

**Transparent Teaching:
Evaluation of Open Communication and Remediation in the Classroom**

Brooke A. Flinders
Miami University

Matthew Dameron
Miami University

The innovative strategy, "Transparent Teaching," was developed during a student-driven course re-design and has evolved, following a year of SoTL (scholarship of teaching and learning) research. This pedagogical approach combines open, two-way communication in the classroom with long-standing cooperative and collaborative learning techniques (Johnson, Johnson, & Smith, 1998) and active learning strategies (Bonwell & Eison, 1991). This paper will discuss student-perceived teaching-learning roadblocks, select "transparent teaching" strategies, and SoTL study outcomes across two semesters.

There are barriers to learning that surface in each classroom and in every discipline. Students often struggle with prioritizing what to study, with critically thinking through or applying new concepts, and with correcting ineffective test-taking strategies. This paper will discuss a junior-level course re-design that combines principles from collaborative, problem-based, and active-learning pedagogies into an innovative approach called "transparent teaching". In this study, the "transparent teaching" approach, including focused remediation, influenced student satisfaction, impacted test-taking confidence and skills, and improved student perceptions of their learning.

Background

In a casual conversation about the day-to-day struggles of our junior-level nursing students, the authors of this paper became inspired to redesign their didactic course. We wanted to move past some of the more common barriers such as "seat time" constraints and the disciplinary urge to master key concepts and core knowledge (Millis & Cottell, 1998) in order to explore barriers, specific to the students in our program. When we opened up our discussion to all students enrolled in the course, they very specifically

expressed their frustration in learning to "think like a nurse." They believed that faculty expectations suddenly escalated in their junior year and they discussed feelings of being under-prepared and overwhelmed. Five "transparent teaching" methods were utilized and evaluated during each semester of the academic year. Brief details of each technique are provided in Table 1: "Transparent Teaching Descriptions."

Table 1: "Transparent Teaching" Method Descriptions

Transparent Teaching Method	Description
Open Communication	Open communication was defined/discussed through open-ended responses. In the study, we specifically asked students to discuss "on-going, open communication" in the classroom
Scratch-Off Test	Introductory content was tested, using "scratch off" tests. Students were able to gain partial credit, even if they missed the correct answer on the first or second try.
Test Remediation	Students were given a copy of each test (after they submitted their answers). They were given the correct answers and were asked to do as much or as little remediation as they required. Students were told that they should spend time understanding the question stems, each possible answer, the questions they missed, and the questions they didn't fully understand (even if they guessed correctly). Students were given participation points for remediating.
Take Home Exam (2013)/ IP Practice Test (2014)	In the fall 2013, students had one take home exam during the semester. Students reported that this method was not as effective for their learning. Therefore, in spring 2014, this method was replaced by a practice test (which happened to be on intrapartum (IP) content, one of the more difficult content areas)
Nothing-to-Lose Retake Exam	Students took their exams, remediated during the following week, and were given a surprise "nothing-to-lose" re-take. This allowed students to see if their remediation was or was not effective.

Methods

This was a mixed method study with the aim of evaluating combined teaching-learning strategies in an undergraduate obstetrical nursing course. There were 32 (Fall) and 33 students (Spring) students in each of two cohorts, from two distinct Regional campuses. Quantitative feedback was collected using the Qualtrics survey tool and a likert scale rating system. In addition, open-ended responses were gathered to obtain feedback for each of the six teaching-learning strategies. Finally, the grounded theory approach was utilized, with the assistance of NVivo software, in order to develop both descriptive and inferential statistics.

This SoTL (scholarship of teaching and learning) study was reviewed and considered exempt by the Institutional Review Board at the university. Students signed consents at the beginning of the semester and submitted them to a neutral third party. They participated in normal classroom activities and reflection exercises. At the end of the semester, when grades were formally submitted, the professor gained access to useable data.

Perceived Barriers

In order to better understand student-perceived barriers to success, the concept of “thinking like a nurse” was explored. What was difficult? Why? Were there trends in beliefs? Through initial, informal discussion, the following themes emerged:

Initial Emerging Themes: Barriers to Learning

- 1) Lack of preparation to transition from sophomore to junior-level expectations.
- 2) Need more practice with critically thinking and "connecting the dots."
- 4) Application to clinical practice is challenging.
- 5) Theory/memorization may have been effective in the past, but tests are more difficult in the junior year and some students feel the need for revised studying/test-taking strategies.
- 6) At the beginning of the junior year, students lack self-confidence- this seems to be a critical moment in their education that can make/break them.

Sixty-five students across two semesters (and from two distinct regional campuses) were formally asked to discuss the difficulty, if any, that existed for them as they moved from being an experienced, successful student to having to “think like a nurse” for the first time. Of the sixty-five responses, 14 original nodes were identified, with a total of 80 references. There were eight nodes with >10% coverage. The top five nodes (bolded below in Table 1: Perceived Student Barriers) represent coverage in at least 10% of responders (7/65).

Table 2: Perceived Student Barriers

<p style="text-align: center;">Discuss the difficulty, if any, that exists for you as you move from being a successful student to having to “think like a nurse” for the first time.</p> <p style="text-align: center;">Nodes Coded</p>	<p style="text-align: center;">Number of Coding Instances</p>
I don’t feel prepared for transitioning to thinking like a nurse	24
I lack self confidence	16
I have limited clinical experience	11
I have difficulty with prioritization	8
Ambiguity in the discipline and changes, patient-to-patient, make nursing difficult	7
I don’t understand the questions on the exams	4
Content is forgotten over summer break or during lapses in curriculum	2
Retention is an issue	2

Student Ratings

Students were asked to rate five teaching-learning strategies, 1-5, (5 being the highest) each semester. In the Fall term, the strategies assessed included: open communication, scratch-off tests, test remediation, take home examination, and a “nothing-to-lose” re-take opportunity. In the Spring term, the take home examination was replaced by the intrapartum (IP) practice test, due to student feedback in the fall. As Table 2: Transparent Teaching Method Ratings demonstrates, there were not significant differences between student ratings from semester to semester, except when the Take Home Exam was replaced by the Intrapartum Practice Test.

Table 2: Transparent Teaching Method Ratings

Transparent Teaching Strategies Rated 1-5, (5 Being the Highest)	Mean for Fall n=32	Mean for Spring N=33	Standard Deviation Degrees of Freedom	Statistical Significance Two-tailed p
Open Communication	4.88	4.91	SD=0.361 DF=63	0.7052
Scratch-Off Test	4.56	4.67	SD=0.726 DF=63	0.5653
Test Remediation	4.97	5.00	SD=0.124 DF=63	0.3116
Take Home Exam (2013)/ IP Practice Test (2014)	4.34	4.94	SD=0.725 DF=63	0.0015
Nothing-to-Lose Retake Exam	4.75	4.91	SD=0.519 DF=62	0.2347

Qualitative Findings

The open-ended survey items, included: 1) Explain your rating of open explanation in the course syllabus and on-going communication about what we're doing and why we're doing it, 2) Explain your rating of the scratch-off tests for introductory content, 3) Explain your rating of test remediation, 4a) Explain your rating for the take home test, 4b) Explain your rating for the Intrapartum Practice Test, 5) Explain your rating of the nothing-to-lose test re-take opportunity.

Individual surveys were first coded openly, in order to identify potential categories and trends. Memoing assisted the researchers in refining categories. Initial emerging themes for each "Transparent Teaching" method are noted below:

Initial Emerging Themes: Open explanation in the course syllabus and on-going two-way communication about what we're doing and why we're doing it

- 1) The open communication and two-way expected communication facilitates clear expectations (which students need).
- 2) Transparent style establishes trust and encourages students to engage.
- 3) An improved learning environment impacts learning.

Initial Emerging Themes: Scratch-off tests for introductory content

- 1) Scratch-offs allow an introduction and foundation for more complicated concepts that we're leading up to
- 2) This provides an opportunity to create a transition opportunity (which is otherwise lacking).
- 3) Promotes understanding of content, helps with test-taking strategies, etc.
- 4) Learning can be improved by changing the "pressure" students feel- increased confidence, decreased stress/anxiety, and instant gratification are helpful to students.

Initial Emerging Themes: Test Remediation

- 1) Improved learning at a deeper level
- 2) Improved critical thinking
- 3) Relaxed setting for learning the content improved learning
- 4) Students are responsible for their learning
- 5) Through remediation, students were able to identify what they missed, why they missed it, where they went wrong in test preparation, and which application principles that they previously didn't understand.

Initial Emerging Themes: Take Home and Practice Tests

- 1) Take-home tests helped students learn very specific content, but did not facilitate deeper learning or holistic understanding of the course content.
- 2) Practice testing can improve test preparation and facilitate understanding of key concepts.

Initial Emerging Themes: Nothing to Lose Re-take

- 1) Lower stress leads to better capacity to think for many students,
- 2) Students "buy in" to remediation as a technique and see that it pays off to re-visit material that was missed the first time around,
- 3) Only 3 people across two semesters said, "that's not fair," which means that most students could see the bigger picture

Samples of open-ended responses for each “Transparent Teaching” method are highlighted in Table 3: Reflection Samples.

Table 3: Reflection Samples

Open Communication	“There are too many classes where the expectations of what the professor wants from the students are vague and the feedback from the students to the professors is ignored. This professor has managed to take away any ambiguity with what she expects from us and constantly encourages our feedback and implements it immediately.”
Scratch-Off Quiz	“L.O.V.E.D. Scratch off tests helped me with learning because I knew the correct answer right after I responded to the question. And if I got the first one wrong, I was able to reason my way to the second answer and learn in the process.”
Test Remediation	“I have learned so much from this and wish that all teachers would come to realize this truly beneficial way of learning. (Through remediation...) you are searching, thinking, writing, and therefore learning the content you previously did not understand. We should not be banned from learning from our mistakes.....One cannot be expected to right a wrong if they cannot recall what they did wrong in the first place.”
Take Home Test	“Although it was very nice and convenient as a student to have a take home exam, I know I looked over this material less and probably don’t know it as well as the content we were tested on in class. Although, I must say that at this time in the semester ... it was a great help since we were so bogged down [with] work!”
IP Practice Test	“This was great because I had a no pressure opportunity to test my knowledge and see what I really needed to focus my studying on.”
Nothing-to-lose retake	“Again, repetition is amazing! This is the perfect way to test if the remediation works. For me, it was obvious that it did. I remembered the material and learned from my mistakes. The fact that it was a surprise made it even better.”

Each of the sixty-five study participant’s responses were selectively coded, and the following “nodes” were refined for use in NVivo (Table 4: Nodes

with >10% Coverage). Nodes were evaluated, for each individual question, and nodes with >10% coverage were identified.

Table 4: Nodes with >10% Coverage

Question	Original Number of Nodes	Total Number of References	Number Of Nodes with >10% Coverage
1	15	130	13
2	24	129	15
3	18	158	13
4a	19	84	12
4b	7	38	7
5	23	170	16

Coding Summaries by “Transparent Teaching” Method

Using the Tree Map feature in NVivo, the nodes (with >10% coverage) for each question were compared by the number of codes, which yielded the following results, by “Transparent Teaching” method. Results within all tables below (Tables 5-10) are from 65 students, within the Fall and Spring semesters. The bolded items represent coverage in at least 10% of responders (7/65).

Table 5: Open Communication and Rationale

Explain your rating of open explanation in the course syllabus and on-going communication about what we’re doing and why we’re doing it.	
Nodes Coded	Number of Coding Instances
Open and two-way communication clears expectations for students	32
Transparency leads to engagement and trust and students feel valued	15
On-going feedback from students allows for individual and class needs to be met	12
The professor’s flexibility was important	11
An improved learning environment/relaxed setting improves learning	11

Students feel ownership	9
It helped us prioritize and use our time wisely	8
Students see value in the process of remediation	7
It allowed for content clarification	6
The method invited the class to become a community of learners	6
Students are responsible for their learning and are motivated	5
Repetition of key content is important to our learning	4
This approach helps students master specific content	2

Table 6: Scratch-Off Tests

Explain your rating of the scratch-off tests for introductory content	
Nodes Coded	Number of Coding Instances
This method was fun/enjoyable	19
It improved our grades	13
They let us ease into the class with low stakes	13
Immediate feedback is helpful	11
They are an efficient way to cover intro content	10
This decreased pressure, stress, and anxiety, which is helpful during testing	8
It helped to facilitate a focus on in-depth learning rather than memorization	7
It helped with prioritization in testing situation	6
It improved our test-taking strategies and skills	5
Neutral or negative feelings about the technique	5
It allowed for content clarification	4
I felt better prepared for upcoming tests	4
It creates an opportunity to transition from memorization to application	4
It helps students master specific content	4
It's a unique and intriguing way to learn/novel approach	4

Table 7: Test Remediation

Explain your rating of test remediation.	
Nodes Coded	Number of Coding Instances
It helped students identify why questions are missed and which questions are missed	33
It improves critical thinking and problem-solving	27
Students see value in the process of remediation	19
Repetition of key content is important to our learning	14
It helped with retention	13
It facilitated a focus on in-depth learning rather than memorization	10
It improved our grades	9
It made me feel better prepared for upcoming tests	8
Students feel ownership	6
It improves test-taking strategies and skills	5
Students are responsible for their learning and are motivated to learn	4
An improved learning environment/ relaxed setting improves learning	3
It helped with prioritization in testing situation	2

Table 8: Take Home Test

Explain your rating for the take home test.	
Nodes Coded	Number of Coding Instances
An improved learning environment/relaxed setting improves learning	14
This technique was helpful for grades, but not for our learning	11
I did not learn as well with this technique as with the others	10
This technique allowed me to focus on in-depth learning rather than memorization	9
This decreased pressure, stress, and anxiety, which is helpful during testing	8

It improved critical thinking and problem-solving	6
It helped us prioritize and use our time wisely	5
It allowed for content clarification	4
It improved our grades	4
Students value the process of remediation	3
Neutral or negative feelings about the technique	2
Students are responsible for their learning and are motivated to learn	2

Table 9: Intrapartum Practice Test

(5b) Explain your rating for the Intrapartum Practice Test.	
Nodes Coded	Number of Coding Instances
It made me feel better prepared for upcoming tests	11
It allowed for content clarification	8
It helped us prioritize and use our time wisely	6
This method was fun/enjoyable	5
The amount of material is a challenge	3
It facilitated a focus on in-depth learning rather than memorization	3
Decreased pressure, stress, and anxiety is helpful during testing	2

Table 10: “Nothing-to-Lose” Re-take

Explain your rating for the “Nothing-to-Lose” Re-take.	
Nodes Coded	Number of Coding Instances
It provided proof that remediation is effective	28
It helped with retention	21
Repetition of key content is important to our learning	20
Students feel ownership	16
Students see value in the process of remediation	14
An improved learning environment/relaxed setting improves learning	8

It improved our grades	8
This decreased pressure, stress, and anxiety, which is helpful during testing	7
It helped students identify why questions are missed and which questions are missed	7
It improved my confidence	6
Students are responsible for their learning and are motivated to learn	6
It allowed for content clarification	5
Neutral or negative feelings about the technique	5
This method was fun/enjoyable	4
We can't just memorize and regurgitate anymore.	3
It improved critical thinking and problem-solving skills	3

Integration of our Findings

As a final step, we classified those nodes that were coded ten percent of the time, based on the number of total participants (6.5 rounded to 7 of 65), by the number of transparent teaching methods that were spanned. This allowed us to identify overarching themes of our transparent teaching methods.

The nodes that were coded at least ten percent of the time (7/65), spanning two topic areas, were:

- It made me feel better prepared for upcoming tests
- It helped with retention
- Repetition of key content is important to our learning
- Students feel ownership
- It helped students identify why questions are missed and which questions are missed

The nodes that were coded at least ten percent of the time (7/65), spanning three topic areas, included:

- An improved learning environment/relaxed setting improves learning
- Students see value in the process of remediation
- It improved our grades

- This decreased pressure, stress, and anxiety, which is helpful during testing
- It helped to facilitate a focus on in-depth learning rather than memorization

Discussion

A Solution Grounded in Multiple Theories

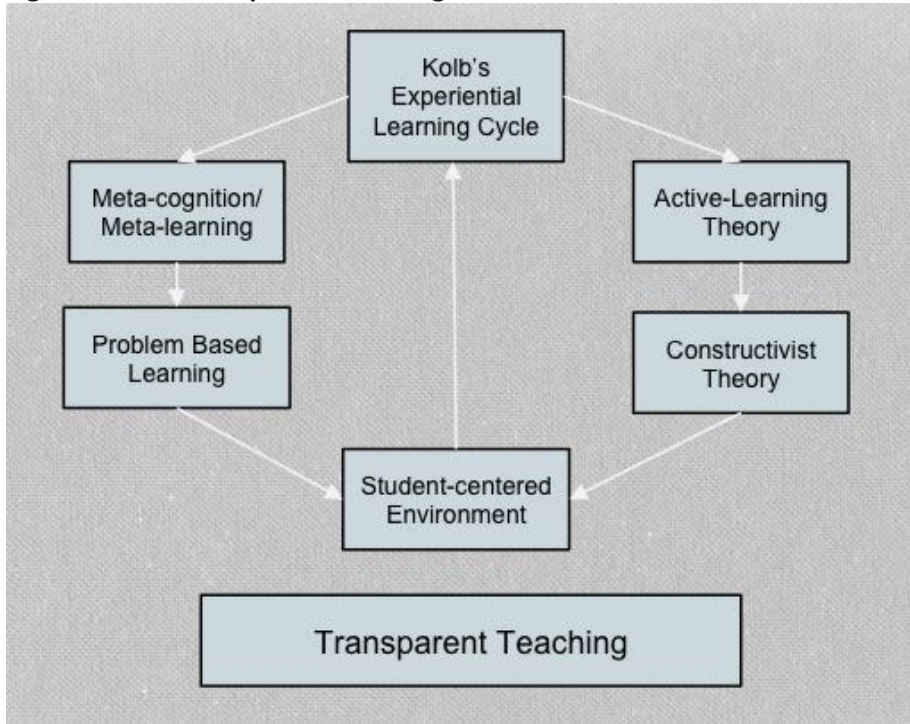
When our undergraduate research team began to explore the literature themselves, they identified the following key ideas and connections between their experiences in the classroom, student feedback, and the following classic theories/approaches: Kolb’s Experiential Learning Theory, Constructivist Theory, Meta-cognition/Meta-learning, Problem-Based Learning, Active Learning, and Student-Centered Environment (Table 11: Undergraduate-Identified Related Theories/Concepts).

Table 11: Undergraduate-Identified Related Theories/Concepts

Theories/Approaches and Student-Selected Resources	Undergraduate Student Notes on Connections to “transparent teaching”
Kolb’s Experiential Learning Theory (Kolb, 1984)	<ul style="list-style-type: none"> • Key Quote: “Ideas are not fixed, but are formed and reformed through experience” (Kolb, 1984) • The “concrete experience” is when we read, study, and take the exams • “Reflective observation” takes place when we receive our grades and observe what we missed • “Abstract conceptualization” occurs during the remediation of the exam. The student thinks about why certain questions were missed and finds the reasoning for the correct responses • “Active experimentation” occurs through the students’ planning and developing new ways to study and improve their own learning
Constructivist Theory (Wilson, 1996)	<ul style="list-style-type: none"> • Key quote: “The teacher’s role should be to challenge the learner’s thinking- not to dictate or proceduralize that thinking” (Wilson, 1996) • The student should be active in the learning process and create their own understanding of the material • Remediation lets us use our experience of “failure”

	to strengthen our understanding and gain further knowledge
Meta-Cognition/Meta-Learning	<ul style="list-style-type: none"> • Transparent teaching methods aim to uncover students’ strengths and weaknesses as learners by developing self-assessment skills and the ability to set and monitor our goals • All semester, we thought about our thinking and learned about our learning
Problem-Based Learning (Wood, 2003)	<ul style="list-style-type: none"> • Key quote: “They do independent, self-directed study before returning to the group to discuss and refine their required knowledge” (Wood, 2003) • We tackled challenging, open-ended problems with no one “right” answer • Students worked as self-directed, active investigators in small, collaborative groups • Our teacher was a facilitator for our learning and promoted an “environment of inquiry” • The goals were to develop our critical thinking/problem solving and our creativity
Active Learning (Bonwell, 1991)	<ul style="list-style-type: none"> • Key quote: “Students are involved in more than listening, less emphasis is placed on transmitting information and more on developing students’ skills, students are involved in higher-order thinking, students are engaged in activities...greater emphasis is placed on students’ exploration of their own attitudes and values” (Bonwell, 1991)
Student-Centered Environment (Distler, 2007)	<ul style="list-style-type: none"> • Key quote: “This perspective contends that learning occurs as knowledge, is negotiated among learners, often facilitated by a more knowledgeable group member, and students need to be active, intentional learners” (Distler, 2007)

Figure 1: “The Transparent Teaching Model” demonstrates the connection between Kolb’s Experiential Learning Cycle and the Student-Centered Environment, as identified by the Undergraduate Research Team.

Figure 1: “The Transparent Teaching Model”

Conclusion

It is important to understand that the particular methods evaluated for this SoTL study are not essential to “transparency”. It is possible to focus on open-communication and any number of other strategies that make sense for an individual discipline or unique student cohort. Through evaluating one’s own strategies, it is possible to fine-tune methods that make sense for the type of content being taught and the teaching style of the professor.

Lessons Learned

If course materials (including exams) can be seen as student “property”, we can move students toward meta-learning and improve their critical thinking and test-taking abilities. As a faculty member, this experience has made me re-think my philosophy of teaching. I have expanded my vision and have decided that:

1. I don't care HOW students learn- I just want them to learn and retain essential content
2. Students benefit from open access to course materials and from an opportunity to fully remediate
3. Testing can be used as a learning tool, rather than as an evaluation method
4. If lots of students get good grades in my course, maybe that's o.k. In fact, maybe that's GREAT!

Next Steps

We are particularly interested in evaluating the "Transparent Teaching" methods in other settings. We believe that the approach would be effective in other nursing courses, in other nursing "specialty" areas, in other levels of undergraduate education, and in other disciplines.

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