



The Four Millennials You Meet in Dental School: Effort, Outcomes and the Consumer/Investor Mindset in Millennial Dental Students

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As a Generation X dental faculty member and a millennial resident, we feel dentistry lacks a framework to talk about the future elements of the profession: dental students. Without such a framework, it's hard to talk about how dentistry is changing. While dental schools offer a unique venue for watching the behaviors of future dentists in large numbers, in great detail and for long periods of time, we still struggle to find words for how dental student mindsets have changed through the years because we don't have a nomenclature for their mindsets today. This is our attempt to give language to that discussion.

A few comments before we begin. Noticing change requires an unmoving reference point — a fixed, objective lens through which to observe the variable of interest. We don't believe a dentist is an unchanging entity. Philosophies change as we age and gain experience, so as instruments we aren't well-calibrated to analyze change in our profession over time.

While the nomenclature we're about to propose will make it possible to compare millennial dental students with Gen X,

baby boomer and silent generation dental students, we as authors only feel suited to look at millennials in a cross-sectional way, at a single moment in time. Any comments we can provide using this nomenclature are limited to our own institutions and by our own powers of perception, and we will restrain ourselves from commenting on how millennials may be different from generations that came before them.

We're also aware that dentists from one generation are prone to criticism of other dental generations. Our work together as co-authors is an attempt to mitigate that, but we know this is only a partial solution. It's important to understand this is a work of theory and opinion.

And perhaps the best place for it to begin is with an established theory.

Dunning-Kruger and Dentistry

The Dunning-Kruger effect is a psychological term that describes cognitive bias. Specifically, it uses the phrase "illusory superiority" to describe the difficulty that low-cognitive-ability people have in recognizing their own incompetence. Low-ability individuals tend to lack the self-

awareness that would allow them to objectively evaluate their ineptitude, so they believe their skill levels to be much higher than they are.¹

We believe the Dunning-Kruger effect has been at work in dental schools for generations. To our eyes, most students begin in a place of low ability and lack the proper frame of reference to identify their ineptitude in certain tasks. This leads them to believe they are already “good enough” at, say, certain preclinical skills, so they don’t need to invest further time in developing them. It isn’t until much later that they recognize the quality of their earlier work for what it was.

Some educators have expressed to us a belief that today’s dental students are focused on trying to slip by doing substandard work with little regard for their future patients’ clinical outcomes. We disagree with this notion. We believe there exists a spectrum (four broad categories) of dental student mindsets, and most dental students don’t stop trying to develop their skills when they reach the point of minimum competence. Those who do are neither trying to graduate as minimally competent clinicians nor disregarding their future patients. They believe they’re producing competent work because, due to the Dunning-Kruger effect, they can’t see it for what it is.

We believe the four dental student mindsets — like the Dunning-Kruger effect — have been around for generations. We’ll use an economic analogy to explain them further.

I Pay, Therefore I Am

Let’s begin by defining, for the purposes of our discussion, the difference between a consumer and an investor. A consumer is one who acquires goods or services for their own direct use or ownership, while an investor is one who allocates assets

to generate a future gain. One could argue that a consumer receives instant and predictable gratification from their purchase, while an investor assumes a degree of risk by delaying a potential return for the future. When we apply these concepts to dental education, a student with a consumer mindset might believe that if one pays tuition and demonstrates an acceptable degree of competency, one should receive a diploma that makes one a dentist. Completing those tasks fulfills the obligations of the contract.

It seems there are some millennials who believe effort is worth rewarding over outcomes and some who believe the opposite.

The dental student with an investor mindset, on the other hand, embraces the idea that becoming a dentist is a process that requires time, effort and often failure. They accept that they themselves need to be altered, and that becoming a dentist involves changes in thinking processes, learning to conduct oneself in a professional manner and developing not only psychomotor skills but also scientific and clinical knowledge. The investor is less likely to engage in unethical behaviors because they understand that shortcuts won’t lead them to mastery. They also realize that struggle is a productive part of their metamorphosis. Their philosophical axiom might be less in line with, “I pay, therefore I am” — a twist on Descartes — and more aligned with the Japanese proverb, “Fall seven times, get up eight.”

We have already pointed out that the Dunning-Kruger effect makes it difficult for an incompetent clinician to see incompetence for what it is. But we should clarify that an inept dental student is no more likely to be a consumer than an investor. For an investor, there is simply less danger in Dunning-Kruger because the idea of being satisfied when the work is merely acceptable doesn’t make sense. One doesn’t stop investing in a stock that is doing well the moment it begins issuing returns. When one is making a purchase, however, they do. A good consumer doesn’t pay more than the asking price. The problem is that consumers may not totally understand that the skill set they have “purchased” is only good enough for the here and now — for plastic teeth in a mannequin mouth.

It’s the Effort That Counts

While determining if a dental student is a consumer or investor offers important information, we have found it more useful to analyze this in conjunction with another dimension: whether a dental student focuses on effort versus outcomes. The term “trophy generation” has been used to describe some millennials who believe everyone should get a trophy in order to preserve every participant’s self-esteem. *The Washington Post* reported on a poll conducted by the magazine *Reason* and the pollster Rupe that found more than half of Americans say trophies should only be for winners, while those 18–24 years old preferred participation trophies — albeit by a narrow margin of 51–49 percent.² Because a study by IBM found the opposite to be true in a report titled “Myths, exaggerations and uncomfortable truths: The real story behind millennials in the workplace,”³ it seems there are some millennials who believe effort is worth rewarding over outcomes and some who believe the opposite.

Analyzing where a student falls on the effort spectrum (with a focus on effort versus outcomes) as well as the economic spectrum (with a consumer versus investor mentality) allows a dental student to be categorized as possessing one of four mindsets, for which we propose the following nomenclature.

The Four Millennials You Meet in Dental School

Many faculty members will recognize their pupils as one of the following: a consumer-oriented student with an effort mindset (Mortgaging Millennial), a consumer-oriented student with an outcome mindset (Minimal Millennial), an investment-oriented student with an effort mindset (Mismanaged Millennial) or an investment-oriented student with an outcome mindset (Maximizing Millennial). Plotting these economic and effort spectra against one another (TABLE) is a helpful way to conceptualize this.

While these spectra are largely independent, we believe a slight correlation exists. Millennials who are more focused on outcomes seem more likely to invest than those who see effort and desire to be of more value, for example. It also seems that dissonance occurs in the places where the correlation breaks down (Minimal and Mismanaged millennials in TABLE). It's in these regions of the TABLE where students seem to find themselves surprised or disappointed by their outcomes.

We will describe each of these mindsets below. Our hope is to understand each student in the context of their generation and also to understand how they might best be redirected to optimize their educational experience.

The Mortgaging Millennial is a true consumer of their education. They tend to lack self-motivation and the ability to self-assess and are more focused on “putting in the effort” than striving for outcomes. These students would rather

TABLE

The Four Dental Student Mindsets

	Consumer	Investor (unethical behaviors less likely)
Outcome	<p>Minimal Millennial Consumer-oriented student with outcome mindset.</p> <p>Example: Student focused on achieving a certain outcome and trying to achieve it in as little time as possible. Students are often disappointed by unexpected outcomes.</p>	<p>Maximizing Millennial Investment-oriented student with outcome mindset.</p> <p>Example: Student who practices long hours and seeks input to get “better than good enough.” Expected outcomes (positive and negative) are generally achieved.</p>
Effort	<p>Mortgaging Millennial Consumer-oriented student with effort mindset.</p> <p>Example: Student who gives it a “good shot” and does what they “have to do.” Expected outcomes (positive and negative) are generally achieved.</p>	<p>Mismanaged Millennial Investment-oriented student with effort mindset.</p> <p>Example: Student who practices incorrectly for long hours without seeking faculty input. Students are often disappointed by unexpected outcomes.</p>

keep taking out additional “mortgages” with easy money — to continue our economic analogy — rather than trying to build educational equity. These students become buried in what we might think of as intellectual debt — academic ignorance, lack of critical thinking and minimally acceptable clinical skills. The Mortgaging Millennial is more likely to engage in unethical behaviors because they struggle to acknowledge the value of what they do every day. These students often define educational success as the attainment of a physical diploma and are most likely to subscribe to the “C’s get degrees” philosophy.

The Minimal Millennial also possesses a consumer mindset but places value on outcomes over effort. While this generally means Minimal Millennials are better judges of their own abilities, they self-assess in order to gauge the minimum possible amount of energy required to produce an acceptable outcome (and not to reach maximum competence). This is not to say that the Minimal Millennial is simply an acceptable student. They may define their desired outcome as being the top-ranked student in the class. The key is that they look to invest the minimum amount of effort to get there. If they set the goal as being at the top

of the class and a 94 percent is required to get an A, they will study only hard enough to score 94 percent — even if that means ignoring clinical takeaways. High-shooting Minimal Millennials tend to be actively reinforced by both peers and professors because they generate their desired results while maintaining active social lives and cultivating outside interests. These individuals are actually underachieving by definition, but they take comfort in knowing that they are not “overpaying” for either their educations or their outcomes. Minimals put in a modest amount of principal and expect only the desired product. However, they sometimes find themselves stunned when faced with simple clinical situations that they don’t know how to handle while their lower-ranked colleagues handle them with ease. If they engage in unethical behaviors, they don’t do so because they see a lack of value in what they’re doing — they do it because they see it as a quicker route to the goal. Accomplishments — whether they be receiving a diploma for a low-shooting Minimal or becoming valedictorian for a high-shooting one — are as thrilling as a well-executed business deal. The Minimal Millennial knows they have always paid the lowest possible price for the desired product (and often far less than everybody else).

The Mismatched Millennial is likely the most frustrating mindset — both for faculty members and for the dental students who possess it. These students want to invest in their education but are effort-oriented, which means they work harder as opposed to “working smarter.” If we revisit our economic analogy, these are the students who know they need to save for retirement but try to do so by putting money into the stock market without knowing anything about how the market works. These students never get a return on their investment because they don’t seek advice to help shape their outcomes. In dental school terms, they invest lots of time studying or cutting preparations in the simulation clinic but see no improvement because they never look for feedback from faculty.

Unfortunately, this group seems disproportionately affected by Dunning-Kruger. When pressed in one-on-one discussions about a poor performance, these students often say they didn’t seek out input because they thought they were already doing it right. Their core belief that success is dependent upon repetition to lock movements into muscle memory hurts them when they lock in the wrong movements. Fortunately, we believe a portion of this group eventually transitions to an outcome mindset. (We’ll get into more specifics later about how to help effect those transitions.) For those who make this switch in dental school, the payoff is growth. Many such students view their diploma less as an achievement or “end” and more as a representation of the obstacles they overcame during dental school. Students who remain Mismatched likely are the least satisfied with their dental school experience and see themselves as having worked very hard for minimal results.

The Maximizing Millennial, conversely, understands that they need

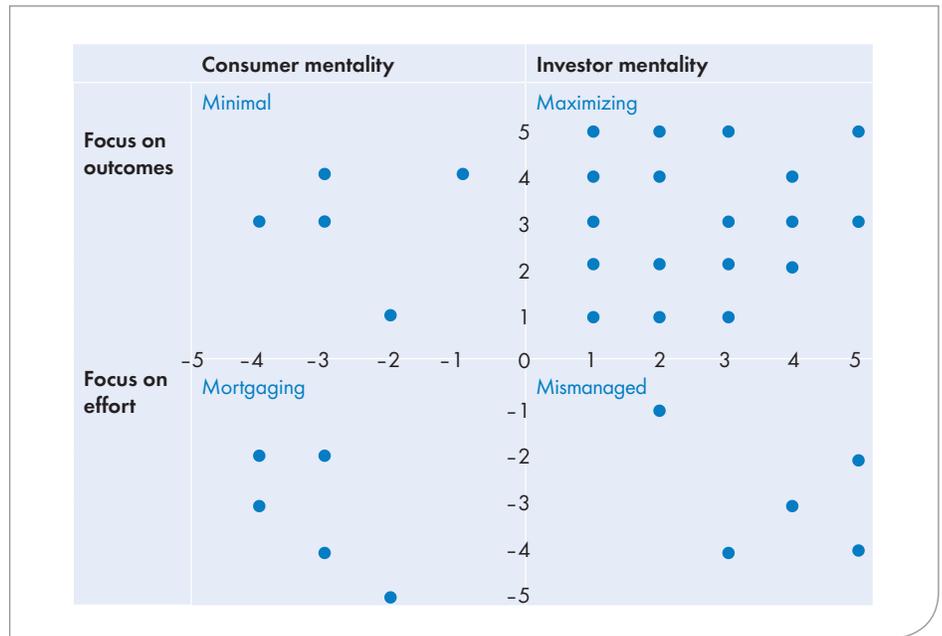


FIGURE. Theoretical scatterplot of a dental student’s predominant mindset as measured every day for a given course of study. The x-axis is the “Economic Spectrum,” where positive x-values denote the strength of an investor mentality and negative x-values represent the strength of a consumer mentality. The y-axis is the “Effort Spectrum,” where positive y-values denote the strength of the student’s focus on outcomes and negative y-values denote the strength of the student’s focus on effort. A point plotted in quadrant I represents a predominantly Maximizing mindset for that day. Points plotted in quadrants II, III and IV represent predominantly Mismatched, Mortgaging and Minimal mindsets, respectively, for those days. During this course of study, this imagined student shows a propensity toward a Maximizing mindset.

to use the resources available to them in combination with a strong work ethic in order to get the most out of their education. They make a large investment and expect a large return. They have the ability to self-assess and also seek out and implement feedback, and they realize that the end goal is their personal development — not a diploma. They understand the effort it takes to achieve mastery. Because they embrace challenge, making themselves vulnerable by asking questions is simply a part of the process. These students don’t mind putting in long hours because they actively believe they are delaying the payoff for a later date. For them, pumping the metaphorical 401(k) is done in hopes of graduating from dental school truly competent, with the abilities and knowledge to be immediately successful. These students seek out teaching assistantships and volunteer over school breaks to add additional

experiences to their learning banks. The diploma for such students is a formality. Maximizing Millennials understand they have transformed into doctors long before putting on a mortar board.

We don’t believe these categories are permanent once assigned. While a single student can only have one mindset at a time, they can have different mindsets at different times. In fact, most students likely occupy all four of these boxes at different moments in dental school. Perhaps the best way to visualize a dental student’s “propensity” toward a particular mindset is to visualize a scatterplot with the economic spectrum on the x-axis and the effort spectrum on the y-axis. While it wouldn’t make sense to do such a thing, if one plotted a student’s predominant mindset every day during dental school, it would create a scatterplot with a cluster of dots concentrated in one area or another, which would give

a sense of the student's predominant mindset as well as its relative variability (**FIGURE**). Average all those values over a year and plot them as a single point to get an average effort and economic value for that student over a given year. Do that for every dental student in a class and plot them on the same scatterplot to gain a sense of the tendencies of a particular class for that year.

We should reiterate that these same types of students have probably always existed. Twenty or 30 years ago, this chart could just as easily have been used to plot out the four types of boomers or Gen Xers you would have met in dental school. While the proportions of students with each mindset would likely have been different in the past than they are today, we can't say for sure. As we mentioned in our introduction, the changing perspective of a dentist over a lifetime makes it difficult even for experienced educators to comment on how dental generations have changed through the years.

We have likewise decided that offering a nationwide, cross-sectional take on millennial dental students would be inappropriate, because we only have direct experience with millennials at our own institutions. While we have certainly entertained ourselves by guessing at what the actual proportions might be today — we think there would be a slightly greater proportion of Mismanaged Millennials if we plotted out the students with whom we have worked — we only have experience in two schools. Since Mismanaged students are easier to “detect” thanks to the problems they cause for both students and faculty, they are likely overrepresented in our minds.

The greater benefit of this nomenclature, in our eyes, is less for documenting how dental students have changed over the years and more for categorizing a particular student's mindset

so as to tailor-fit an educational approach. Is this fanciful thinking? The scatterplot in the **FIGURE** suggests that a dental student can occupy multiple mindsets throughout the day, week, semester and program of study. Certainly this implies it would be impractical — using this nomenclature — to tailor-fit the perfect educational approach to an individual student for every moment of every day, and we agree.

But unless that scatterplot has a perfectly even distribution about the origin — meaning the dental student employs each mindset an equal amount

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of time — it reveals a propensity. And an educational approach geared toward that propensity would be tailor-made more times than not. If a student happens to be occupying a Minimal mindset when the teaching strategy is geared toward their Mortgaging propensity, then the approach in that moment would be no different from that of traditional dental education, not tailor-made. We believe these concepts could be practical for helping those who want to meet their students where they are most of the time.

We've already made it clear that the Maximizing Millennial does the most to take advantage of their dental education. So how does a teacher — after identifying a non-Maximizing propensity — help redirect a student toward Maximizing? We'll address each mindset in turn.

Changing Minds(ets)

Mismanaged Millennials already have an investment mentality — they simply need to be guided toward a focus on outcomes. If one encounters the classic student who practices frequently in preclinic but doesn't get better because they never ask for input, a faculty member must first make themselves approachable both in clinic and during office hours. The task is then to encourage the student to focus on what they are doing and not how long they are taking to do it. A key aspect of these conversations, of course, is an emphasis on seeking input early and often to make sure it's being done right. Plenty of sports analogies exist for such discussions (UCLA basketball coach John Wooden has said, “Don't mistake activity for achievement.” Cal Ripken Jr. has said, “Perfect practice makes perfect.”), but it's important to make sure, as in any educational interactions, that this advice is shared in a respectful and collegial manner. These students want to improve and need direction. Condescend at the risk of turning them away. While it's a short-term fix to offer unsolicited opinions, the long-term fix is to engage Mismanaged Millennials in serious discussions about seeking guidance as a part of directed practice.

The Minimal Millennial, on the other hand, is challenging because they are already focused on paying as little as possible for the end product. The silver lining is that these students — with their elevated self-assessment skills — are often already conscious of the fact that they are underachieving. Minimals may harbor a sense of guilt about the fact that they don't always achieve the best possible outcomes for their patients. If they sense that this conversation has been a long time coming, simply acknowledging that you,

too, believe they are selling themselves (and their patients) short can be an important catalyst for change. The change won't happen overnight, but periodically checking in with these students can make it clear that you're trying to help, not critique, and that you're in it with them for the long haul.

The Mortgaging Millennial is the most difficult to redirect because they need to move in two different dimensions. While it's important to talk about personal experiences you've had — the ones where simply having a diploma didn't prepare you to address problems that face dentists in practice — one of the defining aspects of Mortgagers is that they worry less about results. Those who invest the minimum are less fazed when they experience a bad outcome. When one shoots for C's in every class, for example, one has already accepted the possibility of a few D's. An entire paradigm shift is necessary for these students, and in our experience such a shift tends to happen only when a student is ready for it. It's very difficult to try to redirect a Mortgaging Millennial when that shift doesn't happen organically, but the authors welcome discussion on how best to reorient students in this group.

Unfortunately, it's not fast or easy to change any of these mindsets, and it's hard to accomplish any of these redirections without serious sit-down conversations. An already-cultivated mentor/mentee relationship is ideal for keeping a student open to this kind of discussion, and a collegial relationship is the next best thing. Dental educators who embrace an adversarial or belittling approach to teaching will accomplish little in these conversations.

We also don't mean to imply that Maximizing Millennials are perfect and should be left alone. These students

thrive most when given opportunities to be pushed further — perhaps even beyond the limits of normal dental education. Faculty may choose to offer after-hours study clubs to discuss the dental literature with these students to give them the opportunity to take their education into their own hands. Educators may also find Maximizers who have clinically proven themselves able to take on more complicated cases not typically treated by dental students. These students are willing to put in long hours to complete lab work and learn advanced concepts, but require detailed guidance as they move beyond the scope of “normal.” It can be more work to challenge a Maximizer to reach their full potential, but those teacher/student relationships can be some of the most fulfilling.

It's also true that some students can't be redirected toward Maximizing. Our hope is that future work can focus more deeply on how to educate Mismanaged, Minimal and Mortgaging millennials.

We also recognize that while those reading this piece likely have students jumping to mind who exemplify each of the four dental student mindsets, it's unrealistic to believe any teacher could intuit the propensity of every student in today's large dental classes. It's possible that in the future faculty could administer a test reminiscent of the Myers-Briggs Type Indicator (MBTI) personality inventory to address this issue and determine, on more than a hunch, the strength of each student's propensity, but such a test would require years of research and development. For the time being, these concepts are likely most useful in focused work with individual students.

Teaching dental students has been and will always be a challenge, but some of the joy in our work would be lost if

we solely taught groups of Maximizers. Our charge is to shape real people into doctors who will be able to do their best to care for patients and continue to improve as clinicians after they leave dental school. We hope these concepts can be useful for those looking to develop educational approaches for dental students with each of these four mindsets and help move us closer to an era not just of personalized medicine, but also of personalized learning. ■

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