IEJME
OPEN ACCESS
INTERNATIONAL ELECTRONIC JOURNAL OF MATHEMATICS EDUCATION
e-ISSN: 1306-3030. 2019, Vol. 14, No. 2, 419-426
https://doi.org/10.29333/iejme/5745

The Japanese Way of Strength-Based Correction

Thomas Cook [1*]

[1] *School of Education, Humboldt State University, USA*

* CORRESPONDENCE: ✉ tomcook@humboldt.edu

ABSTRACT

The study outlines Japan's positive use of red ink to grade children's homework in order to limit the amount of shame children experience over failures. The psychology of seeing and the psychodynamics of self-conscious emotions are used to explain the mechanism of Japan's positive versus America's negative shame-inducing grading practices. It provides an explanation for unconscious cultural grading practices that tend to differentially produce either pride or shame.

Keywords: red ink, shame, correction, Japan, pride, figure, ground, Gestalt, social psychology

INTRODUCTION

What if you used red ink to circle all of the math problems your students got right instead of the ones they got wrong? This is what teachers do in Japan, and their students routinely rank among the top nations in children's math achievement (Organization for Economic Cooperation and Development, 2016). Some scholars attribute this success to Japan's *Structured Problem Solving Approach* which teaches students to find different ways to solve math problems on their own (Stigler & Hiebert, 1999). But researchers have overlooked the way Japanese teachers correct children's homework, and this may just as important.

CORRECTING HOMEWORK IN A POSITIVE WAY

Japanese teachers minimize a child's shame over getting things wrong by circling all of the correct answers on tests and homework assignments with red ink. Incorrect problems are either not marked, receive small red checkmarks, or are underlined. So the bigger, positive red circles dominate the page to highlight what is right, while the uncircled mistakes yield the stage and tamely wait in the wings. The Japanese way of correction stresses strengths and leaves mistakes understated. When teachers first return students' work, the children see the positive red circles and these outweigh their errors.

MASTERY GRADING AND REWORKING PROBLEMS

In addition, teachers expect students to rework homework mistakes until they get them right. When they do, teachers circle the corrected answers with blue ink. So after the children follow this two-step process, they all have papers filled with red and blue circles showing everything is right.

In Japan, typical elementary school math homework involves two assignments: 1) a completely new set of problems to work on at home and 2) the previous day's homework with the incorrect uncircled problems to be reworked again. The following day, the teacher and the class correct the newest homework assignment, discuss common errors and rework model mistakes at the board in order to make sure everyone understands the problems. The teacher also grades the previous day's reworked homework, circles the correctly reworked answers in blue, and returns these papers to the students for the second time.

Article History: Received 11 January 2019 ◆ Revised 20 February 2019 ◆ Accepted 21 February 2019

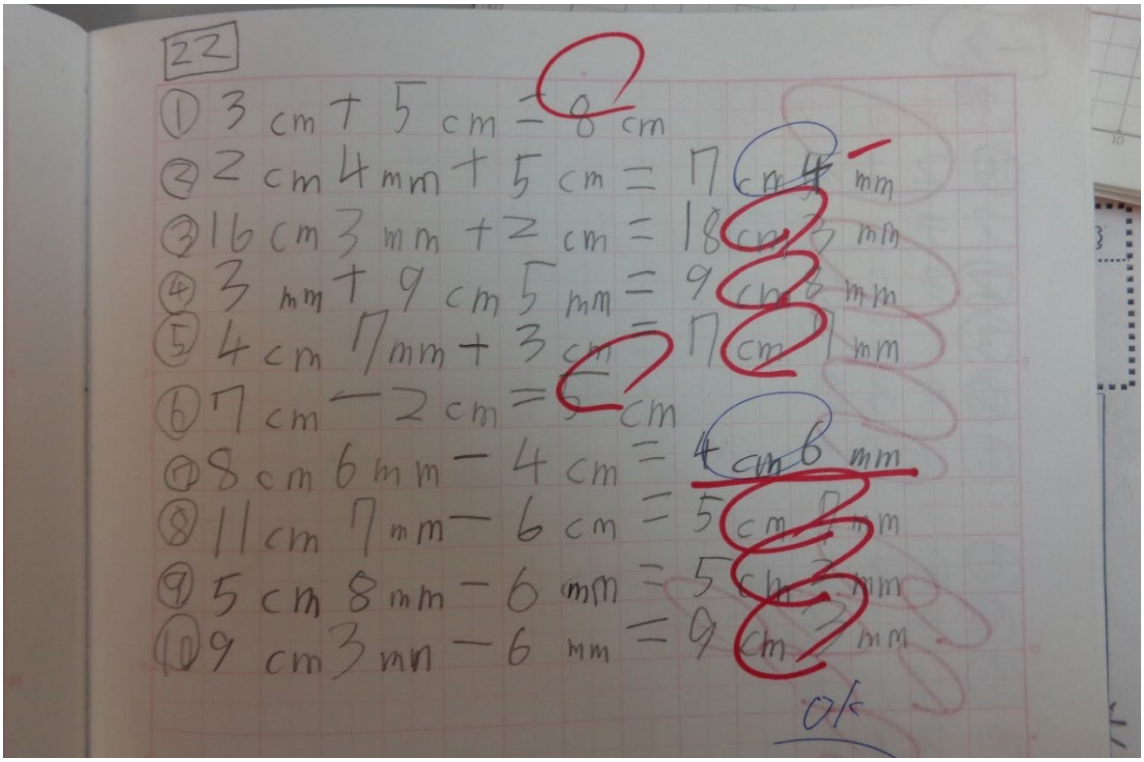

Figure 1. Correct answers are circled in red. The teacher had used no blue ink on the paper before he returned it for the first time. Notice the picture has depth. The red circles appear to float in front of the page with the blue circles slightly behind them. The rest of the visual field remains in the background

The homework photographs herein are from 2nd and 3rd grade elementary school classrooms at the Nishiyamato Academy in Lomita, California. The school follows a Japanese curriculum, is accredited by the Japanese Ministry of Education, and most of the classes are taught in Japanese.

The student in **Figure 1** initially got eight out of ten problems right and these are circled in red. She missed Problem 2 the first time around, as indicated by the small red checkmark. After she reworked it, the teacher circled the corrected problem in blue. The initial answer, although illegible, is somewhat visible beneath the correct answer. The student left the answer to Problem 7 blank. The teacher used red to underline the space for the answer to tell her to complete it. When she did, he circled her answer in blue. The first time the teacher returned the paper, there was no blue ink on it, only eight red circles around the correct problems and smaller red marks pointing out mistakes. After the student fixed the mistakes and the paper was corrected the second time, all ten problems were circled. In America, a perfect paper requires 100% the first time around. According to the *mastery grading* protocol used in Japanese elementary schools, a perfect paper is one where all of the circled problems are right, including the ones that have been reworked and circled in blue. Once the child finishes the assignment in this way, the teacher records a little circle in the grade book for that assignment, indicating mastery. These are used instead of letter grades or percentages. If a child does not complete the work, he will get a half-circle, and if no attempt is made, no circle at all.

THE FIGURE-GROUND RELATIONSHIP

Gestalt Theory explains that we see things in terms of *figure-ground* relationships (Arnheim, 1974). Our minds automatically use salient cues from the visual field to construct the main image in a picture, called the *figure*; the *ground* is whatever is leftover in the visual field. Gestalt Therapy uses figure-ground relationships to explain how we emotionally and psychologically experience the world (Korb et al., 1989). The Japanese homework grading practice constructs emotionally positive pictures in which correct answers form the *figure* and incorrect answers form the *ground*. The figural image formed by the affirming red circles visually and emotionally dominates the paper. The background of uncircled problems is virtually unseen, unless we change our perceptual focus. From an intellectual and psychological standpoint, pride becomes the dominant emotional *figure* and the shame of getting problems wrong disappears in the (back) *ground*.

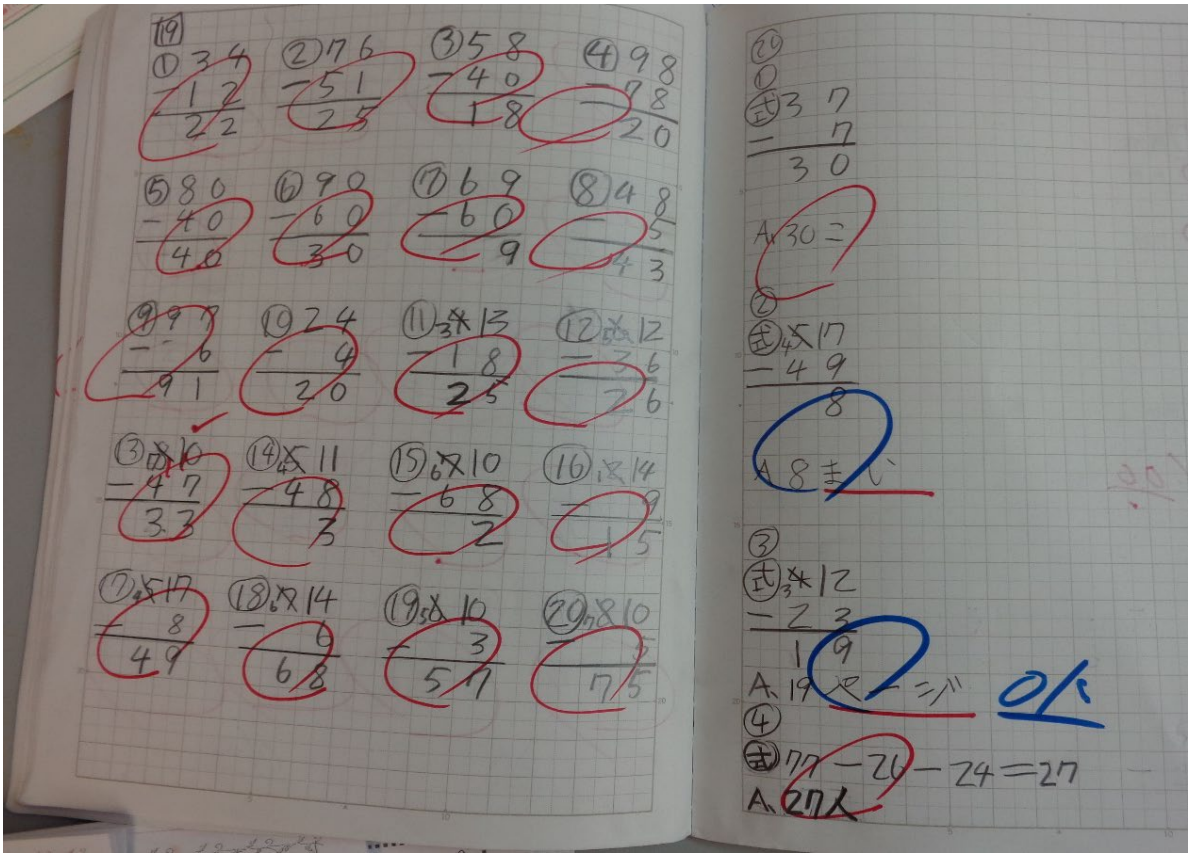

Figure 2. Red circles surround the correct answers. Two mistakes were first underlined in red. The horizontal strokes make weaker visual statements than the circles. When the teacher added the blue circles, after the student corrected the mistakes, they absorbed the negative horizontal lines into the positive movement of the circles. This amplified the emotionally positive message

JAPAN'S GENTLE WAY OF CORRECTION

Figure 2 demonstrates how gently the Japanese point out mistakes. The correct-problems figure, created by the teacher, dominates the page. The student initially saw he got twenty-two problems right when the teacher returned the paper. The four problems on the right-hand page started out as word problems. The student correctly worked the answers to problems #1 and #4, but forgot to write in the units for the answers to #2 and #3. So the teacher used red to underline where he needed to write them. After he added the units, まい (which means *sheets* of paper) to the numerical answer for Problem 2 and ページ (meaning *pages*) to Problem 3, she circled his self-corrected answers in blue. After the second time through, this collection of red and blue circles formed an even more positive figure dominating an even weaker ground. Some psychologists have claimed that red is an "angry" color and that we should minimize its use in correcting children's homework (Dukes & Albanesi, 2013). But whether red is "angry" depends on how a culture uses it (Hupka et al., 1997). In **Figure 2**, red celebrates success.

Figure 3 demonstrates additional Japanese methods for correcting student work, including the visually strongest and weakest corrective marks commonly used. The teacher corrected Problem 4 in four different ways. From strongest to weakest, the corrective marks are: the diagonals, the correct equation, the underline, and the absence of red circles. Problem 5 received no marks at all. When the teacher returned the homework, the lack of any marks on Problem 5 directed the student to redo the problem. The Japanese culture of politeness often points out negative things indirectly, in a subtle way that is socially understood. No-marks-at-all is probably the most Zen-like correction anyone can imagine. After the student redid #4 and #5, the teacher graded his missed problems again and circled the correct answers in blue, creating a circle-filled page. This publically recognized his mastery of the learning.

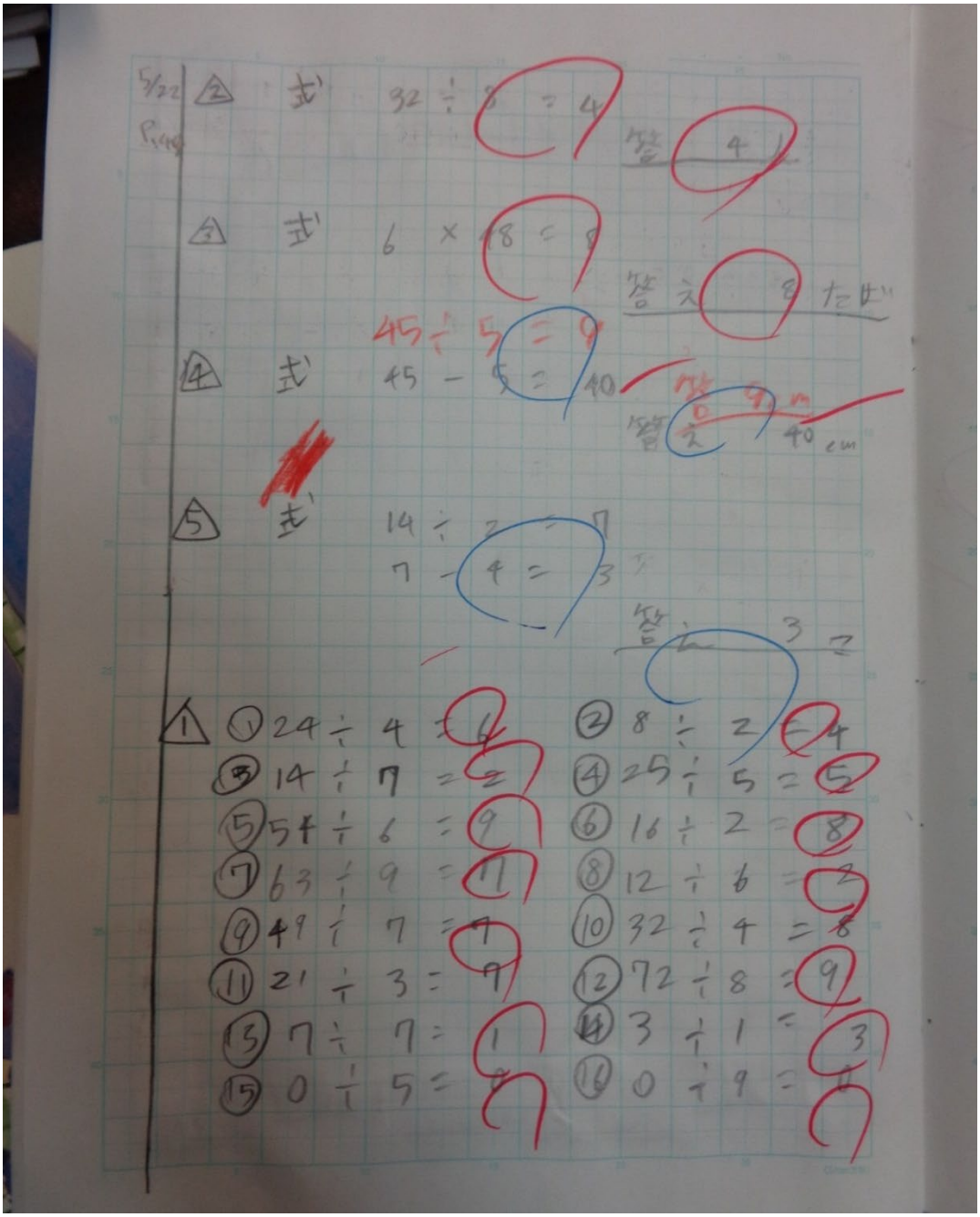

Figure 3. Imagine the paper after it was graded the first time without the blue circles. Problem 4's two diagonals (serving as checkmarks) are the strongest negative marks on the paper. The modeling of the correct equation shows the child subtracted instead of divided. The arcing underline is milder. The lack of red circles even more so. The omission of red circles around the answers to Problem 5 and absence of other marks indicating it was wrong illustrate the subtlest negative correction made. The lack of marks near or around a problem is common when specific marks are not needed to indicate what is wrong

Although the initial focus of Japanese grading is not on children's mistakes, Japanese students and teachers actually spend more class time talking about and reworking math mistakes than we do in American schools! (Takahashi, 2006). Because the Japanese use less threatening forms of evaluation designed to shield children from the shame of being wrong, shouldering mistakes becomes easier. Everyone, including the child, assumes a child will rework the missed problems and get them right. This practice fosters the belief that learning is not about avoiding mistakes but working to correct them.

The Japanese way of correction provides elementary school children with optimal positive reinforcement and limits the shame resulting from failure. Less shame reduces the fear of failure and fosters engagement with learning. Minimizing negative emotions encourages intellectual risk taking and leaves more mindful space for exploratory thinking. The Japanese practice teaches that the glass is half-full and creates feelings of acceptance and self-worth.

If **Figure 1** were an American child's paper, with two red circles marking problems #2 and #7 as incorrect and the eight correct problems unacknowledged, the child's first reaction would likely be a sense of failure. American practice teaches children to see the glass as half-empty and says that unless you are perfect, you are wrong. This makes learning an uphill battle and induces more shame more often. Shame makes us feel outcast, not only from the group, but from ourselves. Shame says: You are inferior and don't belong.

UNCONSCIOUS CULTURAL GRADING PRACTICES

The American system reverses the Japanese positive *correct-problems* figure and *wrong-problems* ground relationship. We create negative *wrong-problems* figures and hide students' strengths in the nearly invisible *correct-problems* ground. So a child's mistakes claim the frame.

The diametrically opposed Japanese and American grading practices are culturally embedded and usually unconscious. Most teachers, including Japanese teachers, are surprised to learn there is another way to correct homework besides the one they know. When explained in terms of the laws of visual perception and the psychodynamics of guilt, shame, and pride, the different effects of the two systems become apparent.

THE SELF-CONSCIOUS EMOTIONS

Shame, guilt, embarrassment, and pride are *self-conscious emotions*. "Self-conscious emotions require self-awareness and self-representations." (Tracy & Robins, 2007). Shame, guilt, and embarrassment are the most common negative self-conscious emotions learners experience in response to failure. Fear, anger, interest, and joy, other common emotions that learners experience in classrooms, are known as *basic emotions* and do not require self-awareness (Nathanson, 1992). Unlike the self-conscious emotions, we share them with all other mammals. Except to note this distinction, they will not be analyzed further, nor will embarrassment.

The same failure can produce shame, guilt, or embarrassment, depending on the self-judgment we make about our responsibility for the failure. It also depends on how we think others judge us. Negative *global* self-judgments in response to failure cause shame and include a self-annihilating feeling that we are unacceptable. Negative *specific* self-judgments cause guilt which, compared to shame, is easier to handle. Although individual differences are important, different methods of teaching and evaluation differentially favor one emotional experience over the other.

SHAME INHIBITS LEARNING

Shame is a common negative emotional reaction to failure (Nathanson, 1992). It makes us stop what we are doing, avert our gaze, and want to run away and hide. The shame experience universally causes momentary short-term disengagement (Tomkins, 1963). Shame results from ***global*** *self-judgments* when one does not live up to valued standards, rules, or goals (Lewis, 2007). Shame is difficult to repair because negative global judgments *attack the whole self as being broken and wrong.* They say: "**I** am **STUPID**." "**I** am **BAD**." "**I** am **WRONG**." All of these thoughts stress the "**I**" and declare it defective (Nathanson, 1992). Overly negative grading practices reinforce such beliefs about one's core self. When these thoughts become ingrained, children are likely to see themselves as unfixable, so give up and stop studying (Dweck, 2016; Lewis, 2007).

Guilt is another common negative emotional reaction to failure. Unlike the global self-judgments causing shame, guilt arises from ***specific*** *self-judgments* when one does not live up to valued standards, rules, or goals (Lewis, 2007). Guilt is much easier to repair than shame. Guilt *makes us focus on what we did wrong and want to repair it* rather than hide (Nathanson, 1992). Guilt stresses the **THING** done wrong with the "I" unstressed: "**WHAT** i **did** was **WRONG**." With guilt, we are more apt to take a longer look at the "WHAT" because the specific judgment concerning failure is separate from our core concept of who we are. For example: "i **DIDN'T STUDY ENOUGH**, so i got **THESE PROBLEMS WRONG**." This is fixable, so additional studying is more likely to result.

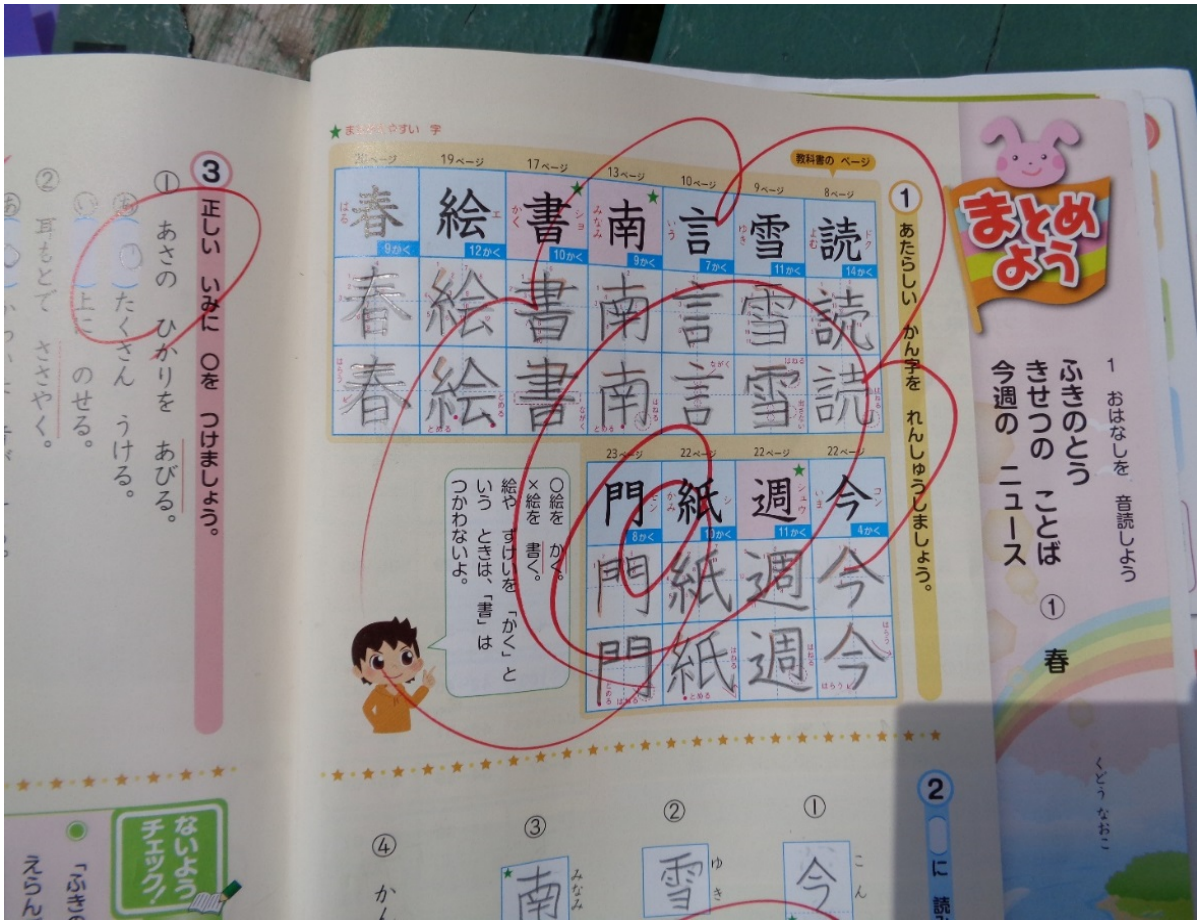

Figure 4. A *hana maru* (flower circle) on a second-grade student's paper saying—Well Done!

Japanese grading practices limit shame, facilitate guilt, and foster pride because 1) they initially recognize what students get right; 2) when children fail, mastery grading gives them a chance to repair their mistakes and be recognized for doing so; 3) the practice of repairing math mistakes creates automatic procedural habits that favor specific guilt-inducing self-judgments instead of global shame-inducing self-defeating thoughts. This encourages more engagement and perseverance, which leads to more success and additional pride.

American grading practices increase shame and leave pride in the background because 1) we initially focus on children's mistakes instead of what they get right; 2) mistakes feel like penalties because there are fewer chances to repair them and be recognized for doing so; 3) American children experience a higher proportion of shame reactions over getting math problems wrong than their Japanese counterparts because our students lack the pride-fostering blue-circle protocols of mastery grading.

American grading practices also expose culturally and economically diverse students to additional shame experiences because they, more than mainstream children, may lack prior familiarity with the material being taught and tested. As a result, they must overcome a higher quota of little failures which traditional grading practices bias toward shame reactions. The undue accumulation of shame reactions over time causes many children to give up and avoid what shamed them altogether. Japanese mastery grading can benefit all children and will benefit disadvantaged students even more.

Shame, guilt, and pride involve perceiving ourselves through the eyes of others. The negative red marks on an American child's paper stand out for all the world to see. The Japanese shine the light in the opposite direction so students can show their perfect papers to everyone around them.

ADDITIONAL SYMBOLS

The Japanese use additional symbols to mark homework. A blue half-circle is used on a child's paper when he does not successfully complete the work or try to do so. But these are rare and still offer the child a chance

to finish the work and close the circle. Red X's also signify things as incorrect, but are rarely used on children's papers. The effect is too strong. Another symbol is a little red triangle Δ which means "almost but not quite." This aligns with the desire to stress the positive: "Even though the answer is wrong, you almost got it right." Instead of letter grades, teachers draw big red "*hana maru*" (flower circles) at the top of students' papers. Flower circles mean "Well done." See **Figure 4**. Elementary school teachers hand them out liberally, and the better the work the more elaborately they draw them. Children love receiving flower circles, which have more zest than A's and B's and C's. For outstanding work, a teacher will draw a *hana maru* to cover an entire page. Flower circles are more common in subjects other than math, perhaps because a paper already full of laudatory circles does not need one.

MASTERY GRADING PROMOTES AN EMOTIONALLY SAFE LEARNING ENVIRONMENT

Japan's strength-based method of indirect correction encourages a safe positive social and emotionally satisfying environment for learning. Mastery grading helps teachers achieve that goal by reducing the threat of being unduly shamed by insensitive grading practices. This is easy to understand once we use psychodynamic explanations to analyze the social psychology of self-conscious emotions in the classroom.

It is even easier to implement. Simply use red circles and blue circles to mark the positive. Mark most mistakes indirectly. When possible, leave wrong answers unmarked. When necessary, use unobtrusive underlines, demure little diagonals, and small triangles, to minimize the negative signals. Give students a second chance to correct and be recognized for their understanding by circling their corrected answers. And for small children, draw pretty flower circles at the tops of their papers to encourage progress. The social, psychological, and emotional rewards are huge. I learned these symbols from the elementary school students I taught on the small island of Izu Oshima in Japan; the teachers at the Nishiyamato Academy, who invited me into their classrooms, use them daily.

Japanese teachers reduce students' shame in the face failure by using symbols and procedures to lower the threat of being wrong. This encourages treating mistakes as stepping stones to knowledge. We can easily adopt their methods of positive reinforcement, indirect correction, and mastery grading by using our pens to circle what is right. Then we can say: Where shame was pride shall be.

ACKNOWLEDGEMENTS

A special thanks to the students at the Nishiyamato Academy and their parents who gave me permission to use photographs of their school work. And thanks to the teachers who allowed me to observe their classes, as well as the administrators and staff who welcomed me into the school.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Thomas Cook – The author is an assistant professor of education at Humboldt State University.

REFERENCES

Alessandri, S. M., & Lewis, M. (1993). Parental Evaluation and Its Relation to Shame and Pride in Young Children. *Sex Roles, 29*(5/6). https://doi.org/10.1007/BF00289427

Arnheim, R. (1974) *Art and Visual Perception: A psychology of the Creative Eye. Expanded and Revised Edition.* Berkeley, CA: University of California Press.

Dukes, R., & Albanesi, H. (2013). Seeing red: Quality of an essay, color of the grading pen, and student reactions to the grading process. *The Social Science Journal, 50.* https://doi.org/10.1016/j.soscij.2012.07.005

Dweck, C. (2016). *Mindset: The New Psychology of Success.* New York, NY: Ballantine Books.

Gnambs, T., Appel, M., & Kaspar, K. (2015). The effect of the color red on encoding and retrieval of declarative knowledge. *Learning and Individual Differences, 42.* https://doi.org/10.1016/j.lindif.2015.07.017

Hupka, R. B., Zaleski, Z., Otto, J., Reidl, L., & Tarabrina, N. V. (1997). The Colors of Anger, Envy, Fear, and Jealousy: A Cross-Cultural Study. *Journal of Cross-Cultural Psychology, 28*(2). https://doi.org/10.1177/0022022197282002

Korb, M. P., Gorrell, J., & Van De Riet, V. (1989). *Gestalt Therapy: Practice and Theory, 2nd Edition*. New York, NY: Pergamon Press.

Lewis, M. (1992). *Shame: The exposed self*. New York, NY: Free Press.

Lewis, M. (2007). Self-Conscious Emotional Development. In *The Self-Conscious Emotions*, ed. Jessica L. Tracy, Richard W. Robins, and June Price Tangney, 134-149, New York, NY: Guilford Press.

Nathanson, D. (1992). *Shame and Pride: Affect, sex, and the birth of the self*. New York, NY: Norton.

Organization for Economic Cooperation and Development (2016). *PISA 2015 Results (Volume I): Excellence and Equity in Education*. https://doi.org/10.1787/9789264266490-en

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom*. New York, NY: Free Press.

Takahashi, A. (2006). Characteristics of Japanese Mathematics Lessons. *Tsukuba Journal of Educational Study in Mathematics, 25*, 37-44.

Tomkins, S. (1963). *Affect, imagery, consciousness: Vol. 2. The negative affects*. New York, NY: Springer.

Tracy, J. L., & Robins, R. W. (2007). The Self in Self-Conscious Emotions: A cognitive approach. In *The Self-Conscious Emotions*, ed. Jessica L. Tracy, Richard W. Robins, and June Price Tangney, 3-20, New York: NY: Guilford Press.