on how these questions were arrived at).

1.) What meanings do students attach to their coursework?

2.) How important is interaction/active learning to the educative process?

3.) How is attention allocated and sustained in the classroom?

4.) How do students perceive assessment?

5.) How does the personality of the teacher affect learning?

6.) How are lectures perceived?
Question 1: What meanings do students attach to their coursework?

Theme: a major concern of students is the ability to "apply" course material to various dimensions of their life.

Codes used in this theme:

- applying to career/future education
- applying- generic
- applying to personal/interpersonal development
- desire to learn motivated by subject interest

NOTE: Y coordinate for all graphs is “the number of cases in which this code appeared”

Code frequencies
Total: # of cases in which one of the 3 "applying" codes appears | 57

Description:

Students repeatedly expressed hope that they would be able to use the material they were learning in the classroom “down the road.” Students sought to draw connections between classroom learning and the “real world.” Students hoped that the course would help them understand others, and in a few instances, themselves, better. The desire to learn something that would be useful in a career was the most dominant desire in this theme.

Moreover, although they are separate ideas, subject interest was not in conflict with the desire to apply. Fourteen subjects mentioned that they were taking the course both because they were interested in the material and because they hoped to apply their classroom learning to their career/future education. The data suggest that the students
desired to have learning experiences that they perceived as relevant, interesting, and applicable both to the present and the future. Because of the nature of the domain being studied (social psychology), specifically its perceived practical value, this particular sample may not have been representative of student perceptions of applicability in general; perceptions of applicability may vary from domain to domain. Still, the desire to apply is manifest in this sample even when the upcoming social psychology course is not mentioned, suggestive of a more widespread approach to knowledge acquisition.

**Representative data:**

P9: *As far as my expectations in this course go I do expect to get a better understanding of social psychology. At the end of the course, I should be able to put all the knowledge I acquired in the class to practice.*

P39: *All I'm expecting to get from this class is knowledge. I hope to get information from this class that I can use in everyday life.*

P43: *Psychology I believe can help in a multitude of ways across all careers. For in all aspects of life people interact, think, and have relationships with one another.*

P49: *As an aspiring teacher I feel like the things I learn here will greatly benefit me and my field and how I will approach situations.*

P51: *I hope this class will help me to understand people socially. I want to take that knowledge with me to my future career and use it to help communicate with people and make them comfortable in the dental office, a place many people fear.*
Question 2: How important is interaction/active learning to the learning process?

Theme 1: Interaction in the classroom is extremely important to students because it promotes engagement, facilitates deep learning, and nurtures positive affect.

Codes used in this theme:

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>active learning/interaction facilitates deep learning and nurtures positive affect and engagement</td>
<td>39</td>
</tr>
<tr>
<td>asking questions</td>
<td>14</td>
</tr>
</tbody>
</table>

Description:

As the single most frequent code in the data set, the importance of interaction and active learning to students cannot be overstated. The ability to interact with others (peers and the professor) in the classroom was regarded as universally positive. Students reported learning more efficaciously, more deeply, and retaining course material more effectively if there was ample opportunity for discussion, hands-on activities, and the sharing of multiple viewpoints. Interaction was perceived to nurture positive relationship building by allowing students to help each other and "fill in each others blanks."

Moreover, students reported that they value learning atmospheres in which they feel comfortable asking questions of peers and of teachers. A frequent concern students raised about lecture classes and large classes is their perceived correlation between these formats and a lack of interaction.

Representative data:
P11:  *I enjoy group projects and discussions because it allows the student to see that there is more than one way to interpret the material. Also, this allows students to help their peers.*

P17: *I would like to feel involved. But facing other student's heads really isn't involvement.*

P33: *Every time I take a psychology course I get excited. I want to learn as much as I can about the human mind. I want to learn as much as I can and want to interact as much as I can.*

P55: *Learning techniques that work for me are the classroom environments in which critical thinking and class participation is combined to give a more hands on experience to learning.*

P58: *More of a debate, or student involvement allows me to pay attention and really get involved, making it easier for me comprehend the information.*

**Theme 2: Small classes are preferred because they allow interaction; large classes are disliked because they stifle it.**

**Codes used in this theme:**

- small classes promote interaction and large classes stifle it
- preference for small class (unelaborated)
- preference for large lecture class
Description:

The vast majority of students discussing class size preferred small classes, specifically because small classes are more intimate and encourage interaction. An equally important idea was that large classes more often than not do not encourage interaction.

Representative data:

P10: *As this particular school continues to expand, the connection between the instructor and the student lessens greatly due to the increase in class size.*

P12: *The best learning I have found was often done in conversation with a teacher in a hallway, at a lunch, or after a seminar. Again, in an undergraduate environment this may be more difficult due to the sheer number of students a professor must interact with.*
P19: *My ideal learning environment would be in a small classroom where students could easily communicate with other students as well as the facilitator and use whatever best tools or resources available.*

P62: *When I was younger, before all of these lecture halls with 200 students, I always learned best if I had some sort of relationship or understanding with the teacher, now there's little or no way of getting that.*

Theme 3: *Group work facilitates deep learning and relationship building, but concerns abound about work distribution in groups.*

Codes utilized in this theme:

- *stuck with all the work*
- *positive experience with group work (unelaborated)*
- *Group work facilitates deep learning*

<table>
<thead>
<tr>
<th>Stuck with all the work</th>
<th>13 cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group work facilitates deep learning</td>
<td>11 cases</td>
</tr>
</tbody>
</table>

Description:

When students perceived that they have born more than their fair share of the work in past group experiences, the data suggest that it predisposes them to have an avoidant stance towards group work as a whole. In the data, this is contrasted with those students who have had positive experiences with group work: in particular, the ability to engage in cognitive elaboration and cooperative learning.
Representative data:

P11:  *I enjoy group projects and discussions because it allows the student to see that there is more than way to interpret the material. Also, this allows students to help their peers.*

P23:  *On the other hand, the words "find a partner"... have come to foreshadow a dreadful experience for me. I do not learn well when placed in a group, team, partnership, etc. I do work well with others but it seems that within any given class there are always some that don't share your appetite for learning and therefore they ruin that opportunity.*

P26:  *I have also experienced many group activities within my classes. They are helpful because you get to see different views and opinions of your peers but sometimes I have felt like I did all the work when others didn't do hardly anything which at times can be very frustrating!*

P16:  *I enjoy group work sometimes, though it is a game of roulette because depending on who you work with you may get stuck with all the work.*

P68:  *Also, when teachers allow the students to actively participate in small groups to share their ideas, I am able to retain more information better.*

**Question 3:**  How is attention regulated in the classroom?

Theme: *Most often, students perceive the teacher to be the regulator of their attention in the classroom.*
Codes used in this theme:

- teacher as source of sustained attention
- student as regulator of attention
- a teacher's responsibility is to teach, the student's to learn
- knowledge transferred from teacher to student
Description:

Students expected the teacher to regulate their attention and be the center of attention throughout class periods. In 10 instances, students described knowledge as if it were capable of being transferred from the teacher and deposited into the mind of the student. Seven students expressed the belief that it was the teacher's job to present the material and the student's job to learn it. Five students reported that they were fully self-regulated during class-time. The majority, however, believed it was incumbent upon the teacher to regulate their attention. And interestingly, one-fourth of the entire sample endorsed active learning but also held the belief that the teacher is the sustainer of attention in the classroom.

A significant sub-theme is the view of the teacher as entertainer, whose role it is to make the class exciting and amusing to hold student's attention. Related to this theme is the idea of the teacher as the source of "important" information.

Representative data:

P3:  Also I like a sense of humor in instructors; it really helps to keep us awake and entertained while we learn.

P6:  As mentioned above, I think it is important for the facilitator to grab the participant's attention, and to keep it!

P22:  I like it when an instructor goes over everything that is expected to be learned and tries to fit in as much information as possible without expecting students to pick up most of the class on their own.

P37:  Again, I need the instructor to be funny to keep the class interested
P47: Since this a 2 hr. 40 min class it is going to be hard to keep our attention. I think different activities are a good idea on keeping us focused.

Question 4: How do students perceive assessment?

Theme: Many students recognize the pitfall of the "cram and exam" approach to academics, but a dominant ethos of "learning to the test" persists.

Codes used in this theme:

<table>
<thead>
<tr>
<th>Name</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>learning to the test</td>
<td>25</td>
</tr>
<tr>
<td>learning vs. memorizing</td>
<td>21</td>
</tr>
<tr>
<td>quizzes as dynamic assessment</td>
<td>3</td>
</tr>
</tbody>
</table>
Description:

Students reported wanting to get more out of their courses than "memorizing" and cramming for the tests. Repeatedly, a contrast is made between learning and what is tested by the test.

On the other hand, it is clear that assessment was guiding the allocation of many students' attention in the classroom. The praises of study guides and notes for the test that highlight "important" information were constantly sung. "The test" and other externally imposed assessments were ever present in student's minds. In some cases students admitted that they thought that tests are important because they "force" students to be serious. Only a fraction of students perceived assessment to be anything other than a post-hoc measure of learning: these students appreciated quizzes because it gave them an opportunity to monitor their progress and see areas that they might need to work on.

Representative data from "learning vs. memorizing":

P6:  
I like to learn things, not memorize them.

P13:  
Although I got an A in the class, I felt that I had been cheated in the learning process.

P35:  
My expectations for this course are to learn everything long term instead of just memorizing facts for the next test.

P49:  
I take a lot of notes, some to do with what I think will be relevant to the exams and some that are just for me, for fun.
P56: When I am forced to participate in discussion, I generally gain a better understanding of the subject matter. Otherwise, I just read and memorize to get the grade.

Representative data from "learning to the test"

P16: I am interested in a class where what I learn in the day to day lesson actually translates into the test. I get frustrated when the class lessons are not translated into the actual test.

P23: I would like outlines of things we "need to know" before tests to help guide my studying.

P37: It also helps when an instructor practices positive reinforcement with students. One of my psychology professors encourages students to get a 95 or better in her class and with that, she will reward them with $15.

P55: Also receiving note outlines also helps, especially when the teacher emphasizes the importance of a particular topic that needs to be memorized or remembered for later on down the road.

P67: I think that lots of practice worksheets or quizzes that force students to be serious are beneficial.

**Question 5: What personality attributes of teachers are valued by students?**

**Theme: Students most value teachers who are responsive, open, passionate, knowledgeable, and organized.**

Codes used in this theme:

- clear expectations
- close ties with the teacher
Students reported that they valued teachers who are approachable, encouraging and responsive to their needs. Students reported that they expect teachers to help create
an atmosphere of openness in the classroom. Students appreciated teachers who they perceived to be organized, clear, and experts in their domain. Students reported learning best when they are able to develop a personal connection to the teacher. Students also highly valued teachers whom they perceive to be passionate, animated, and in love with the subject they are teaching. Although teacher passion increases engagement, it is not clear from the data how it affects self-regulation.

Representative data:

P11: The facilitator should be interesting and love what they do. This allows the class to stay amused and focused in what is being taught.

P21: I have found that working with teachers that are very knowledgeable about their field makes learning much easier.

P44: The charisma and enthusiasm that the facilitator brings to the participants is an important part of the learning process. Personally, I find that if the material is covered in a mundane method, then the interest that I initially possessed in the subject disappears. My enthusiasm for learning dwindles and I turn my attention elsewhere.

P59: The most important way for the facilitator and teaching assistant to help is to be available in all modes of communication. I expect them to help me to the best of their ability in order to help me or guide me.

P65: And the teacher really cares about the student's growth in the class, they are the classes that I enjoy being in and are the ones that I feel are the most effective.

**QUESTION 6: How are lectures perceived?**

**Theme 1: Classes dominated by lecture are extremely ineffective.**
Codes used for this theme

<table>
<thead>
<tr>
<th>Name</th>
<th>Frequency (# of cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>lecture dominant- NO!</td>
<td>15</td>
</tr>
<tr>
<td>reading off the slide/ beyond the book</td>
<td>12</td>
</tr>
<tr>
<td>getting the info down</td>
<td>9</td>
</tr>
</tbody>
</table>

Description:

Classes dominated by lecture are those classes where students listen to a teacher lecturing for most of the class period and do not have real opportunities to interact either with the professor or each other. These type of classes were universally regarded by students as negative experiences. Students reported that they did not learn much in these type of classes and that they resent having to "copy down notes" constantly while listening to the teacher "read off of the slide."

Representative data:

P17: The classroom setting has been extremely ineffective over the years. Teachers demand participation and yet we sit facing the teacher looking at the heads of our fellow students. I do not talk to the back of someone’s head in the real world. Why is school so claustrophobic?

P4: I don’t think effectiveness lies in simply reading off Powerpoint slides and assigning reading.

P40: I didn’t like when my teachers just lectured with no kind of interaction, it often made me very sleepy.
P65: I have had teachers who stand up and lecture the whole time, expecting you to take notes like a professional speed writer.

**Theme 2: Effective lectures use advance organizers, visuals, real-life examples; they include opportunities for student participation, and are charismatically delivered.**

Codes used for this theme:

- Benefits of real life examples
- good lectures use humor and are properly paced
- good lectures utilize visuals, advance organizers

**Description:**

Students reported that the kind of lectures that aid their learning are those that are enhanced by high quality visuals. Having the lecture notes printed out and posted online prior to the lecture was reported as being helpful to a number of students. Students use these notes as a template on which to add personal annotations during lectures, thereby
preventing them from having to allocate all of their attention during the lecture to simply getting all of the information down quickly. Lectures are reported as being most successful when they are properly paced, meaning that they do not overwhelm or underwhelm students with too much or too little material in any one lecture. Finally, lectures that explain abstract principles and concepts through the use of real world examples are regarded as being the most helpful.

Representative data:

P45:  *I hate it when teachers just talk about the subject and give no real-life examples so that we can understand the subject matter better. When I am given a real-life example, I can better connect it to stuff in my head kind of like association.*

P6:   *This might be because I am a much better learner when visuals are used, rather than listening to the instructor and writing down notes. If I see it with my own eyes, it is much easier to understand, and I can always refer back to a given example.*

P37:  *My psychology 101 professor was amazing because he brought in his real-life situations from his day job, making them relatable to us. I believe that everyone learns better if they can relate to the situation.*

**DISCUSSION**

**Interpretation and Analysis**

As the researchers see it, this data reveals a large disjoint between where the students in this study are and where they themselves say they want to be in terms of their approach to academics. What is glaringly clear to the researchers after spending hundreds of hours on this project is that while students value interaction, students continue to hold onto a maladaptive belief that it is the teacher's role to direct and hold their attention. As
such, there is no evidence that the vast majority of students in this study accepted responsibility for their own learning and its regulation. The present data suggests that while students were familiar with the benefits of interaction and cooperative learning, a powerful belief system was preventing them from having the classroom experiences they wanted to have. It is reasonable to argue from the data that the large lecture classes that most students experienced at their institution helped to perpetuate this belief system, impeding deep learning. The elimination of preposterously large class sizes in this institution’s psychology department, coupled with a move away from lecture-dominated pedagogy, would be appropriate responses, in the researchers’ judgment, to the empirical scream for change in this data!

Barring radical but optimal structural changes of this nature, the data suggest that regardless of the classroom structure, any steps that can be taken to make classrooms more interactive are appreciated by students, and will pay large dividends towards improving the quality of learning and instruction, as well as bolster positive affect.

Equally as troubling to the researchers is the plethora of test-oriented thinking that the study revealed. It is very disturbing that so much of students' thought processes in the classroom is oriented towards what will or may be on "the test." Of course, this style of thinking detracts from the ability of students to have meaningful learning experiences. Efforts to reduce learning and teaching to the test should be a priority. Even as they "play the game" of testing, it is clear that many students yearn for something more. One possible solution could be to structure courses so that they include more performance assessments, service learning, and portfolios of student work that link course concepts to
applied problems. These sorts of assessments might be more engaging, useful, and valid, given student's constant desire to learn how to apply course material.

The data on positive teacher attributes is in step with the literature. What is unclear is what effect the passion and "love of the subject" displayed by the teacher is having on self-regulated learning. Because the number of students who display an internal locus of regulation in the classroom is so low in this sample, no real between-subjects analysis that would be valid could be performed. Although valued by students, the data suggest that teacher passion is somewhat related to the view of teachers as entertainers. Students, particularly students in this age range, need to come to the point where they can distinguish between the domain of study from the professor teaching in the domain if they are to reach higher levels of proficiency in the domain, and it is not clear how the passion of the teacher influences this. Ideally, the passion of the teacher should inspire students, as opposed to regulate their attention.

Group work has a number of benefits for students, but classroom leaders who use small groups should be aware of the fear that students have about them, particularly that they will be stuck with all the work, and have some mechanism in place regulating work distribution in small groups. This might involve training for cooperative learning, such as the kind the researchers utilize: the reading of an article on cooperative learning and the formulation of group contracts.

Lectures, if they are given, should include ample opportunities for question asking and other forms of interaction. Visualization of concepts is highly beneficial to many students. The least effective form of undergraduate education, according to students in this data, is the lecture-dominated format that affords few or no opportunities for
interaction. Lectures should avoid a dictation style where professors put information on a slide or throw out "important" information verbally that students are expected to copy down. Lectures that build upon the course readings, are conversational, and use real-life examples are more meaningful than those that do not.

**Benefits and limitations**

The benefits of the present study are also its limitations. The data is unstructured and open-ended, allowing the researchers to go in depth into the thoughts of their subjects who could say anything they wanted to in their essay. The study does not use the hypothetico-deductive method, but instead attempts to draw an explanation directly from the data. The study has empirically described the presence of important belief systems of students, but cannot fully describe their development or consequence. Of course, this was beyond the scope of the study in the first place.

In qualitative research, it is desirable to have several people independently code data to increase internal validity; this was not possible in the present study. The rigorous methodology, with its multiple checks on the researchers’ subjectivity, was designed to offset this limitation.

Most beneficial to the project was its reliance on real-world data from an actual classroom. Classroom-based investigations, such as the present study, link educational theory to its target population. Ultimately, what educational psychologists are after is knowledge that is general, yet applicable to the way educational systems are actually run or should be run. Classroom-based research helps to bridge the gap between theory and practice, and keeps researchers on the same page as the practitioners who interact with students on a daily basis and the students themselves. Classroom-based research similar
to the present study, from a variety of undergraduate classrooms in variegated academic
domains and geographic locations, would be highly valued and complementary to the
researchers’ continued efforts in undergraduate psychology courses.
References


