

看不见的教室：关系、神经科学和正念在教学中的作用

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Introduction

School is the only institution that touches every person in this country. Teachers have been influencing the development of students since the creation of formal classrooms, possibly by the Romans in the middle of the fourth century BCE. Over this long span of time, we have discovered a host of methods for passing on information to our students: lectures, Socratic questioning, classroom discussions, project-based learning, readings, homework, slide film and video presentations, and more—tools the visible classroom uses to transmit knowledge. In addition to these methods, many educators have a vague sense that there are other forces at work in our classrooms. Some of us instinctively use them to support and improve our teaching; others, myself included, have ignored these forces and suffered the consequences.

There are a host of dynamics operating below the surface of the visible classroom that have a strong influence on who learns what, when, and how. These factors are invisible but will cause trouble if they are ignored. For example, a teacher might have to deal with disruptive behavior caused by a student's pain and anger at the lack of connection to others, anxiety created when students feel unsafe, learning challenges worsened when students feel defeated by high expectations without emotional support, and inattention increased by anxiety from events outside of school—to name only a few. These troubles are signs that the invisible classroom needs our attention. They can be

引言

学校是我们这个国家唯一能牵涉、触动每一个人的机构。自公元前四世纪中期罗马人创建正式的课堂之日起，教师就一直影响着学生的发展。在漫漫历史长河中，我们为学生探索出了诸多传授知识的方法：讲座、苏格拉底式诘问、课堂讨论、项目教学法、阅读、家庭作业、幻灯片和视频演示等等——这些都是大家在看得见的课堂上用来传递知识的工具。但是，很多教育工作者也隐隐感到：除了这些方法，我们的课堂似乎还有另外一些力量在起着作用。一些教师凭借自己的本能感知，很好地利用了这些力量，促进并改进了教学方式；还有一些教师，包括我自己在内，由于忽视了这些力量，自然也受到了一些负面影响。

看得见的课堂背后有许多力量以看不见的方式运作着，它们深刻影响了课堂中的教育主体、学习内容、学习时间和学习方式。这些力量是无形的因素，忽视它们必将会引发各种问题。例如，教师可能不得不应对学生与他人缺乏联系而产生的痛苦和愤怒，不得不面对学生缺乏安全感时产生的紧张和心理压力，因期望过高却无情感支持而倍感挫败，还有校外事件导致焦虑以及注意力不集中等连锁反应——这些不过是我随口列举的几个例子而已。然而，所有这些问题都表明，看不见的课堂亟需我们的关注！一旦我们能发现这些年来一直隐藏在

alleviated once we can see what has been hiding in plain sight all these years.

The invisible classroom refers to the microscopic neural connections inside all of us and the hidden human connections among us. These webs of neurological and interpersonal connections create the context for teaching, learning, and living.

We can uncover and positively influence the invisible classroom for the benefit of our students, ourselves, and ultimately the whole of society by using the evolving principles from interpersonal neurobiology, the study of the way relationships, mind, and brain interact to create our mental lives (Siegel 2012b); positive psychology, the study of what is best with people and what goes right in life (Seligman 2002; Peterson 2006); and mindfulness, a simultaneously ancient and modern practice (Kabat-Zinn 2005). We don't have to wait for trouble to arise before acting. We can prevent trouble while we intentionally develop a better working and learning environment. It is not too much to say that learning to see the invisible classroom will help you begin to alter the formerly invisible forces and create an environment that supports learning. All of this is as true in kindergarten as it is in postgraduate study.

My goal in this book is to provide practical understandable principles drawn from research and experience, illustrate them with true composite stories drawn from the real imperfect world of education, and offer realistic guidance for applying them in the midst of the ongoing pressures of teaching. Hopefully the students in these stories will seem familiar, although their lives may seem more difficult than that of an average student. The role of psychologist allows one deep access into people's lives that no other profession can offer. The hidden details and sometimes unsettling aspects of students' lives illuminated in the stories may not always be obvious to educators, but the principles illustrated by them are universal. We are all part of the web of interpersonal connections, and we are all blessed with the connections inside our brains.

Neuroscience: Begin with the brain. Teaching changes the structure of the brain in far more complex ways than any brain surgeon's scalpel. We educators don't need to

可见课堂深处的力量，我们就能针对性地解决这些问题。

看不见的课堂指的是我们所有人的微观神经连接和彼此之间内隐的人际联系。这些由神经连接和人际联系组成的网络是我们教学、学习和生活中实实在在存在的、不可或缺的环境。

近年来，人际神经生物学（研究人际关系、思想和大脑相互作用创造精神生活的学科）（Siegel, 2012b）、积极心理学（研究成就最好人生和正确行事的学科）（Seligman, 2002; Peterson, 2006）以及正念（一项古老而又现代的实践方法）（Kabat-Zinn, 2005）不断发展。其日趋完善的原则为我们发现并影响教室中看不见的课堂提供了坚实的理论和实践基础，这不仅让学生受益，让自己受益，最终也会造福整个社会。我们无需等到问题出现才采取行动，我们完全可以防患于未然，并同时有意识地去建构更好的学习和工作环境。可以毫不夸张地说，如果您能充分了解看不见的课堂，它必将助您优化、改善以前这些看不见的力量，从而助您创建出一个和谐、支持性的学习环境。这一点无论对幼儿园阶段还是研究生阶段的教学都同样适用。

本书旨在从教学研究和教学经验中提炼出实用易懂的法则，从现实、不完美的教育世界中找到源于真实的复合案例来阐明这些原则，并为教师在教学压力与日俱增的当下提供应用这些法则的现实指导。大家或多或少会对案例中的学生感到熟悉，尽管他们的生活可能比我们经常接触到的普通学生更为艰难。作为心理学家，我们往往能比比其他职业的工作者更深入地了解人们的生活，这是由我们的社会角色所决定的。虽然我们在故事中描述了一些隐秘甚至是令人瞩目的细节，教育工作者不一定都能全面了解，但故事阐明的原则却具有普遍适用性。相信大家都明了：我们每个人都是人际关系网的一部分，谢天谢地，我们都幸运地拥有着大脑内部的神经连接。

神经科学：让我们从大脑开始。教学对学生大脑结构的改变比任何脑外科手术更为精密复杂。作为教育工作者，我们当然不必为了教

study surgery to be able to teach, but a working knowledge of some basic brain processes helps us understand the puzzling aspects of some of our students and generally improves our teaching. There will be brief pertinent, understandable descriptions of brain functions as needed throughout this book.

Relationships: What's love got to do with it? Extensive research over many decades shows that from the first moment of birth, human brains are wired to learn best within the context of loving relationships. This does not change because children enter school, so cultivating a positive relational culture in your classroom and school supports learning and creates a better working atmosphere for you. I delve into the research on human connection so you can see how to apply it in the classroom with students and among staff. What's love got to do with it? Well, as you will see, everything!

Lead with strengths. Education focuses on discovering what students do not know, and then teaching it. This perspective has an unintended downside in that it can lead educators to minimize or ignore student strengths and passions. For educators and students alike, discovering and improving strengths leads to excellence and well-being. There is a growing body of research that supports purposely helping students find their strengths and shows us how to do it.

Anchor with mindfulness. Mindfulness is simultaneously ancient and contemporary. Its positive effect on the brain makes it a useful daily approach to the classroom. Brain research clearly shows the benefit of mindfulness, and I discuss how to use it for yourself as well as in the classroom.

The research results we will explore are not obscure, isolated, ivory tower facts; they translate into down-to-earth, practical methods that have a consistent positive effect on students, staff, and parents alike, whether the students have daunting challenges and lives filled with tragedy or lives of normality or even privilege. The examples included herein are often drawn from experiences with difficult-to-teach students in various settings. Some of the settings are plagued with rural poverty, some are from more affluent suburbs. The state of mind when teaching these

学去学习外科知识,但若能对基本的大脑运作有所了解,将有助于我们理解一些让人百思不得其解的学生行为,并普遍提升我们的教学水平。本书将针对性地提供一些简要、易懂的大脑功能描述。

人际关系: 爱与教育有何关系? 过去几十年的大量研究表明,人类自出生那一刻起,大脑就被塑造为在爱的浇灌下学习效果最佳。这种情况不会因为孩童进入学校而发生改变,因此,在课堂和学校里培养积极的关系文化,能促进学习,并创造更棒的工作氛围。我深入分析了人类关系研究的方方面面,以便您了解如何在学生和员工中间应用相关成果。爱与教育究竟有何关系? 对,正如您将看到的那样,无所不包的关联!

优势主导。传统教育更多关注如何发现学生的未知薄弱环节,并传授知识。这种观点有一个令人意想不到的缺点:它可能导致教育工作者低估甚至忽视学生的学习优势和热情。而发现和提升这种优势无论对教师还是学生,都是通往卓越和幸福之路。越来越多的研究表明应该有目的地帮助学生寻找优势,并且帮助他们实现和实施优势。

锚定正念。正念的操作可追古溯今。它对大脑的积极影响使其已然发展成教室中常用的教学手段。有关大脑的研究清楚地阐释了正念的好处,我将讨论如何在课堂中使用它,以及如何更好地为己所用。

我们要探讨的研究成果不是晦涩的、孤立的、象牙塔里的所谓事实。我们将这些研究转化成脚踏实地的可行办法,以便对学生、教工和家长产生一致的积极影响;无论学生是否面对艰巨的挑战抑或充满悲剧的生活,还是拥有正常的人生或者享有某些特权,都会感受到大有助益。本书案例均取自不同教学环境中困难学生的教学经历。这些教学场景,既有深受贫困所扰的农村校园,也有相对富裕的城郊学校。然而,教授这些学生时的心理状态,适用于任

students, however, is applicable in any setting, with any student from kindergarten through university.

In Chapter 1, we begin by revealing the invisible aspects of our classrooms. Beginning with the brain, we discuss how learning about love, leading with strengths, and anchoring with mindfulness provide practical direction for creating a superb learning experience in your classroom.

Chapter 2 takes us into a consideration of the human nervous system's workings to investigate why it is critically important for our students and ourselves not only to be safe but to feel safe in our schools and classrooms. Neuroscience tells us that without this foundation, teaching and learning are dramatically impaired.

Building on the foundation of safety, in Chapter 3 we explore why human connection is necessary for learning. Far beyond a nicety of the classroom experience, humans are wired from birth to connect with each other, and this does not change when students enter school. When teachers and administrators attend to the human connections in classrooms and schools, people can flourish; when they don't, people can languish.

Chapter 4 explores the brain's top-down and bottom-up attentional circuits and how to use them to capture student attention and guide their minds toward learning.

Memory, the foundation of all learning, is the subject of Chapter 5. The chapter begins with an exploration of the differences between explicit and implicit memory and how they can either support or undermine each other. The discussion moves on to how memories are encoded, stored, and retrieved; how there is a complex relationship between stress and memory; and how adjusting our understanding of why some of our students struggle to remember information can help ameliorate their challenges.

Growing out of this brain science-based theoretical and practical foundation, Chapter 6 draws from positive psychology, the study of what is best in people, to explore the positive effect of balancing, helping students improve their weaknesses with nurturing their strengths. We will learn how and why a strength-nurturing approach can increase our students' learning as well as bring respect and connection to administration, faculty, parents, and students alike.

何环境和场景，适用于从幼儿园到大学高等教育阶段的任何学生。

在第一章，我们首先揭示了课堂中看不见的因素。从大脑运作开始，我们讨论了如何学习爱，以优势为引导，锚定正念，为课堂打造卓越的学习体验提供了实际的方向。

第二章带领我们进入人类神经系统运作方面的思考，研究为什么学生和我们自己在学校和教室里需要安全感，并且这种安全感还至关重要。神经科学告诉我们，如果没有安全感作为基础，教学和学习效果都会大打折扣。

第三章我们接着探讨了在安全的基础上，人与人之间的联系对学习而言是必不可少的。人类自出生开始就被赋予了相互联系的能力，这远远超出了课堂所能给予的完美体验，这一能力即使在学生进入学校之后也不会发生改变。如果教师和管理者能密切关注教室和学校中的人际关系，学生的蓬勃发展指日可待；而一旦忽视，各种萎靡颓废也会接踵而至。

第四章探讨了大脑的自上而下和自下而上的注意力回路，以及如何利用它们吸引学生注意，并引导他们进行学习思考。

记忆是所有学习的基础，也是第五章的主题。本章首先探讨了显性记忆和隐性记忆之间的区别，以及它们相互支持和相互制约的机制。接着讨论了记忆如何编码、存储和检索；压力和记忆之间的复杂关系；以及如何发现部分学生记忆困难的真正原因，帮助他们解决相关难题。

基于前面脑科学的理论和实践，第六章借鉴了积极心理学，即研究人类优点的学科，探究了平衡积极与消极的正面影响，帮助学生通过培养优点来改善他们的弱点。我们将了解到，为什么以及如何采用优势培养法提升学生的学习效果，并为管理层、教职员工、学生和家带来尊重与和谐的关系。

Practical applications of mindfulness, the nonjudgmental attention to the present moment, as a means for helping our students (and ourselves) find our center and open to new learning and warm relating is the subject of Chapter 7.

We put it all together in Chapter 8 as we circle back to the beginning, weaving the principles and practices of relationships, neuroscience, and mindfulness into the possibility of improving school and classroom culture.

In my experience, this approach works best if it begins at the top with administration, staff, and faculty practicing together the changes they would like to see with students. Often, these experiences alone begin to influence how we perceive our students, and the classroom culture begins to shift even before we directly apply these new methods. My wish for educators is to find the deep satisfaction in the critically important hard work we do, side by side with our students settling into meaningful rewarding lives as they make positive contributions to our world in the years ahead.

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第七章讨论了正念的实际应用，不带任何偏见地关注当下，通过正念帮助我们的学生（和自己）找到人生的中心位置，敞开接纳新的学习方式并营造和培养温暖的社会关系。

在第八章中，我们又回到本书的开篇，将所有内容整合起来，将人际关系、神经科学和正念的原则和实践交融在一起，探索各种改善学校和课堂文化的可能性。

根据我的经验，这种方法最好从上层开始，由管理层、教职员工共同实践，以期获得他们所希望看到的学生转变。通常，这些经历本身，就能让我们对学生的感知发生变化；甚至在直接应用这些新方法之前，我们就能感受到课堂文化也在日益发生变化。我希望教育工作者能与学生并肩努力，在这项任重道远工作中找到成就感和满足感，真正帮助他们在未来的岁月里于过上有意义、有收获的生活，为我的世界做出积极的贡献。