

Blending Mathematics Teaching with Kindness

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Cover Page Footnote

We would like to thank Art Duval and Christopher Yakes for their suggestions for improving the article.

Blending Mathematics Teaching with Kindness

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Synopsis

Mathematics can be intellectually demanding, engaging, and fulfilling. Learning mathematical concepts adequately warrants an environment where students can err without penalty, shame, or hurtful consequences. Teaching mathematics efficaciously depends on the trusting relationship between the teacher and the students. We advocate blending mathematics teaching with kindness because it benefits the teacher, the students, and society. Kindness, niceness, caring, and benevolence are interrelated but not synonymous. We outline four progressive levels of kindness: conditional, superficial, optimal, and genuine. Blending mathematics teaching and kindness effectively requires the teacher to decenter from their own perspectives and adopt the student's perspective as the student struggles through a challenging math problem. The efficacy of blending teaching and kindness depends on the teacher's inner cultivation of benevolence. In one's journey towards teaching with genuine kindness, one would need self-knowledge, unwavering commitment, continual practice, collegial support, spiritual guidance, and mindful awareness.

Keywords: kindness, prosocial behaviors, caring, benevolence.

1. Introduction

Recently, there is increasing momentum in education towards kindness. The Random Acts of Kindness Foundation offers high-school teachers a 16-week curriculum to help themselves and their students learn about kindness and spread it to the community.¹ The Kindness Factory and Kaplan Academics jointly created activities that promote children's kindness attributes such as collaboration, compassion, empathy, gratitude, and humility.² These activities, however, are not well-suited for college-level math courses because college students are typically adults and do not meet for a course on a daily basis. *How then can college instructors incorporate kindness into the math courses they teach?*

This article was written to generate interest among teachers, instructors, and educators of mathematics to blend math teaching with kindness. We begin with clarifying what kindness is. We then address a three-part question: why, what, and how to blend math teaching with kindness? To blend math teaching with kindness effectively, teachers need to cultivate kindness within. Hence, we address a fourth question: How to cultivate kindness within?

To get the most out of this article, you are encouraged to engage intellectually by answering the questions³ posed throughout, reflecting on your own experiences, being open to the ideas presented, and considering incorporating them into your teaching. We recommend that you focus on what is useful or beneficial to you.

2. What is kindness?

What does kindness mean to you? Being nice? Being caring? Being benevolent? . . . For us, being nice, being caring, and being benevolent are inter-

¹ The high school curriculum by the Random Acts of Kindness Foundation is available at <https://www.randomactsofkindness.org/high-school-curriculum>, last accessed on January 28, 2023.

² For an introduction to the Kindness Curriculum created by the Kindness Factory and Kaplan Academics, see <https://thekindnesscurriculum.com/>, last accessed on January 28, 2023.

³ Questions that are italicized are meant for readers to ponder.

related but not synonymous. Being nice tends to promote positive feelings in others because the actions are pleasant and pleasing, but it tends to be short-lived. Being caring also stimulates positive feelings but the actions are motivated for the well-being of the receiver; it helps establish a trusting relationship. Being benevolent also concerns the well-being of others but the actions are done with little self-interest. In this paper, we interpret kindness as being at the same level as caring but not synonymous because kindness need not involve relationship-building (e.g., a random act of kindness that benefits a stranger). Hierarchically, kindness is necessary, but not sufficient, for benevolence. On the other hand, kindness is neither necessary nor sufficient for niceness. Figure 1 captures the interaction of these three terms.

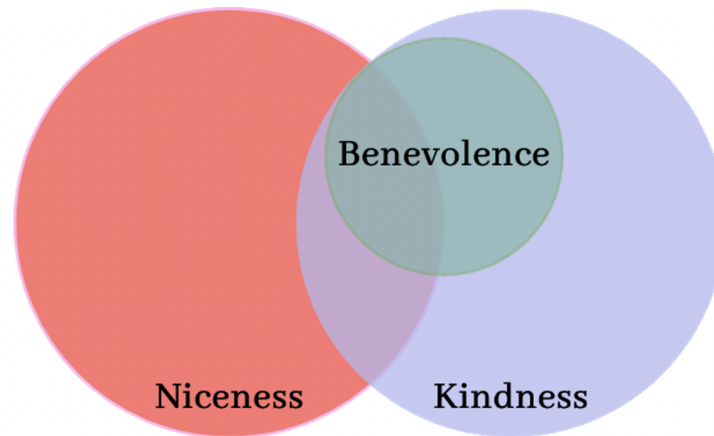


Figure 1: The interrelatedness among niceness, kindness, and benevolence.

Kindness is referred to as *prosocial behavior* in the field of psychology. Böckler, Tusche, and Singer [1] identified four types of prosocial behaviors: (1) altruistically motivated, i.e., unconditional giving and helping, (2) norm motivated, e.g., acts of kindness based on reciprocity, (3) strategically motivated, e.g., acts of kindness based on cost-benefit calculations, and (4) self-reported psychological measures of generosity. Teachers who seek to infuse their math teaching with kindness can reflect on the motivations underlying their kindness-infused teaching actions and their progress towards benevolence (i.e., altruistically motivated kindness).

3. Why blend math teaching with kindness?

What reasons for blending math teaching with kindness can you think of?... We will answer this question from three perspectives: the learner, the teacher, and the society.

How can blending math teaching with kindness benefit students? We assert that learning mathematics deeply requires intellectual engagement (see [11, 12, 13, 14]). Active learning in a problem-based instructional approach presupposes a positive learning environment where students can feel safe making mistakes and they can learn from each other as they grapple with math ideas. A positive learning environment in which a student develops epistemic confidence is built upon mutual trust grounded on a relationship that connects the teacher and the student [20]. A trusting relationship takes time to develop because it involves “some form of shared reality” (page 690) co-constructed based on a history of personal interactions where the student felt the kindness of the teacher and realized that the teacher genuinely cares. For Platz, a shared reality is developed through episodes of “sharing one’s thoughts about a certain topic, pursuing a joint purpose in one’s epistemic activities, and collaborating when acquiring knowledge” (page 693). We will discuss in a later section that blending mathematics teaching with kindness requires the teacher to decenter from their mathematical perspectives and harmonize with the student who is struggling to solve a math problem. As the student experiences success in solving challenging problems, the trusting relationship grows, the student’s self-efficacy in problem-solving strengthens, and mathematical competence increases.

How does being kind benefit the teacher? We believe that genuine kindness contributes to one’s own *eudaimonic* happiness and inner peace. Whereas hedonic happiness comes from pleasures and achievements, eudaimonic happiness comes from meaningful pursuits of life and acts of kindness. From their meta-analysis of experimental kindness literature, Curry and colleagues [4] found that performing acts of kindness has a positive effect on the well-being of the actor. Dixon [5] explains the positive feedback loop between kindness and happiness. Teaching with kindness in mind contributes to not only the well-being of the teacher but also their health and their relationship with students. Hamilton [10] identifies five side effects of kindness:

(1) kindness makes us happier, (2) kindness is good for the heart, (3) kindness slows aging, (4) kindness improves relationships, and (5) kindness is contagious.

How does fostering kindness benefit society? In addition to benefiting the receiver and the giver, kindness can warm the hearts of observers. For example, Chancellor and colleagues [2] found that “Givers made Observers feel happier, more connected to one another, more elevated, and more satisfied with their lives” (page 279). On the other hand, many people regard that the United States is on a trajectory of moral decline because more and more of its citizens value personal gain over societal benefit, sense pleasure over inner peace, and power over integrity (see [17]). Consequently, there is a greater need for kindness, which according to [3] is an antidote to self-serving narcissism. As more students receive or witness random acts of kindness, they are more likely to pay it forward as such acts improve the well-being of the givers and receivers [21]. As more and more people experience kindness, there is a possibility of establishing a critical mass for our nation to reverse its course from a decline to an increase in morality. In fact, there is a growing number of websites and online resources that promote kindness.⁴

4. What does blending math teaching with kindness entail?

What do you think is the essence of teaching mathematics with kindness? In a study involving twelve urban math teachers’ perceptions of care, Maloney and Matthews [15] delineated three types of care: empathetic, transactional, and blended. Empathetic caring teachers identify with their students’ challenges, prioritize students’ well-being above their own, seek to understand and manage students’ frustrations, affirm students’ self-identity, and partner with students’ struggles in math and life. Transactional caring teachers, on the other hand, act according to their perceptions of students’ challenges rather than connecting with students, express concern perfunctorily, express a contingency to their caring, believe that student frustration indicates low

⁴ See for example, the web resources provided by *Greater Good Magazine* (<https://greatergood.berkeley.edu/>), Random Acts of Kindness Foundation (<https://randomactsofkindness.org/>), Life Vest Inside (<https://lifestinside.com/>), and kindness.org (<https://kindness.org/about>), all last accessed on January 28, 2023.

effort, and expect students to learn to conquer their own struggles. Teachers in the blended care category exhibit a mixture of empathetic care and transactional care. *Would you consider yourself to be a caring teacher? If yes, is it more towards empathetic caring or transactional caring?*

Instructors who seek to teach math with kindness in mind can reflect on the degree to which they connect cognitively and emotionally with students. Hackenberg [9] introduces mathematical caring relations to conjoin “affective and cognitive realms in the process of aiming for mathematical learning” (page 237). In the context of solving a challenging math problem, a student may experience depletion (e.g., frustration, anxiety, boredom) or stimulation (e.g., excitement, insight, discovery). Hackenberg regards caring as “balancing the ongoing depletion and stimulation involved in student-student mathematical interaction” (page 45). Doing so requires the teacher to decenter their own mathematical knowledge and see the math problem from the student’s perspective. To construct a mental model of the student’s mathematics [22], the teacher needs to be aware of student-teacher interactions, decenter one’s way of operating, carefully listen and closely observe students’ way of operating, make images and conjectures of students’ mathematics, and work towards harmonizing with students [9].

Blending math teaching with kindness requires a teacher to not only know their student’s mathematical understanding and challenges, but also connect with the student as if two minds have become one. This is analogous to Noddings’ notion of caring [18] which involves “stepping out of one’s own personal frame of reference into the other’s” (page 24) and focusing on the interests and goals of the cared-for instead of ourselves. Such a level of caring takes effort and time to develop. The first author is on a journey toward caring for students with benevolence. Through self-study, he begins to uncover his inner resistance to caring for his students.

5. How can we blend math teaching with kindness?

We are answering this question at two levels. At the outer level, we focus on techniques for blending math teaching with kindness. At the inner level, we focus on cultivating kindness within.

What ideas do you have for blending math teaching with kindness? . . . There are numerous ways in which we can teach math with kindness in mind. For example, Duval [7] shared his experiences and offered several tips on incorporating kindness in college-level math courses, such as learning the names of all his students, valuing their inputs, being more flexible with late assignments, and reaching out to them to “try to prevent them from falling through the cracks.”

In answering this “how to” question, we will recapitulate several key ideas presented earlier. For students to learn math in an active manner, they need to feel free to explore and feel safe to make mistakes. Hence, a positive learning environment where students trust their teacher is essential for effective learning. Trust develops when students feel connected with their teacher. To connect with students, the teacher needs to listen to students’ ideas, see the math problem from their perspectives, feel their frustrations and excitement, and provide support and encouragement. Ideally, the teacher’s care for the student is characterized by motivational displacement — a shift of interest from the reality of the teacher to the reality of a student [18].

“Suppose, for example, I am a teacher who loves mathematics. I encounter a student who is doing poorly . . . and tells me that he hates mathematics. . . . Bringing him to ‘love mathematics’ is seen as a noble aim. . . . but then I shall not be disappointed in him, or in myself, if he remains indifferent to mathematics. . . . How would it feel to hate mathematics? What reasons could I find for learning it? When I think this way, I refuse to cast about for rewards that might pull him along. He must find his rewards. . . . I begin, as nearly as I can, with the view from his eyes: Mathematics is bleak, jumbled, scary, boring, . . . What in the world could induce me to engage in it? From that point on, we struggle together with it” (page 16).

Although struggling together with the student reinforces the trusting relationship, the teacher, being a more knowledgeable other, would still need to support and help the student overcome the impasse. The teacher needs to select problems that are appropriate and within the students’ *zone of*

proximal development [24]. The teacher also needs to help students manage frustrations and emotional depletion. To effectively blend math teaching with kindness, the teacher needs to have both deep mathematics knowledge for teaching as well as genuine kindness for students.

Palmer [19] noted that effective teaching requires one to know not only one's subject and one's students, but also oneself. In his attempts to create a positive learning environment, the first author became aware of his own judgmental attitudes and deficit-based mentality. He learned the importance of having an aspiration to cultivate kindness within, determination to practice kindness, courage to face his own shortcomings, and grit to deal with challenges and disappointments.

6. How do we cultivate kindness within?

Whereas genuine kindness may be natural for some individuals, it is something that needs to be cultivated for many people. *What does it take to cultivate kindness within?* ... We come to learn that it takes self-knowledge, commitment, practice, support, and mindful awareness.

According to Palmer [19], good teaching requires knowing “thyself” in a way that is “neither selfish nor narcissistic” (page 3). In one's journey of cultivating kindness within, one must have the courage to learn about oneself, accept one's weaknesses, and use one's strengths to benefit others. One needs to be honest with oneself in order to recognize one's “true self” instead of creating a front while interacting with others. In his book *Courage to Teach*, Palmer (1998) emphasizes identity and integrity: “Identity lies in the intersection of the diverse forces that make up my life, and integrity lies in relating to those forces in ways that bring me wholeness and life rather than fragmentation and deeds” (page 14). Teachers who teach math with kindness in mind need to be oneself and relate with students with veracity and kindness that lead to a greater good for all. “Only when we are in communion with ourselves can we find community with others” (page 92).

Are you a kind person? To what extent? ... Informed by the four prosocial behaviors from [1], we outline these four levels of kindness as a means to gauge one's progress toward genuine kindness:

- (a) *Conditional kindness* is a self-serving type of prosocial behavior. The acts of kindness are intended to benefit oneself. Such acts are *strategically-motivated* prosocial behaviors in the sense they are not spontaneous but performed with self-interest in mind. For example, a teacher gives extra credits to help a student get a passing grade, thinking that the student would give higher ratings in the upcoming course evaluation.
- (b) *Superficial kindness* is essentially niceness, i.e., acts that are perceived as pleasant or courteous by others. Such acts are considered norm-motivated prosocial behaviors in the sense the acts of kindness are motivated by cultural norms rather than the genuine kindness within. For example, a teacher encourages a struggling student to persevere by trying different ways to solve a problem because the teacher is expected to do so in a problem-based instructional approach.
- (c) *Optimal kindness* is other-serving but with a certain degree of self-interest. The acts of kindness are calculated in the sense that it is performed to benefit others but not at the expense of oneself. Such acts are motivated to produce optimal benefit with minimal cost for all parties concerned, including oneself. For example, a teacher assigns extra-credit work to help a student who has recently started to put in more effort to obtain a passing grade, thinking that expressing their confidence in the student would motivate the student to work harder.
- (d) *Genuine kindness* is essentially benevolence. Such acts are altruistically-motivated and performed without self-interest. For example, a teacher gives up their weekends to help tutor a failing student who has shown renewed interest in math.

Having honestly gauged which level of kindness we are on, we first accept ourselves and then consider making a commitment to progress towards genuine kindness. *Would you commit yourself to a journey towards genuine kindness? Why, or why not? ...* Whether one would or would not commit to cultivating kindness within depends on many factors, which are beyond the scope of this paper.

To master a skill, one needs practice. Likewise cultivating kindness within requires the continual practice of acting for the well-being of all, which includes (1) ourselves, (2) those with whom we are currently interacting, and (3) third

parties who may be affected by our actions. As we act, we should be mindful of both our actions and our underlying motivations. Is the action instigated by an *I-win* mentality (i.e., selfishness), *you-win-I-win* mentality, or *all-win* mentality? A *you-win-I-win* action is not kindness if the consequences indirectly harm third parties. Let's consider, for example, grade inflation in the context of teaching where the students receive good grades and the teacher receives good evaluations from students; there may be undesirable consequences such as a prospective-teacher (i.e., a student) graduating without adequate mathematical knowledge for teaching. Hence the practice of cultivating kindness within requires mindfulness of our actions and the courage to examine our motivations.

What prevents you from being kind to others? . . . In his self-study, the first author identified some attitudes that can prevent him from interacting with his students with empathetic care:

- “I need to protect my own interests.” (self-concern)
- “I am afraid that my kindness is perceived as weakness by others.” (self-image)
- “I worry that my kindness may result in codependency.” (self-importance)
- “I already know what my students need so I don't need to listen to them.” (self-conceit)

If you were to have similar attitudes, how would you overcome them? . . . One way is to seek out like-minded colleagues who share similar aspirations and support one another. The first author initiated an informal group of faculty and staff to promote kindness on campus; this group has been meeting about four times per semester for over eight years.

Another source of support that teachers can tap into is spirituality. By spirituality, we mean belief systems that help us progress towards benevolence, and they need not be based on a specific religion. For example, the self-actualization level in Maslow's motivational model can inspire us to focus on growth needs, assuming that we are no longer governed by deficiency needs (i.e., psychological, safety, belonging, and esteem). Cultivating kindness to

one's fullest potential can be considered a growth need. Mother Teresa is a good example of a self-actualizer who had actualized benevolence. Maslow identified fifteen characteristics of self-actualizers [16], which includes the following:

- Accepting self and others for who they are
- Having a high moral standard
- Caring for the welfare of humanity
- Perceiving reality efficiently and tolerating uncertainty
- Being problem-centered rather than self-centered

After reading “The Lesson of Grace in Teaching” [23] on Francis Su’s blog *The Mathematical Yawp* recounting his MAA Haimo Teaching Award Lecture from 2013, the first author was inspired to practice kindness and gained the courage to incorporate non-denominational spirituality into his academic career. He considered Francis Su to be an example of a self-actualizer who has internalized *grace*, which many would consider a spiritual concept related to Christianity. Other spiritual concepts, such as the *four Puruṣārthas* in Hinduism, the *four immeasurables* in Buddhism, and the *Sura Al-fatihah* in Islam, can also be used to support one’s practice to cultivate kindness within.

We believe cultivating kindness within is enhanced when one is mindfully aware of one’s own actions and experiences. Fonger [8] introduces a heart-centered stance for reflection and introspection as one progresses toward self-transformation. A heart-centered stance involves a multidimensionality of experiences where one is aware of “I am thinking . . . I am feeling . . . I am participating in a practice . . . and I am sensing.” The key to mindfulness practice is non-judgmental awareness. Instead of judging or qualifying others’ experiences, one is “open to receiving their experiences with compassion and kindness” (page 244). Similarly, instead of judging and grasping at our perceptions, feelings, and thoughts, we can simply acknowledge them as they occur without self-reference, and if needed to respond with benevolence accordingly. According to Du Bois [6], a person needs to abandon their compulsive clinging to self to free oneself from suffering, and “cultivating caring concern, compassion, and love for others diminishes this self-grasping” (page 22).

7. Closing Remarks

We have presented the benefits of blending kindness with mathematics teaching from the perspective of the learner, the teacher, and society. We contrasted niceness, caring, kindness, and benevolence, and outlined four progressive levels of kindness. We advocate genuine kindness because it emphatically fosters *eudaimonia* and inner peace. The practice of teaching mathematics with kindness not only has the benefit of improving the well-being of the teacher, but also warms the hearts of the students, strengthens the bond between the teacher and the students, and promulgates positive and moral qualities.

In blending mathematics teaching with kindness, the teacher creates a nurturing environment to stimulate intellectual engagement, connects with their students, harmonizes with students who feel depleted in their mathematical struggles, fosters trusting relationships with students, and models attributes of kindness. We believe inner cultivation of benevolence is necessary for blending math teaching and kindness efficaciously. Cultivating kindness within can be enhanced by having self-knowledge, unwavering commitment, continual practice, collegial support, spiritual guidance, and mindful awareness.

May genuine kindness be a predominant force in our lives!

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