

ARTICLE

Non-Fiction Memoirs in the Neuroscience Classroom: A Window into the Minds of Those Affected by Addiction

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When I first developed an Addiction course for the Honors College at UMass-Boston in 2006, it focused exclusively on the acute and long-term effects of psychoactive substances on the brain. However, I soon realized that a strictly biological perspective failed to capture how this complex disorder affected the whole person. Students had no insight into addicts' thoughts, feelings, behaviors or how their addiction affected others. To remedy this, students read two non-fiction memoirs: *Tweak* (Nic Sheff, young adult addict) and *Beautiful Boy* (David Sheff, Nic's father) along with learning underlying neurobiology and pharmacology. Reading memoirs students saw firsthand the impact of addiction on individuals. Inspired by the diary structure of *Tweak*, one assignment asked students to collect data about themselves in order to determine their daily patterns/rituals and to contemplate the impact of removing these activities – like the addict after rehabilitation. Other assignments asked students to do

close reading by selecting passages from *Tweak* and explaining how they related to different facets of addiction (biological, environmental, effect on individual), and to perform a comparative analysis between *Beautiful Boy* and *Tweak* to find points of intersection and divergence. Most recently, students used the text of *Tweak* to create interactive performances for a visiting high school class. Memoirs provided students with detailed, honest accounts of lives affected by addiction. The assignments and class discussions facilitated students understanding of the impact of addiction on individuals and their families, which was a powerful adjunct to learning about its underlying neurobiology and pharmacology.

Key words: memoirs in science classroom; writing in science classroom; creative assignments in science; neuroscience education; teaching methods; narratives in science; neurobiology of addiction; addiction memoirs

Instructors are beginning to see the value of engaging students in their neuroscience classrooms through the use of non-fiction texts, such as published case studies (Meil, 2007; Mickley and Hoyt, 2010), non-fiction “novels” (Gunther, 2011) and contemporary biographies (Mori and Larson, 2006). These texts are instructional as psychological and neurological narratives by providing ‘personal engagement’ with abstract concepts (Gunther, 2011) and ‘real’ applications of neurobiology learned in the classroom (Miel, 2007) – both of which increase information retention and excitement for learning (Gunther, 2011; Meil, 2007; Mickley and Hoyt, 2010). Several instructors have used these non-fiction texts as the bases for innovative assignments that require scientific accuracy, clarity and creativity (Meil, 2007; Mickley and Hoyt, 2010).

Memoirs are non-fiction narratives that focus on particular aspect(s) of an author's life. They can be of interest to read because the author is famous or because the author has had a particular experience, illness or loss, to which the reader can relate or empathize with. When well written and candid, the reader feels as though he/she is inside the mind of the author whose thoughts and feelings are described in the first person. As such, non-fiction narratives, such as memoirs, can be powerful adjuncts in the neuroscience classroom since they provide a window into the mental and physical states of their authors. This article describes the incorporation of two non-fiction memoirs in a neurobiology course that I teach about Addiction.

BACKGROUND

Honors259/Addiction is a course I developed for the Honors College (formally Honors Program) at UMass-Boston in 2006 as an intermediate seminar. Non-science majors receive Natural Science credit while science majors receive an intermediate seminar credit towards their General Education requirements. Enrollment is capped at 20 students and one semester of college biology (or the equivalent) is a prerequisite. Students come from all colleges and majors on campus, with more than half of those enrolled majoring in either biology or psychology. As such, each semester the class has a mix of science and non-science students from sophomores to seniors. I have taught the course a total of five times, most recently in Spring 2015.

The first time I taught the course it was a straightforward neurobiology class. The objectives were: (1) to gain a sense of what is known (and not known) about how drugs affect the brain and behavior, (2) to gain a conceptual understanding of pharmacology and neurobiology, and (3) to learn to ‘think’ like a scientist. Using the textbook *Psychopharmacology* (Meyer and Quenzer, 2005) topics included: pharmacology, synaptic transmission, brain structure and function, research methods, all major neurotransmitter systems, and the major classes of drugs of abuse: history, pharmacology, addiction and treatment. There were four exams, with fill-in-the-blank and short answer questions, and two written

assignments, in which students created an informational pamphlet about addiction and developed a research proposal. Regardless of background or major, the course was taught so that all students could learn underlying biology; course grades at the end of the semester, which ranged from 'A' to 'B', demonstrated successful completion for students enrolled.

The second time I taught the course was Spring 2008. The objectives remained same, but the course included several more short writing assignments/class discussions based on science articles from *The New York Times*, *The Economist*, and *The New Yorker*. A month into the semester, I read an article in *The New York Times* (McGrath, 2008) about two addiction memoirs, published simultaneously, by a young man, Nic Sheff (*Tweak*) and his father, David Sheff (*Beautiful Boy*). I immediately shared *The New York Times* article with my class and read the books. During the semester I talked about the memoirs in class, encouraged students to read one or both, but I did not alter my syllabus to include them. However, reading the two non-fiction narratives – the story of Nic's substance abuse as a teenager told from first-person (Nic) and third-person (David) perspectives – made a tremendous impact on me. Their vivid, personal descriptions forced me to move beyond strictly neurobiological explanations of addiction, which focused on neurotransmitters, brain regions and the mechanism of action of drugs. Reading both memoirs, I became attuned to the effects of addiction on individuals – their thoughts, feelings, behaviors and relationships. In turn, I wanted to bring these insights to my students, so that in Spring 2010, the third time I taught the course, I added *Tweak* and *Beautiful Boy* to the syllabus.

ADDING MEMOIRS TO THE SYLLABUS - CONSIDERATIONS

The framework of the revised course remained the same, including the *Psychopharmacology* textbook (Meyer and Quenzer, 2005) and exams about the biology. However, the course objectives expanded to include: insights that biology can provide about the nature of addiction, and how addiction affects the individual and his/her loved ones. I emphasized to the class that we would be exploring addiction from two distinct ends of the spectrum: (1) cell and molecular (neurons, synaptic transmission, drugs and their mechanisms of action), and (2) the impact on humans (effects on behaviors and relationships). Throughout the semester we considered how these disparate ends might be connected, with class discussions and written assignments focusing on these efforts.

However, adding two memoirs to the syllabus raised important questions: How should the memoirs be used? Where should they be incorporated into the semester? In what sequence/order should they be read? What did I want students to gain from reading them? How many and what types of assignments should there be? While I happened to read *Beautiful Boy* before *Tweak*, I decided to have the students read *Tweak* first, and broke up our discussion into two parts, which followed the book's format. We read/discussed *Tweak*, Part I - chronicling Nic's

relapse in San Francisco - several weeks into the semester, and Part II – Nic's recovery and subsequent relapse – a month later, immediately after a unit about the major neurotransmitter systems. *Tweak* served as a compelling entry into the mind of an intelligent, sensitive young adult, who happened to have serious addictions. I placed *Beautiful Boy* at the end of semester – the second to last class. I saw David Sheff's memoir as an opportunity to reflect on everything the students had learned about neurobiology, pharmacology, and had read in Nic's narrative. *Beautiful Boy* allowed the class to consider the role of the bystander (family and friends) and to compare and contrast a third-person narrative with Nic's first-person account.

By far, the most challenging aspect of adding memoirs to the course was developing assignments. However, rather than work in isolation, I sought help from colleagues in liberal arts departments on my campus and a friend who is a theater director. Talking with them about my course and the memoirs helped me to see uses for the texts that I did not envision beforehand. Their perspectives allowed me to step outside a strictly scientific approach and to consider the human aspects of addiction. Adding two memoirs to the syllabus (along with a third memoir in 2015, described in the Discussion) occupied seven class periods during the semester (out of 42), and the memoir-associated assignments accounted for one-third of the course grade.

The next sections describe my assignments in depth and include excerpts from students' written essays and in-class free-writing responses to oral prompts. All quotes are from students who took the course in Spring 2015.

DIARY ANALYSIS - TWEAK

The inspiration for the first *Tweak* assignment came from hearing a colleague in the History Department describe how she had her students use their readings 'to do something that everyone can do.' I was drawn to this idea. Since *Tweak* is written in diary format, I thought my students could chronicle their own daily activities, in detail, and use their diary data as the basis for an essay that categorized and reflected on their routines. For the second half of the essay, the students had to consider the impact that a prohibition of their daily activities would have on their life - like the addict in recovery who must remove people/places/activities associated with substance abuse. The diary assignment incorporated a scientific approach in relation to Nic's narrative by asking students to collect data, report results, and draw conclusions. The class discussion, the day the diary assignment was due, served as a forum for the students to connect *Tweak*, Part I to their own daily behaviors.

The first minutes of the class discussion I asked students to free-write on the back of their assignments about: *how they felt similar to Nic*. Here are excerpts from their responses, each quote from a different student: "we both try to find an escape from our own thoughts and interactions," "certain triggers can cause certain emotions," "parts of my life revolve around particular activities," "our parents are both divorced," "values what his friends and

family think,” “tendency to take the blame out on myself,” “little self control,” “energized by high intensity/stress situations,” “easy for me to ‘relapse’ into my habits when in a stressful situation,” and “I am similar to Nic with the way he is just a human being who loves his family.” Amazingly, every student described at least one way that he/she felt similar to Nic. If I had asked the class - *how are you similar to a drug addict* - before they read the first part of *Tweak* and completed the diary assignment, I wonder what they would have said.

In their written essays, students identified particular elements in their daily behaviors that offered them control, comfort and helped them to focus, such as: morning/evening routines; personal hygiene; when, where, with whom they ate meals; consuming coffee/tea; connecting with people; helping others; time online; school; commuting; importance of music and religion. Students took the diary assignment seriously, many keeping track of their activities over multiple days, in fine detail, in order to determine a pattern. Several students noted how much of their daily routine seemed ‘automatic’ or almost ‘involuntary.’

At the end of the class discussion, I asked students to write down how the diary assignment shaped their reading of *Tweak*. Here is a sample of their responses, each quote from a different student: “it made me realize that he really is just looking for more, for good feelings because the world and life can be hectic,” “...addiction forces people into certain habits and could control their lives,” “...to notice a lot more similarities between Nic and myself than I had before,” “made me think about how much self-reflection it takes to realize your own addiction, and the even greater amount of time it takes to find the courage to change,” and “I feel that *Tweak* actually changed how I did this assignment more than the assignment change my thoughts on *Tweak*. Through *Tweak* I became more sympathetic and understanding about/towards my own habits.” What these quotes revealed was that reading a contemporary’s experience with addiction, together with their own introspection through the diary assignment, had a big impact on their attitudes. As a result, those affected by addiction do not seem as remote and removed from their own experiences as they might have seemed beforehand.

CLOSE READING - TWEAK

Since I divided *Tweak* into two parts, I created a different type of assignment for the second discussion. I wanted students to apply their knowledge of neurobiology and pharmacology to Nic’s description of his behaviors and feelings craving, using and withdrawing from methamphetamine, heroin, and cocaine/crack. Discussion with colleagues in the English Department helped me to develop a close reading assignment in which students selected passages from *Tweak* that they felt addressed: (1) biological role in addiction (2) environmental role in addiction, and (3) how addiction affected the individual. For their essays, students copied the three passages and underneath each one provided an analysis. Rather than me choosing quotes for them, students selected passages from *Tweak* that they found meaningful. This assignment

was placed midway in the semester so that students had sufficient background in pharmacology, synaptic transmission, brain structure/function, research methods, and the major neurotransmitter systems. It was fascinating to see which passages students chose and how they explained the meaning of their selections using their scientific knowledge. Below is an example of a passage chosen because the student felt it represented the *role of the environment in addiction*. In the analysis, the student eloquently described how this passage related to place-preference, which we had discussed in a unit about experimental approaches to studying reward in animals.

Passage from *Tweak*:

“I think about the possibility of me staying clean in this city. It feels impossible again. Not that I don’t want to – but it’s just so easy to get on a bus, call Gack – justify it to myself.” (D Sheff, 2007)

Student’s analysis:

“This quote emphasizes the important role environment plays in perpetuating and facilitating addiction. For example, it involves the principle of place preference, which is often a subtle theme in the book. Whenever Nic has relapsed into addiction, he becomes particularly attached to the place he is in and the people that are around him. The idea of place preference would explain this as a learned behavior, as the people and places around him become unconditioned stimuli paired with the drug, a stimulus that rewards him by causing him pleasure. Therefore, he associates these people and places with pleasure and reward.”

At the beginning of the second *Tweak* class discussion, I asked students to free-write on the back of their assignments in response to two questions: *How does your knowledge of neurobiology and pharmacology inform Nic’s story? How do you bridge the gap between his narrative and the biology you have learned?* Afterwards, each student shared something that he/she wrote with the class. In their responses, students linked *Tweak* directly with neurobiology and pharmacology (examples 1, 2, 3 below) and/or noted how their neurobiology knowledge led to a better understanding of Nic’s behavior (examples 3, 4 below). Their struggle to create connections and bridge the divide between the cell/molecular and the behaving and feeling human is apparent in their responses. Each quote is from a different student.

- 1) “Neurobiology tells us about the processes that happen in your body (what receptors are activated/inhibited) whereas the memoir gives us the outward physical response that results from these drugs”
- 2) “I did find it somewhat difficult to connect the biology we’ve learned at a molecular and synaptic level to the effects of the drugs on Nic’s behavior and body, but there were hints of it in the feelings and behaviors he describes for the different drugs. For instance, his references to different tolerances for and reactions to different drugs, as well as the experience of detox all

invoke the biological mechanisms of drugs and addiction that we've learned about"

- 3) "I learned that drug addiction is so complicated when it comes to studying the biological effects on the brain. I thought that it was easy to simply stop using certain drugs. However, certain drugs interfere with the receptors in the neurons and certain enzymes and only increase a dosage would satisfy an individual [sic]. Simply stopping the abuse is not so easy because the brain craves for that drug satisfaction"
- 4) "I think it's interesting because usually when reading a narrative you get immersed and you feel how the character feels and you question why would he do that. However, knowing the biology of what's happening you know it is not so easy to control and you get a deeper sense of empathy. It grants you a scientific perspective instead of just thinking it has to do with the person's character."

COMPARATIVE ANALYSIS - BEAUTIFUL BOY & TWEAK

In *Beautiful Boy* David Sheff recounts Nic's story through the lens of a parent who loves his son but suffers deeply trying to provide help and support. David's memoir includes scientific and medical perspectives, as well as showing, in candid detail, how addiction affects family members. For their written assignment, students compared and contrasted David's and Nic's narratives to find points of intersection and divergence and considered the role of the bystander (family/friend) in addiction.

By the end of the semester, the students were well versed in Nic's story from *Tweak*, having written two essays and created an interactive performance (described in the following section). They had no reason to second-guess or question his account. However, from Nic's perspective we learn very little about how his father and other family members were affected. Thus, a single perspective can unknowingly create biases (conscious or unconscious) about who or what is to blame for Nic's addiction – a realization noted by one student after reading *Beautiful Boy*:

"In my mind, I always subtly blamed David, Vicki, and Karen for Nic's fall into the drug addiction cycle. I believed that maybe if Nic's parents were more interested in his life than in their own lives, then he would have had a better chance of not being addicted to drugs. I am realizing now that I cannot blame Nic's parents for their son's addiction any more than I can blame Nic for his own drug addiction."

It was an eye-opening experience for the students to learn about Nic's background in *Beautiful Boy*, especially details of his childhood and how his father dealt with Nic's early drug use and later abuse. Even though the class was familiar with Nic's story, all students felt it was valuable to have read *Beautiful Boy*. In comparing the two narratives, one student's essay succinctly stated: "Nic's account recalls addiction, sobriety, and relapse. His father's account is one about fear, hope and disappointment." A

second student noted how *Beautiful Boy* changed her original perception of Nic's narrative: "Overall, I felt that hearing his story from his father's perspective almost made me feel guilty as a reader for so willingly indulging in Nic's story, hearing every detail about his exciting experiences with hard drugs without realizing how detrimental it would be for not only him, but his family as well." Comparing the two memoirs – which often recounted the same events from two points of view – demanded that the reader consider each author's perspective in order to reconstruct his/her own version of the story. For example, the difference in how David is portrayed in each memoir is well articulated by a third student, showing the depth that *Beautiful Boy* gave to fleshing out David's feelings and behaviors towards Nic.

"...the impression given of David in *Tweak* is one of a fed-up, peripherally involved father whose unconventional upbringing of his child contributed to Nic's addiction, from which David had detached himself. Nic is sympathetic toward his father and the pain that he has caused him, though, and blames him far less than David blames himself for Nic's addiction. David's account describes, instead, how his life came to revolve around Nic and his addiction and that his detachment was half-hearted and only out of necessity and repeated betrayal, disappointment, and hopelessness."

In addressing the role of a bystander (family/friends) in their essays, students showed tremendous empathy towards David's suffering, as one student summarized: "As readers we learn how addiction can affect a bystander just as harshly as it can affect the addict themselves. Both Nic and his father experienced times of complete desperation." The double-edged peril of the bystander was captured astutely by a second student: "The bystander is put in the role of deciding whether to risk himself, or risk the addict, which for someone such as a parent, is incomprehensible and leads to guilt, and in some cases, feelings of unequivocal personal failure." Less abstract, a third student's essay highlighted steps David took in order to support Nic's recovery through tangible actions and by reframing his thoughts and expectations:

"David's constant emotional support also provided Nic with more opportunities to get treatment. Although David cut off Nic from living with him and giving him money, he never gave up on his son and he always believed that Nic had the ability to overcome his addiction. David started researching about addiction and learned most of what he knows by going to therapy and studying. By doing this, David understood that his son had a disease. It was hope that allowed David to keep trying with Nic instead of giving up on him."

INTERACTIVE PERFORMANCE - TWEAK

By the end of each semester teaching Honors259/Addiction, I always wished I had had the

foresight to set-up a partnership with a local school so that my students could share their newfound knowledge with precollege students. It seemed ideal to have them use what they learned about addiction as a means to educate other young people. Fortunately, through a connection made at the FUN Workshop at Ithaca College in 2014, a local high school Psychology/Sociology teacher in Hanover Massachusetts contacted me about collaborating. Together we made a plan for his students to visit my class in April 2015, with the idea that my students would do an interactive performance about addiction for his students.

At first I struggled with what the performance should look like, what its function should be, and how to articulate it as a course assignment. Again, I sought help from colleagues, specifically the Dean of Honors College (also a faculty member in English) and a theater director friend who told me about a theater company in Seattle, Book-It Repertory Theatre, that stages performances of literature using original (narrative) texts. Through discussions and exploring the Book-It website (<http://book-it.org/about/>), I came up with the idea to have students perform *Tweak* by using the text of the memoir as the script. I divided the memoir into thirds and assigned each section to a group of six students (there were 18 students in the class). Each group created a 15 min performance that included several scene(s) from *Tweak*, an interactive discussion, and a speaking role for each group member. In the course syllabus I set aside a portion (10-20 mins) of several class periods for groups to work together, and a full class period (50 mins) for a dress rehearsal.

The hour before the *Tweak* performance, eight students from my class met with the 24 visiting high school students for a Q&A about college and student life. This served as a great way to introduce the students to one another. The subsequent hour the remainder of my class arrived and they performed for the high school students. Overall, the performances were good, and interestingly, each of the three groups demonstrated different strengths. The students who performed the first third of the memoir, which recounted Nic's immediate relapse in San Francisco, finished much faster than they had planned, using only half the allotted time. However, this group did not stop and sit down; they displayed tremendous ingenuity, persistence, and kept the discussion going until the time period ended. The second group presented many short scenes from the middle of the memoir, which focused on Nic's various relationships. After each scene they posed engaging questions to the high school students asking their opinions about what different characters should have done/said when interacting with Nic. Feedback from the high school students noted how much they enjoyed this interaction. The last group performed only two scenes from the final third of the memoir, which described Nic's relapse and return to rehab. The first scene was an acting tour de force portraying a methamphetamine-induced psychosis, which was followed by a scientific discussion. The second scene showed a therapy session, followed by a thoughtful discussion about healthy strategies, preconceived notions about addiction, and resources for information and support.

The class performance of *Tweak* – conceived and

performed by three separate groups of students – held together well even though we had not worked as a class to create a uniform presentation. However, keeping the performances focused on a single text, which was presented in sequence, helped create cohesiveness. In the future I will set aside class time for everyone's input into the entire 45-min performance. And, even though I provided time for students to work on the project across several class periods, feedback afterwards recommended that I schedule longer blocks of time during class. Students felt that multiple 10-20 min meetings were not long enough to be helpful.

After the performance each student in the class submitted 1-2 paragraphs describing his/her role in and contribution to the group, and thoughts about the project overall. Students took pride in what they accomplished and enjoyed creating something tangible to share with the high school students. An unexpected benefit, described in (b) below, recounted the impact of *portraying/embodying* a character from *Tweak* and how that led to powerful insights into that character. The comments below demonstrate what students found valuable about the project. Each quote is from a different student.

(a) The value to the high school students in the audience:

"The skits were valuable to the students because it showed them various aspects of addiction. From Nic getting high, to sober, to relapsing, to finally rehab, the students were able to take Nic's journey without having to read his memoir. I think it is important for them to see how people act when they are addicts."

(b) The value to the students in the course:

"Playing Nic's mother's character was a great learning experience because it gave me insight on how family members can be affected with addiction. From the mother's perspective, she thought her son was selfish because he was hurting those around him... Playing the characters enabled me to experience the emotions that Nic's mother was going through."

"I played the role of his therapist... Though I had a short part, it was enough to get me thinking about the very important role therapists and counselors play in an addict's recovery. For Nic, recovery was anything but easy. He needed family, friends, and professionals for support. They showed him that he was strong and capable of changing his lifestyle."

(c) The overall value of the project:

"I feel that to teach or in this case to act out what we have learned in a class setting is like learning twice thus enhancing our own understanding of the material while sharing it with others in an

innovative way. I was also really impacted by how engaged the high school students were, and their eagerness to learn.”

DISCUSSION

Reading non-fiction memoirs, students had intimate access to the thoughts and emotions of a young adult addict and his father. They followed the authors' narratives through numerous cycles of hope and despair. Assignments and class discussions provided opportunities for students to examine these lives in depth, creating a comprehensive representation of the impact of addiction on individuals, which augmented their neurobiological and pharmacological understanding. Student quotations throughout this article provide qualitative evidence for the impact of these texts and assignments on helping them to understand better 'how addiction affects the individual & his/her loved ones' – one of the course objectives.

The assignments associated with the memoirs were a varied means for students to consider these texts. In the *Tweak* diary assignment students observed and described their own daily behaviors allowing them to see points of similarity with Nic. Prior to this experience it is unlikely that students could have spontaneously noted anything that they had in common with a drug addict. In the close reading assignment, students used their knowledge of neurobiology and pharmacology to analyze self-selected passages from *Tweak*. To do this, students had to internalize biology learned, apply it in order to select relevant excerpts, and then interpret chosen passages through a scientific lens. In the comparative analysis assignment, students reexamined a familiar story (*Tweak*) through another perspective (*Beautiful Boy*) – forcing them to reconsider their original interpretations. As a result students gained insight into the effects of addiction on family members, and as one student's essay observed: "Reading the two books allows the reader to see that an addiction damages the relationships and lives of many others besides the addict themselves." In the interactive performance project, students collaborated in small groups to create and perform scenes from *Tweak* for a visiting high school class. Not only did students have to engage an audience, but by portraying individuals from the memoir it made them more cognizant of these individuals' thoughts and emotions – giving rise to greater understanding and empathy. Taken together, reading, writing about, discussing and even performing the memoirs added human dimensions to addiction that would have been difficult, if not impossible, for students to acquire through a strictly scientific approach in the classroom.

Memoirs are a growing field of non-fiction literature, with many authors recounting their own addiction(s) or that of family members. Following the success of *Tweak* and *Beautiful Boy*, Nic and David Sheff have written other books about addiction. *We All Fall Down* (Nic Sheff, 2011) picks-up after *Tweak* and chronicles Nic's experiences in rehab and recovery. *Clean: Overcoming Addiction and Ending America's Greatest Tragedy* (David Sheff, 2014) is a comprehensive and journalistic approach to the topic. Other authors offer varied perspectives. Two memoirs

recommended to me by neuroscience colleagues were *Drinking: A Love Story* (Knapp, 1997) and *High Price* (Hart, 2014). I read and enjoyed both thoroughly. *Drinking: A Love Story* is a compelling narrative about a 'high-functioning' alcoholic woman who was also a successful journalist. *High Price* recounts the author's personal journey as an African American man from an impoverished background to prominent addiction researcher and drug policy advisor.

In Spring 2015, I added *Drinking: A Love Story* to my Addiction course. I placed the memoir mid-semester, within the unit about alcohol, after the two *Tweak* assignments. Students wrote an essay addressing how the author sought to balance alcohol use in her personal and professional lives – her strategies, justifications, triggers. Overall, students valued a female perspective, learning about her battle with an eating disorder and how she navigated complex relationships. However, in feedback at the end of the semester many students noted the immense challenge of reading (and writing about) three memoirs, in addition to reading the course textbook and taking science exams. While students appreciated the author's narrative, they felt overloaded and I can understand their point of view. Therefore, I am not certain I will include *Drinking: A Love Story*, at least in full form, when I teach the course in the future.

I mention this anecdote as a cautionary example. More is not necessarily better. While I believe there is tremendous worth in incorporating non-fiction memoirs in a neurobiology course, doing so must be approached in a thoughtful way. Before choosing a memoir, instructors should decide what they want students to gain from reading it and how the book adds to the students' understanding. Reading and thinking about these compelling, personal accounts require time and space. Doing so asks students to enter into the narrative and experience the emotions and thoughts of the author. As such, for sensitive topics like addiction, instructors might consider including a 'heads-up' or warning in their course descriptions and syllabi - identifying reading materials that might trigger uncomfortable emotions in students with current or past personal experiences with the topic. Over the years, I have had students disclose that they or family members have/had struggled with addiction.

Much can be done with a single memoir, as I have shown for *Tweak*, with respect to the variety and types of assignments, and adding a second book might be a powerful way for students to compare and contrast narratives. While I used *Beautiful Boy* as a means to consider the effects of addiction on relationships, this memoir also contains valuable information about addiction research and treatments gathered by the author through his own reading and interviews with experts. Therefore, students could use *Beautiful Boy* as a means to compare and contrast anecdotal information from the memoir with empirical data from the scientific literature.

The impact of using memoirs in a neurobiology classroom is best captured by a student's response to a free-write prompt during the discussion of *Drinking: A Love Story*. Deep understanding and insight comes from

stepping inside the author's mind...

"Reading a first-person perspective on an individual's addiction helped me to see the struggle with addiction from their eyes. I could understand their reasons for using or drinking and I could understand the pain that they went through, and not just the pain that they caused others."

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