

# **The Scholarship of Teaching and Learning: Lessons from—Gasp!—Sigmund Freud**

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### **Abstract**

Although perhaps not immediately apparent, a close analogy exists between the Scholarship of Teaching and Learning (SoTL) and key aspects of psychoanalytic research, theory, and practice. This paper explores how the latter may inform our approach to, and understanding of, the former by focusing on Sigmund Freud's definition of "data" and "the problem," his attention to everyday observations and the "what is," his pursuit of the question "why," his persistence and creativity when confronted with obstacles to his work, his determination to make the unconscious conscious and the invisible visible, and his insistence that his patients "show their work" by thinking out loud.

### **Keywords**

Scholarship, Teaching, Learning, Psychoanalysis

At the turn of the 21<sup>st</sup> century, it has become fashionable to pronounce psychoanalytic theory and the therapeutic method of psychoanalysis as passé, obsolete, perhaps even archaic. Sigmund Freud, the father of psychoanalysis, is often dismissed out of hand, if not outright attacked and ridiculed, as a narrow-minded, sex focused, male chauvinist who, among his other failings, possessed little insight into the psychology of women.

I have a different perspective on Sigmund Freud. He was, in my opinion, a genius. Just like the rest of us, however, Freud had his good days and his bad days; his good days were very, very good and his bad days (e.g., his theories about women) were often very, very bad. Nevertheless, on his good days Freud produced a body of thought and work that has become so well accepted and inculcated into our thinking about human psychology that many people no longer recognize the Freudian origin of these tenets. The concepts of the unconscious, psychic and historical determinism, making the unconscious conscious—all these and more have withstood the test of time and proven themselves of enormous heuristic value. Furthermore, Freud's legacy extends even beyond these psychological concepts to the legitimization of a particular research attitude and approach: the detached observation and exploration of everyday psychological phenomena, of matters others often considered to be too insignificant to be worthy of investigation. Thus, one need not accept all of Freud's propositions to benefit from his genius.

As a psychiatrist and medical educator, I have become increasingly aware of the close analogy that exists between the Scholarship of Teaching and Learning (SoTL) and key aspects of psychoanalytic research, theory, and practice. My objective in this paper is explore some points of convergence between the Scholarship of Teaching and Learning, on the one hand, and

psychoanalysis, on the other, underscoring how the latter may inform our approach to, and understanding of, the former.

### **Definition of “Problems,” “Research Questions,” and “Data”**

Freud was a scientist; indeed, his first love was neurology and the science of the human brain rather than the psychology of the mind. He turned to the investigation of the latter not because he had lost his enthusiasm for science but because he recognized that in the late 1800’s and early 1900’s researchers did not possess the scientific and analytical tools to usefully study the brain. Were Freud alive today, in a era of CT, MRI, and PET brain scans, he might never give psychoanalysis another look.

When he turned his attention to the psychology of the mind, however, Freud did not dispense with his devotion to the scientific method. Instead, he adapted this attitude of thought and methodology to a new set of problems. Thus, in the domain of human psychology, Freud redefined the meaning of a “research question” and of the very “data” on which such research would be based. He legitimized the scientific study of the world of the mind and especially the unconscious mind, as opposed to the brain. The “data,” in this paradigm, were not molecules, cells, electromagnetic radiation, the sun or distant planets; they were, instead, thoughts and feelings, as well as observable behaviors. The latter had been, and continued to be, the focus of the more traditional psychologists of the time.

In accomplishing this reconceptualization of relevant “data” in the study of human psychology—from observable behavior to the thoughts, feelings, and psychological processes of the mind—Freud focused on details. He adopted an attitude of curiosity and suspended judgment. Nothing was too small, insignificant, embarrassing, or disagreeable to be considered

unworthy of study. Whereas most scientists and the public at large of the time dismissed such phenomena as forgetting names, slips of the tongue, and dreams as either unimportant or meaningless, Freud took a neutral, scientific approach, asking himself whether the assumption of research unworthiness was appropriate. For Freud, the fundamental research question was, “Why?” “*Why* did this particular thought, feeling, or behavior occur, and *why now* as opposed to some other time?” “*Why* to this particular person in this particular situation?” “Is there possibly a pattern or deeper significance to these phenomena?” “Might they have meaning beyond what is apparent on the surface?” “How can these phenomena be used to understand the psychology—in contrast to the biology—of the mind?”

Freud did not initially assume that all observable phenomena were relevant or useful; he merely insisted that they should not be dismissed without appropriate investigation. Indeed, the quotation most often attributed to Freud—“Sometimes a cigar is just a cigar”—underscores his recognition that not all thoughts, feelings, or behavior reveal deeper, hitherto unelicited, psychological processes. The proviso, however, is that one cannot confidently say that this particular cigar is “just” a cigar without further exploration and analysis. In fact, Freudian psychotherapists are very suspicious of the word “just,” as in “That’s just the way I am” or “That’s just the way I feel.” It may well be true that this is the way one is or that is how one feels; but, from a Freudian perspective, there are reasons, purpose, and meaning behind such observations.

Take, for example, the well accepted notion of the “Freudian slip.” Freud concluded that such slips were psychically determined, that is, rather than being random, insignificant events they were the result of structured mental processes that had meaning and purpose. In contrast,

most of Freud's contemporaries dismissed such slips as mere mental lapses, temporary mental or speech aberrations with no greater significance.

A psychiatrist, not unlike the author of this paper, was engaged to be married to a woman who was, herself, training to become a psychiatrist. Shortly before the wedding, as the inevitable family, occupational, and academic tensions increased, he and his fiancée had an argument in the course of which the psychiatrist committed a "Freudian slip." In discussing the impending nuptials, he misspoke himself, referring to "our funeral" rather than "our wedding." Hmmm. Of the hundreds and thousands of words that the psychiatrist might have mistakenly used in lieu of "wedding"—windmill, rutabaga, justice, frankfurter, interest rates—he, or his mind, just happened to choose "funeral." What's a fiancée, in this case a future psychiatrist, to do? Should she attend to this data with its inescapable interpretation? In this case the fiancée did what she would often do thereafter in the marriage to bail out her husband; she simply pretended she hadn't heard this blasphemous remark. Freud's point: this apparently innocent slip of the tongue quite clearly had underlying meaning and purpose and was by no means random; most anyone would conclude that, at that moment at least, the groom-to-be had plenty of negative feelings about the upcoming wedding.

It is often on the basis of these everyday observations that hypotheses—trial explanations—are formed that address the central question of "why?" If, indeed, slips of the tongue are not random events but psychically determined phenomena, then how can we explain their existence and function? Freud's investigation into the possible significance and meaning of previously dismissed phenomena such as forgetting names, slips of the tongue, and dreams was a primary factor in his construction of the notion of the "unconscious." Indeed, Freud was almost forced to conceptualize an unconscious mind in order to explain his observations. Simple

everyday events ultimately resulted in a complex theory of the human mind that encompassed notions of psychic structure (e.g., consciousness, preconsciousness, and the unconscious as well as the id, ego, and superego) and mental processes or function (e.g., repression, sublimation, and defense mechanisms such as reaction formation, identification with the aggressor, or denial).

Good scholarship of teaching and learning reflects an analogous receptivity to many kinds of data, often in the form of apparently minor observations or details. It requires an open and curious mind that asks, “What might this mean; how can this help me better understand how people learn and how I should teach?”

A communications professor recently told me that after his department had decided to require the use of PowerPoint slides in all departmental lectures, the students’ grades, and understanding of the material, actually decreased. The students “just happened” to learn less with PowerPoint lectures? Perhaps, but the dedicated scholar of teaching and learning proceeds to investigate and ask questions. If the observations about the effect of PowerPoint teaching are correct, why is that so; Why did the students do poorly after switching to PowerPoint-based lectures? Was it the number of slides, or the way they were presented, or the use of too many transitions or animations? Perhaps the reduction in learning had less to do with the nature of the slides themselves than the fact that, by not using a blackboard, the instructors were moving faster in covering their material, overwhelming the students. Another hypothesis: by presenting material in such a highly organized manner, students were deprived of the opportunity to organize the material in the way that works best for them; after all, cognitive psychologists have demonstrated that memory, at least, is enhanced by organization of materials but organization imposed by the learner enhances memory more than organization imposed by the instructor. On the other hand, maybe the professors were somehow less enthusiastic and spontaneous about

their teaching when scripted by a PowerPoint presentation. Is it possible that the concise summarization of ideas offered by PowerPoint deprived students of the opportunity to hear their professors think out loud, to show how they approach and work through a problem? In fact, none, some, or all of these explanations may be correct, and there may well exist other relevant factors that have not even been considered.

All of these questions represent testable hypotheses that might be investigated through rigorous and thoughtful research. Furthermore, each of these questions forces consideration of larger theories: how do students learn; what sorts of things enhance or inhibit learning in particular situations; how does subject matter or discipline influence effective teaching and high-level learning. By giving serious thought to the simple observation that grades went down after the institution of PowerPoint presentations, the willing scholar of teaching and learning is forced to consider what he or she knows about learning in general. The research question (“problem”) has expanded from the more narrow concern about the efficacy of PowerPoint presentations to a much broader consideration of how people learn and how best to teach. Observations lead to questions and hypotheses which promote more observations, more questions, and refinement of explanations or theories in an iterative, expansive way. There is an oscillation between observation, exploration, and confirmation as well as between inductive (from a particular instance to a general theory) and deductive (from a general theory to a particular instance) reasoning. In this respect the scholarship of teaching and learning (and Freud’s work), is no different than the process of discovery in the sciences and the arts generally.

### Lessons to Be Learned



1. Good SoTL often begins with observations of everyday phenomena: it is through the details of ordinary teaching and learning experiences that deeper understanding often evolves.
2. The crucial question is “Why?” *Why* does this teaching method work or not work; *why* are students learning or not learning in this particular environment; *why* do students learn and *why* do teachers teach as they do?
3. In order to address the question of “why” with respect to teaching and learning, one must observe, formulate hypotheses and theories, and test, alternating between inductive reasoning and deductive research.

### **Turning Problems or Obstacles into Scholarly Opportunities**

Freud, like all successful researchers in the arts and sciences, possessed two critical personality characteristics of relevance to this discussion of SoTL: persistence and creativity. Indeed, although at times very depressed about the progress of his work, Freud persevered; and, in the process, he used his creative mind to transform apparent problems and obstacles into critical discoveries. Let me provide a specific example.

“Anna O.” (Breuer & Freud, 1966) was one of the first patients whose case inspired Freud to eventually formulate his theories, but her “psychoanalyst”—this was before “psychoanalysis” as such formally existed—was another physician named Josef Breuer. Although ultimately destined to become a pioneer in social work and women’s issues under her real name of Bertha Pappenheim, in the early 1880’s, “Anna O.” was a very disturbed young woman who apparently suffered from classic “hysteria.” She exhibited a wide range of seemingly inexplicable physical symptoms and other mental abnormalities. It was Josef Breuer,

not Freud, who attempted to treat Anna O. with a cathartic or abreactive method that involved bringing to consciousness previously forgotten traumatic memories. In the end, however, Breuer abruptly discontinued his treatment with Anna O., went on vacation, and subsequently returned to his medical practice, never to engage in psychoanalytic therapy again.

The usual explanation for Breuer's decision to break off his cathartic treatment with Anna O. and ultimately discontinue work with Freud was that he disagreed with the latter's insistence on the central importance of sexuality in the etiology of hysteria. Freud, however, believed that additional factors were critical in Breuer's actions. Indeed, it appears that Breuer had become increasingly transfixed with his patient, Anna O., and spent many hours with her. The final blow, however, according to Freud, was that Anna O. fell in love with Breuer, developed symptoms of a false pregnancy, and insisted that Breuer himself was the father of her unborn child. This disturbing development, in conjunction with his wife's increasing jealousy of her husband's focus on his patient, led to Breuer's abrupt termination of the treatment and departure from the embryonic psychoanalytic movement.

Especially in Victorian times, it is not surprising that Josef Breuer reacted defensively to Anna O's infatuation with him and claim that he had impregnated her. Nevertheless, Freud implied that Breuer was so frightened by these developments that he metaphorically took the next train to Salzburg, in effect saying to himself, "Patients undergoing this cathartic treatment get too weird, and I'm getting out of this business." For Breuer, Anna O's reaction to him was a "problem" and an apparent obstacle to cathartic treatment, leading him to give up on this aspect of his medical work. Freud, however, responded differently, providing us with a valuable lesson that has implications for the scholarship of teaching and learning. Whereas Breuer gave up in the face of an apparently insurmountable problem in his treatment method, Freud took an

approach of curiosity: “That’s funny; I wonder why Anna O. fell in love with her doctor? Perhaps something important is happening here that I should explore.” Chessick (Chessick, 1980, p. 46) underscores this point:

“A crucial demonstration of the difference between Freud and Breuer occurred during this period when a patient suddenly flung her arms around Freud’s neck—‘an unexpected *contretemps* fortunately remedied by the entrance of a servant’ .... Rather than retreating, Freud regarded this problem of the erotic transference as one of scientific interest and recognized its great importance in the psychotherapy of hysteria.”

Freud’s decision to confront and investigate the “problem,” rather than to run from it, eventually resulted in the discovery of transference, a cornerstone of classical psychoanalysis and a concept that has broad implications far beyond psychotherapy itself. In the case of Anna O., Freud came to realize that the patient was not perceiving, and reacting to, Breuer as the man he really was; instead, she was relating to him as if he were her father. With the acquisition of this understanding, aided by his work with other patients, Freud conceived the theory of transference, that an individual often projects characteristics on to other people based on his or her relationships with past significant figures (e.g., one’s parents). While I recognize that for the psychotherapeutically sophisticated reader this explanation is disturbingly simple, it nonetheless underscores the essential lesson. Freud transformed the “problem” of a patient’s very strange

reaction to treatment into a focus of research and a vehicle to future discovery and invaluable understanding.

Randy Bass (Bass, 1999, p. 1) describes an analogous process in the scholarship of teaching and learning.

“One telling measure of how differently teaching is regarded from traditional scholarship or research within the academy is what a difference it makes to have a ‘problem’ in one versus the other. In scholarship and research, having a ‘problem’ is at the heart of the investigative process; it is the compound of the generative questions around which all creative and productive activity revolves. But in one’s teaching, a ‘problem’ is something you don’t want to have, and if you have one, you probably want to fix it. Asking a colleague about a *problem* in his or her research is an invitation; asking about a problem in one’s teaching would probably seem like an accusation. Changing the status of the *problem* in teaching from terminal remediation to ongoing investigation is precisely what the movement for a scholarship of teaching is all about. ... How might we think of teaching practice, and the evidence of student learning, as problems to be investigated, analyzed, represented, and debated?”

Thus, SoTL, like psychoanalysis, requires the neutrality of a scientific researcher, a suspension of judgment until the data are in, an attitude of curiosity and wonder rather than condemnation or embarrassment. It is not that the SoTL researcher is unenthusiastic about his discipline and his work; rather, he eschews pejorative views of apparently ineffective teaching or poor learning outcomes, instead asking, “What happened here and why?”

Are your student evaluations down this year? Perhaps you are just losing your grip, or maybe this particular group of students simply lacked sufficient interest in your subject domain. But before you rush to judgment, about yourself (or your students), ask yourself “why” your evaluations were poorer this year. Your great new teaching idea turned out to be a total bust? Before you turn away from your colleagues and fellow teachers in abject embarrassment, an “educational autopsy” might be in order. Ask yourself how this experience might help you understand how students learn and how we should teach. Just as a physician uses a medical autopsy to learn more about disease and how best it can be treated, so, too, can educators learn from their apparent mistakes or disappointments by asking themselves what did and did not work, and why. Apparent obstacles and difficulties in teaching and learning are precisely the “stuff” of SoTL. Today’s obstacles may represent tomorrow’s new understandings and next year’s more effective teaching methodologies.

#### Lessons to Be Learned

4. Difficulties in teaching or deficiencies in learning may be “problems” but they need not be viewed as personal embarrassments or failures. Instead, they represent potential research questions and important opportunities for discovery.

5. Perform “educational autopsies” on your teaching, both when it goes well and when it goes poorly. Ask yourself in each instance, why?

### **An Unconscious Mental Life and Making the Invisible Visible**

Many individuals prior to Freud, from philosophers and religious figures to playwrights and authors, embraced and explored the notion of an unconscious, even if they did not necessarily use that particular label or taxonomy of the human mind. But it was Sigmund Freud who took the idea of an unconscious mental life and structured it, explored it, integrated it into a larger schema of normal and abnormal psychology, and inserted it into the popular culture. Freud believed that an individual’s conscious thoughts and feelings were merely the tip of an iceberg; the vast majority of mental life proceeded in the unconscious, under the surface and beneath conscious awareness. Not only was the majority of one’s thoughts, feelings, fantasies, wishes, and fears to be found in the unconscious; but, according to Freud, more often than not one’s behavior was more powerfully motivated by unconscious than conscious thoughts and feelings. Thus, Freud set out to explore the unconscious mind of man. In the process of psychoanalytic psychotherapy, Freud’s goal was to make the unconscious conscious. He believed that by doing so, a person could exert more rational control over his inner thoughts and feelings.

SoTL is very much like psychoanalysis in this regard. It seeks to make the invisible visible, to make transparent the hidden mental processes of the student so as to enhance teachers’ ability to teach and learners’ ability to learn. And, like Freud’s belief that most of mental life occurs beneath the surface, out of view of ordinary observation, most SoTL investigators would advocate a similar finding in their field. The vast majority of learning occurs in the absence of a

teacher, and even that learning that occurs in a classroom setting is often hidden to the teacher (and the student or learner himself) in the form of unconscious mental processes. How does a student organize knowledge, what does he recognize as relevant “data,” what mechanisms does he use to remember or apply ideas and concepts—each of these questions relates to mental activities that occasionally occur explicitly but more often implicitly and unconsciously.

Making visible the invisible learning that occurs in a student poses some of the same difficulties as does making a psychoanalytic patient’s unconscious thoughts and feelings conscious. In both cases, we are unable to directly observe the internal mental processes as they occur; instead, we must rely on the observation of “derivatives” in order to make inferences about hidden mental processes.

Let me provide a common medical example of the use of derivatives to make visible something that is otherwise invisible. Physicians frequently make the diagnosis of pneumonia in their patients, but rare indeed is the primary care physician who actually “sees” the patient’s pneumonia. After all, to see a patient’s pneumonia one would have to actually look at lung tissue and find signs of inflammation such as white blood cells and pus. To do this, a physician most likely would have to be either a pathologist performing an autopsy on a deceased patient (a little late, perhaps, for a therapeutic intervention) or a pulmonologist (lung specialist) using a bronchoscope (in effect, a fiberoptic TV camera that is placed in the patient’s lungs via the windpipe). And yet thousands of physicians make diagnoses of pneumonia every year, and they are often correct. How do they do it?

The answer is, they use derivatives of pneumonia to infer its presence. What are such derivatives? They consist of symptoms (physical abnormalities reported by the patient such as fever, cough, and production of green sputum), signs (physical findings of pneumonia as

detected by the physician such as thermometer-determined fever and abnormal breath sounds when listening with a stethoscope), and laboratory/radiographic findings (such as an elevated white blood count cell or an abnormal chest X-ray). Note that in the latter instance, (as I must frequently remind medical students) one rarely literally “sees a pneumonia on chest X-ray” unless a sloppy pathologist has inadvertently placed a piece of pneumonic lung on a chest X-ray lying on a desk. Instead, what one sees are only lines and shadows, but the trained physician recognizes that certain constellations of lines and shadows found on X-rays of the chest reliably suggest, but do not prove, pneumonia. Similarly, when putting all of the above derivatives together, one becomes almost certain of the presence of pneumonia, although the physician has not and does not actually directly observe the disease.

The same holds true for psychoanalysis where the processes and contents of the unconscious mind are, by definition, invisible. Yet, those processes and contents can be reliably inferred if sufficient numbers of derivatives from a variety of domains and of sufficient certainty can be elicited, noted, and appropriately synthesized. Although Freud referred to dream interpretation as the “royal road to the unconscious,” he recognized the utility of free association, transference, and other techniques and phenomena for making the unconscious conscious. Psychoanalytic terminology notwithstanding, what Freud was saying in essence was that the content and workings of the unconscious mind can be uncovered and clarified by its derivatives: one’s conscious thoughts, feelings, behaviors, and symptoms.

A thirty-six-year-old woman marries her fourth alcoholic husband. Could this behavior represent an unconscious wish to marry a man like her alcoholic father and attempt to reform him as she had been unable to do with her own father? A meek accountant has obsessional fantasies of a violent intruder breaking into his house and murdering his family, thoughts that he



finds very disturbing. Is it possible that these obsessional thoughts reflect the accountant's unconscious but very real hostility toward his wife, something that he is unable to consciously acknowledge to himself, much less to her? A law student becomes depressed every time he does well on an examination. Does he unconsciously feel guilty for trying to outdo his father who never graduated from high school?

SoTL researchers face similar tasks and challenges in that, like psychoanalysts, they, too, must attempt to make visible the invisible thoughts of others, in this instance, the invisible thought processes of their students while attempting to learn. To understand, and ultimately enhance, students' learning, it is necessary to focus on the very thought processes involved in learning: what factors control attention; how is presented knowledge perceived; what are the mechanisms by which information is encoded and stored in working and long-term memory; what conceptual schemas or maps are utilized by learners so as to make knowledge available for recall and application; how does emotion influence memory and learning; how do novices and experts differ in the way they reason when presented with a relevant problem? These are but a few of the many questions reflecting mental processes that are at least partly invisible that SoTL researchers must address in order to truly understand how their students learn and how their teaching might be enhanced.

Moreover, again in direct analogy to the work of the psychoanalyst, the SoTL researcher must identify relevant and reliable derivatives—or proxies—for the learning processes that are occurring invisibly in his or her learners. Of course, tests—multiple choice, essay, or practical exams—are the most common way we attempt to infer what learning processes have occurred, but such tests typically tell us more about the outcome of attempted teaching and learning rather than the process of learning itself. What are examples of more useful learning derivatives?

Let me return to the question of the effect of PowerPoint-enhanced lectures on learning. The work of cognitive psychologists has demonstrated that organization of information is critical to its ultimate recall, comprehension, and application to actual problems or issues. (Anderson, 2000; Sousa, 2001) However, as previously noted, it is also true that information organized by learners themselves is better remembered and utilized than is already organized information presented to learners. Organization of knowledge is important, but self-organized knowledge is even more useful than, in the context of this discussion, teacher-organized knowledge. As I suggested earlier, perhaps polished PowerPoint presentations, typically presented in rapid-fire fashion, do not allow the individual student time to think about the information and organize it in ways that make sense to him or her.

In order to test this hypothesis, the SoTL researcher might search for intermediate or process artifacts—derivatives or proxies—that elucidate these relationships. For example, two groups of students might be presented a series of lectures; in one group PowerPoint is used while in the other the instructor speaks off the cuff, perhaps even using the entirely antiquated technology of the blackboard. Thereafter, students might be asked to construct concept maps of what they have learned. How might these maps differ among the two groups of students? In this instance, concept maps serve to elucidate how students actually organize the information presented to them; they are an intermediate step in the learning process and are an important proxy of the learning itself.

Another example of learning derivatives: students' misconceptions about a particular subject or concept are powerful obstacles to learning, and they often operate invisibly, but inexorably, in the mind of the learner. Good teachers know how vital it is to bring these misconceptions out into the open where they can be addressed. Such misconceptions, whether

brought to a particular subject a priori or formed in the course of a class or discussion, represent another type of intermediate artifact, a variant on the concept maps discussed previously. Once again, learners and psychoanalytic patients, as well as teachers and psychoanalysts, have similar challenges. Just as a patient's distorted, and often unconscious, beliefs about himself, others, or the world powerfully affect his everyday thoughts, feelings, and behavior, so, too, do the often unacknowledged or unconscious misconceptions of students prevent appropriate learning. In both instances, the task of the teacher or psychoanalyst is to bring such distortions or misconceptions to light—to make the unconscious conscious and the invisible visible—so that they can be openly addressed and modified.

Concept maps and misconceptions represent too examples of learning derivatives or proxies, but they are hardly the only two such examples. Nevertheless, they are sufficient to raise the next important SoTL question: how can learning derivatives be uncovered? As I will discuss below, one of the best ways to explore the learning processes that regularly occur beneath the surface is by insisting that learners “show their work.”

### Lessons to Be Learned

6. In order to advance the Scholarship of Teaching and Learning, educators must make their students' invisible learning processes visible.
7. The means by which learning processes can be elucidated, understood, and ultimately enhanced, is through the use of learning derivatives or proxies.

### **Freud's Fundamental Rule: Show Your Work**

Freud realized that he could not gain direct access to the workings of the inner mind simply by observing behavior or mental symptoms. Thus, as described above, he set about exploring the derivatives of mental life: the statements, emotions, behaviors, and symptoms through which an individual reveals his or her unconscious thoughts, feelings, wishes, fears, and fantasies. In the context of individual psychoanalysis, Freud accomplished this objective by asking his patients to use the technique of free association and to observe the “Fundamental Rule.” (Freud, 1913)

Freud’s “Fundamental Rule” was that a patient in psychoanalysis should report everything that comes to his or her mind, regardless of how irrelevant, nonsensical, odd, uncomfortable, or even revolting it may appear to be. In effect, Freud insisted that his patients think out loud—in other words, “show their work”—in this case the mental work of the mind. While he recognized that such reports were always edited and distorted, he nonetheless believed that much important information could be gained by this method. While we are rapidly developing techniques for actually visualizing brain structures (CT and MRI scans) and brain function (functional MRI and PET scans), as yet we have no better method for exploring unconscious thoughts, feelings, wishes, and fantasies—the hidden products of the mind.

The SoTL equivalent of free association is “show your work.” By insisting that learners show their thought process, rather than simply produce the correct answer to a given problem or question, educators can gain access to the hidden world of learning that occurs in the mind of the student. The process is analogous to that we all experienced during our many years in math class; in that context, “show your work” meant explicitly recording the various mathematical steps used to reach an answer. The same technique, however, can be applied equally well in other academic disciplines, with the exception that one’s “work” is more likely to be

demonstrated by the use of words—thinking out loud—rather than algebraic substitutions or mathematical formulas.

There are innumerable methods by which learners can be encouraged to show their work, but if I were to recommend one source for initial reading on this topic, I would suggest *Teaching for Understanding*. (Wiske, 1998) The authors, all participants in Harvard Project Zero, propose four basic dimensions of understanding (knowledge, methods, purposes, and forms) as well as four levels of understanding (naïve, novice, apprentice, and master) within each dimension. Their schema provides a very useful template by which educators can assess their learners' understanding through the utilization of the “show your work” principle.

Whatever mechanisms one chooses to encourage students to show their work or, if you will, think out loud, the ultimate outcome is answers to the crucial question of “what is?” “What is” here refers to the explicit and implicit aspects of learning, the visible and invisible processes by which students acquire and manipulate knowledge so as to be “learned.” Mapping the terrain of “what is” with respect to student learning processes—thinking, memorizing, organizing, conceptualizing, analyzing, synthesizing—is a descriptive endeavor wholly analogous to Freud’s efforts to understand the structure of the human mind by first exploring exactly what it was his patients were thinking, feeling, and experiencing. Freud was well aware that he could not hypothesize in a vacuum; observations (e.g. patients’ mood and behavior), known phenomena (e.g., slips of the tongue and dreams), and empirical “facts” (revealed, for example, by the process of free association) provided the fuel for subsequent theorization. Similarly, only with the “facts” of the learning process can educational researchers make and test hypotheses, construct larger theories, and intentionally and intelligently manipulate variables so as to enhance teaching and learning.

Eliciting the empirical facts of the learning process—the “what is”—by having students think out loud and show their work provides an important check against unwarranted assumptions as to what we, as teachers, are doing as well as to what works, and why. An interesting psychiatric book, in this regard, is *Every Day Gets a Little Closer: A Twice Told Therapy* (Yalom & Elkin, 1974) by Irvin Yalom, a psychiatrist, and Ginny Elkin, one of his patients. The book consists of simultaneous therapy notes produced by both Doctor Yalom and by Ginny Elkin, an author by trade. To Dr. Yalom’s surprise and chagrin, he learned that some of his most “brilliant” interventions, at least from his perspective, appeared to have had no effect whatsoever on his patient; conversely, behaviors on his part that he considered to be unimportant were of great significance to the patient. The moral is clear: one assumes he understands what works and why at his peril. Only thoughtful and thorough research reliably elucidate processes of cause and effect, whether they be psychotherapeutic or educational.

### Lessons to Be Learned

8. The most direct way to observe and understand the learning process is to ask learners to “show their work.”
9. Use the “what is” of learning processes to hypothesize and test, theorize and validate so as to be able to enhance teaching and learning.
10. Beware of assuming educational cause and effect; only appropriate research can establish such connections.

### Conclusion

Were Sigmund Freud alive today, would he eschew the study of psychoanalysis for the scholarship of teaching and learning? Of course not! Nevertheless, those interested in SoTL have much to learn from Freud's example. His redefinition of "data" and "the problem," his attention to everyday observations so as to clarify the "what is" of his patients' psychological landscape, his relentless pursuit of the question "why," his persistence and creativity in the face of apparent obstacles, his focus on making the unconscious conscious and the invisible visible, his use of "derivatives" to study mental processes not directly observable, and his insistence that his patient's "show their work" by thinking out loud are all valuable models equally applicable to SoTL and the study of human psychology.

*So [said the doctor]. Now vee may perhaps to begin Yes*

Philip Roth

Portnoy's Complaint

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