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Simple, Powerful Strategies for Student Centered Learning

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Introduction

People who move mountains begin with small stones.
Anonymous

Change in Education

We often hear about change, change in how we communicate, change in how we work, change in how we play. This book is about change in how we learn. We hear about many changes in education, from greater use of technology to greater flexibility in how schools are organized.

But maybe the most profound change in education, everywhere from preschools to universities, involves attempts to move toward a student centered model of learning. Student centered is also known as learner centered, child centered, and other such terms. And, like most terms in education, different people use *student centered* in different ways.

In this book, student centered simply means that students become more active, not just in doing learning activities, such as speaking, calculating, experimenting, and writing and creating videos and web-based materials, but also in thinking about and in shaping their own learning. We teachers still play a vital role, but we are now more guides on the side, rather than the main players in the students' unfolding education drama. In other words, we move from teacher-centered learning to student-centered learning (SCL).

Student-centered learning is not a method; it is more of a mindset, a paradigm for looking at education. Teachers have very likely already heard of student centered and/or its related terms, but how much student-centered learning actually takes place? Fundamental change in education often occurs very slowly, with two steps forward and one or even three steps back. That is certainly the case with student centered learning. Indeed, while SCL traces its roots back to Dewey (1997) in the

early twentieth century and even further back, a look in many classrooms today shows a predominance of teacher centered practices.

Thus, this book. This book offers simple, easy, yet powerful strategies that teachers can implement to make their classes more student-centered. This book is about evolution, not revolution; it is about small steps for individual classes, not giant leaps for humankind, although many small steps may add up to giant leaps.

Ten Elements of Student Centered Learning

SCL can be divided into ten overlapping elements as shown in Table 1. What follows is a very brief description of each of these ten elements in the order in which we explore them in this book.

Chapter 1 covers the element of Teachers and Students as Co-learners. This means that teachers freely admit that we too have much to learn, and we look forward to sharing the adventure of learning with our students.

Table 1 Ten elements of student centered learning

Elements of student-centered learning	Brief explanation
Students and teachers as co-learners	Teachers gladly acknowledge that they do not know everything and look forward to learning along with students.
Student–student interaction	Teachers encourage students to share with their peers; this can bring both cognitive and affective advantages.
Learner autonomy	Students become less dependent on teachers and build the skills and attitudes needed for lifelong learning.
Focus on meaning	The best learning takes place when students fully understand what they are studying.
Curricular integration	Students see how the various topics and subjects they study are linked to each other and to the wider world.
Diversity	Learning activities strive to meet the needs of all students and to help students appreciate the differences among them.
Thinking skills	Students go beyond the information given to them, as they perform such mental acrobatics as giving examples, disagreeing, and explaining.
Alternative assessment	Assessment broadens to include nontraditional forms and encourages students to join teachers as assessors at many points in the learning process.
Learning climate	Teachers seek to create an atmosphere conducive to robust participation by all class members.
Motivation	Teachers promote intrinsic motivation and encourage students to motivate themselves, peers, and teachers to learn and to enjoy learning.

Chapter 2, on Student–Student Interaction, looks at why and how we can promote student–student interaction to enable students to learn more and enjoy learning more.

Chapter 3, on the element of Learner Autonomy, explains strategies to encourage students, alone and with peers, to become less dependent on teachers.

Chapter 4 looks at SCL via the prism of the element of Focus on Meaning. Rather than engage in rote learning, students need to understand the meaning of what they are learning and why they are learning it.

Chapter 5, on Curricular Integration, encourages students to see the links between the various subjects they study and, overall, between what they are studying and the wider world.

Chapter 6 examines Diversity, particularly the many differences that exist among students, as well as strategies for how this diversity can be celebrated and how it can enhance learning and the enjoyment of learning.

Chapter 7 looks at Thinking Skills, a crucial element in enabling society to adapt to the many challenges we face.

Chapter 8, Alternative Assessment, explores the various good ideas that have arisen to supplement the tests and similar assessment measures that educators have used for many decades.

Chapter 9 focuses on Learning Climate, a concern of many teachers who worry that student centered pedagogy is an invitation to anarchy.

Chapter 10 offers strategies for enhancing student Motivation, a factor that many experts consider to be the most important determinant of success in education.

The book offers and seeks ideas for working with colleagues and others to implement the student centered paradigm.

Why Student Centered Learning

Among the many reasons given for the use of student centered learning, two stand out. First, student centered learning reflects the reality of how students learn regardless of how we teach. Cognitive psychologists (for example, Sternberg and Zhang 2014) have investigated how learning takes place. Their findings tell us that teachers attempting to pour knowledge into students' heads via teacher centered instruction only lead to short term, surface learning. For deep understanding, students must actively construct knowledge for themselves. Constructing knowledge means students make use of what they already know to make sense of what they are learning and to build new understandings.

Another aspect of the first reason for using SCL—that SCL represents the reality of learning—is that to truly succeed at our education mission, we must not only prepare students to do well in this year's exams, we must also encourage them to become lifelong learners. To become lifelong learners, students must find the motivation within themselves. By aligning our instruction with the elements of student centered learning outlined in the previous section of this chapter, we align our instruction with the practical realities of how our students actually learn.

A second strong reason we use SCL is because we look to the future, to the type of learning students need to prepare themselves and society for a better future. The past two hundred years have seen huge and parallel expansions in democracy and in access to information (Custer 2012). These two trends—toward more democracy and greater access to information—are likely to continue, and both require education if their development is to be beneficial. SCL's focus on lifelong learning, for instance on thinking skills, on diversity, and on student–student interaction, potentially empower students to shape the future in ways in which the planet and its inhabitants can coexist and thrive.

The Plan of This Book

The ten elements of SCL provide the main organizing framework for this book, as the next ten chapters each explore one of the elements of SCL by suggesting simple, easy, yet powerful strategies teachers can use to implement that element.

Each strategy is preceded by a background section that provides some foundation for that strategy. Although the strategies are numbered, this does not imply that strategies with lower numbers need to be done before strategies with higher numbers. The chapters can be used in any order, depending on your needs and teaching contexts.

You will, no doubt, notice links between the ten elements of student centered learning. After some strategies, we highlight a link between that strategy and the theme of one of the other chapters. Indeed, SCL represents an integrated paradigm shift in education, with the various elements reinforcing each other.

The book's 11th and final chapter, *Conclusion: Keepin' On Keepin On*, asks how we can reach out to colleagues and others about implementing the SCL paradigm. Here, too, strategies are provided.

What makes this book special are the strategies included in each of the main chapters, 1–10, and the Conclusion. These are simple, easy strategies, not complicated orchestral arrangements requiring hours to plan and implement. Teachers can implement many of the strategies in a few minutes. Nonetheless, the impact of each strategy can echo throughout our teaching and our students' learning experiences. The strategies can echo because SCL is very much about classroom culture, and culture can be influenced by a simple remark or even by our tone of voice. For instance, one strategy in Chap. 2, on Teachers and Students as Co-learners, encourages us teachers to welcome negative feedback from students. That can be

done with just a few words, such as "Thanks for telling me; I hope everyone in this class feels welcome to offer feedback," accompanied by appropriate body language, such as a smile and a relaxed posture. Other simple, easy strategies ask us to reflect on our teaching. For instance, in the chapter on promoting Learner Autonomy, one of the strategies reminds us to think about whether the tasks we ask students to do are doable tasks, that is, tasks that stretch students' capabilities but still enable them to succeed.

Just as SCL encourages students to be active, so does this book encourage its readers to be active. Please go ahead, get your feet wet. Better than that, dive in and use as many of the strategies as are comfortable for you, whenever and in whatever order you wish. After this chapter, feel free to jump around from chapter to chapter and to revisit chapters and strategies. You may find that a strategy that didn't seem appropriate in September makes sense in April, or what doesn't feel right with one group of students might fit another group to a T.

Of course, the SCL strategies in this book are but a very small fraction of the many ways to implement these ten elements of SCL. The literature on education, as well as the teacher in the classroom next door will, no doubt, offer more ideas. Thus, each chapter in this book provides a page for you to write in another idea related to SCL. This could be something you learned from others or something you created yourself in the course of your teaching and reflecting on your teaching.

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Chapter 1
Teachers and Students as Co-Learners

Abstract Learning offers one of life's great, never ending adventures. We teachers freely admit that, like our students, we too are fortunate to have much to learn, and that we look forward to sharing the adventure of learning with our students.

Keywords Teachers as co-learners · Students as teachers · Negative feedback · Pygmalion effect · Life-Long learning

Background 1—We are All Learners

The teacher centered paradigm sees teachers as part of an edifice of infallibility, (i.e., teachers can do no wrong; they are always right). If one brick in that wall of infallibility breaks off, the entire house of cards faces peril. However, this false belief in teacher infallibility clouds students' understanding of how knowledge is created and acquired. In the student centered paradigm, we encourage students to expose and help to repair the many flaws in the education system and in the world's current body of knowledge. Students' exposés may sometimes be off target, but that is okay; we need to help students develop an attitude of constructive criticism.

Strategy 1—Celebrate Negative Feedback

When criticized, most people, including the authors of this book, immediately feel an urge to defend ourselves and even to retaliate against those who made the criticism. However, such behavior by teachers in the face of student criticism makes it less likely that students will risk providing negative feedback in the future. Instead, we should thank students for their feedback and invite them to explain the evidence for that feedback, as well as to suggest how the feedback might be used. Furthermore, we should welcome more such feedback in the future.

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Even if it turns out that the feedback is flawed, the fact that students give such feedback should be celebrated. Even if we suspect that students give the feedback with less than constructive intentions, we should respond as though the feedback was given with the best of intentions. As Goethe, the 18–19th century philosopher optimistically wrote, "Treat people as they are and they will remain as they are. Treat people as they can and should be and they will become as they can and should be."

This strategy links to Chap. 10 on Motivation, because it gives students more control over what happens in class, and more control can lead to a greater sense of ownership, which, in turn, can lead to greater motivation.

Background 2—The Effects of Expectations

In line with the above quote from Goethe, a famous study from about 50 years ago found that when teachers have high expectations for particular students, those students tend to live up to their teachers' high expectations and learn well (Rosenthal and Jacobson 1968). Similarly, however, when teachers, rightly or wrongly, have low expectations of students, those students tend to learn less well. The researchers labelled the power of expectations "The Pygmalion Effect" after the George Bernard Shaw play, Pygmalion, which later became the musical "My Fair Lady."

After the initial study of the effect of teachers' expectations of students on learning, another set of researchers reported that this Pygmalion Effect also applies to students' expectations of their teachers. In other words, when students think they are being taught by high quality teachers, the students seem to learn more, and vice versa.

If, in the spirit of Teachers and Students as Co-Learners, we admit to students all the things that we don't know, won't that lower their expectations of us and, thus, impede their learning? Not necessarily. What if we can convince students to change their definition of good teachers from those who know everything to those who are keen to learn and know how to learn?

Strategy 2—Show that We're Lifelong Learners

The next time something related to what we are working on in class captures our fancy, we can share our excitement with students, let them know how we will go about learning more, and invite them to join us on the adventure. Later, we and our student fellow investigators can report to the rest of the class on what we think we have learned, how we learned it, and what we still want to know. Warning: teachers shouldn't take all the responsibility for answering questions which arise in class;

we should leave some questions for students, or let them take the lead in answering questions, with us, the teachers, only doing some supplementary investigation or just providing guidance.

A great example of an opportunity for a teachable moment for lifelong learning came a number of years back when a scientific consensus emerged that Pluto should no longer be considered a planet. Not only was scientific knowledge involved, but the issue also provided opportunities to explore how science is done.

This strategy links to Chap. 3 on Learner Autonomy, because teachers model lifelong learning, learning that can go on without being in a class led by a teacher, and without dependence on a fixed textbook.

Background 3—Teachers Share About Themselves

Teachers and Students as Co-Learners does not mean that teachers are students' best friends and that we hang out together a lot. However, it does mean that we teachers share a little about ourselves with students. Such sharing fits with the concept of Learning Community (Roth and Lee 2006), where the main goal is the learning, and a feeling of human community promotes that goal.

Also, cognitive psychologists tell us that we humans learn by connecting new knowledge to what we already know and have experienced. By telling a bit about ourselves, teachers model the making of those connections. However, sharing a bit about ourselves doesn't mean we spend big chunks of class time regaling students about our opinions and experiences. When George was a pre-service teacher, he had a cooperating teacher who tended to do that. The focus in SCL is on the students, not the teachers.

Strategy 3—Make Connections to Our Own Lives

Teachers tell students about an experience we had recently or long ago that connects to what the class is studying. Then, teachers encourage students to do the same.

Connections play a powerful role in constructing knowledge. Students can make connections between what they have just read and something they read or viewed previously (text-to-text connections) and the world around them (text-to-world connections), but also to their own personal lives and experiences (text-to-self connections).

Text-to-world connections can also be built by making a time during class for students to share information they find relating to the topic the class is studying. This can be done in any subject, not just social studies. Every day the news is full of

information about math, science, literature, the arts, etc. This also has the positive side effect of building reading and listening skills in content areas.

This strategy links to Chap. 5 on Curricular Integration, because it shows connections between what is being studied and the wider world.

Background 4—Sages Versus Guides

Many metaphors have been used to describe teaching, including Teachers as Entertainers and Students as Audience. This entertainment metaphor explains the title of a book written by a teacher back in the 1980s, *900 Shows a Year: A Look at Teaching from a Teacher's Side of the Desk* (Palonsky 1986). In this metaphor, students are the passive customers, waiting to be entertained, except that stand-up comedians seldom give tests to their audiences; that wouldn't be very funny. SCL seeks to change this paradigm from "sage on the stage" to "guide on the side."

As one teacher explained it, "We teachers seem be the ones who are exhausted at the end of the day, while the students rest their bodies and minds." In contrast, the student centered paradigm seeks to involve teachers and students in collaboratively "performing" for each other, rather than teachers doing all the performing—until test time. Students benefit from performing, because performers are the active, thinking ones. Similarly, there's a saying that "Those who teach learn twice." We learn by teaching others. We learn by being active. Let's all of us, teachers and students, go home exhausted but satisfied.

The saying "Those who teach learn twice" finds an application, for example, in a learning technique called Reciprocal Teaching (Palinscar and Brown 1984). In this technique, students are first taught a set of comprehension strategies. They then take turns playing the role of teacher, teaching their peers how to use these strategies. Research suggests that students who use this technique significantly improve their comprehension skills.

When students teach us and their classmates, they learn from the experience. For instance, when George was in high school, Social Studies was probably his best subject. One day, his Social Studies teacher asked for volunteers to teach some of the upcoming topics, and George volunteered. He was assigned to teach about the governmental structure of the Soviet Union (which was still around back then). That teaching was an eye opening experience for George, not so much about the Soviet Union, but about how tough teaching is! From that experience, he gained newfound respect for teachers.

Strategy 4—Let Students Teach

Look for opportunities to let students teach. A simple way is for them to teach their group mates, which should be easier and less threatening than teaching the entire class. For instance, each group member has different information (either given to them or found by them), and each takes a turn to teach their information to their group. This could be as simple as every student telling about themselves or each doing a separate question and sharing their answer and how they arrived at the answer. Teachers need to remember that students may be as inexperienced about teaching as George was; so, they probably need a couple teaching tips, such as: (1) teach from a mind map or other graphic organizer to help you remember the main points and present them in an organized way; or (2) make sure that your "students" understand all the terms you use.

This strategy links to Chap. 9 on Learning Climate, because it creates a more participatory classroom climate.

Background 5—Listen to Learn

Sometimes, students do not listen to us teachers. While students may be physically present in class, they do not focus on what we are saying. Instead, they chat with each other on topics unrelated to class, stare into space, or distract themselves with electronic devices, such as tablets and phones (which also can be great learning tools when properly integrated into the lesson).

Such lack of attention in class has come to be called incivility, but students are often not deliberately being rude; they are simply not motivated by what is happening in the lesson. Also, students are not the only ones guilty of uncivil behavior. We teachers sometimes fail to listen properly to our students. The following, probably fictitious, story about a teacher not listening to a student involves an elementary school teacher who did not let the student finish her thoughts. Instead, the teacher was so sure he knew what the student was going to say and that the student was wrong that he continued to interrupt her.

Listen to Your Students

Once a rather stern teacher asked a student to make a sentence beginning with the word *I*.

The student started with, "I is …", but before she could finish the sentence, the teacher, with a disappointed look on his face, interrupted the teacher: "No, no, no. It's 'I am.'"

The quivering but determined student attempted to start again with, "I is …", but again, the teacher, his face reddening, snapped, "How many times do I have to tell you? *I* is first person singular. Thus, the correct form of the verb *to be* is *am*. Are we clear?"

With a defeated look on her face, the dutiful student mechanically stated, "I am the ninth letter of the English alphabet."

Strategy 5—Take Time to Understand What Students are Trying to Say

As the saying goes, "Seek to understand before seeking to be understood." Besides, as we strive to understand what students are trying to communicate, we should look for the good and build on that.

Another useful strategy is to give students a bit more time when they try to answer our questions. Giving students a wait time of around 3–5 s *can make a lot of difference in the quality of their answers. Too often, teachers become impatient and wait for one second or less!*

This strategy links to Chap. 8 on Alternative Assessment, because assessment should be on-going and should include not just students' answers but, more importantly, the process students go through to arrive at or at least seek to arrive at answers.

Background 6—Building on Students' Experiences

One way for students to teach us teachers is to talk about topics that students know but we teachers do not. With such topics, roles are temporarily reversed, with students being the ones with more knowledge, and teachers depending on students. In this role reversing process, students learn about explaining clearly and patiently, while teachers are reminded how it feels to be the ones receiving help. Also, many students are very shy to ask for help, but maybe if we ask them first, students will feel more comfortable asking us.

For students (both the speakers and the listeners) to be truly engaged, this needs to be a real conversation, in contrast to the pseudo conversations common in classrooms in which teachers prompt students to talk about something which is already familiar to the teachers and perhaps the rest of the class. Researchers use the term "display questions" for questions to which teachers already know the answers. The

term arises because teachers are asking students to display their knowledge—but the answers provide no new information on which the class and teacher can build new learning.

Strategy 6—Tap Student Expertise

Think about topics on which students might know more than us. Examples might be their families, their past experiences, culture popular among their age group, their opinions, their daily habits, the electronic devices and software they use, and where they live. If students are from a different country or culture, this opens up many additional opportunities for teachers to draw on the resources these students bring to class.

Another way to put students in the expert role is called "community mapping." This is an inquiry based method in which the mappers discover, organize, and analyze the areas where they live or study, or any other area that is significant in their lives. Community mapping helps teachers better understand students.

This strategy links to Chap. 5 on Curricular Integration, because students' expertise often lies outside of school; thus, by tapping student expertise, we integrate what students learn in school with their lives outside school.

Background 7—Journaling

Student journals (Sampson et al. 2013) are similar to diaries and have many uses in learning, and not just language learning. Indeed, students learning math, science, and other subjects also use journals as another window on what they are thinking and feeling about course content, about how the class is taught, and other areas. Students' journal entries often benefit from feedback, which can come from teachers and from peers. This feedback should focus on ideas, not on matters such as punctuation, grammar, and spelling.

Strategy 7—Ask Students to Write Journal Entries

Journal entries can be done in hard or in digital copy, and can be done regularly or only once or twice in a term. Whatever teachers are wondering about regarding their students, or whatever students they think their teachers should know about them? For instance, what are some of the problems students encounter in school and at

home? Those are all good topics for journal entries. Also, we teachers can write journals entries on the same or different topics.

Note from the authors: We know that we promised that all the strategies in this book would be quick. Giving feedback on an entire class of students' journal entries isn't quick, but we've used this strategy lots of times with so much success that we included it anyway. Plus, teacher feedback can just highlight a few points in each entry.

This strategy links to Chap. 4 on Focus on Meaning, because feedback on students' journal entries mainly focuses not on matters of form, such as spelling, grammar, or punctuation but on the meaning of what they are saying in their entries.

Background 8—Sharing Our Learning with Our Students

Reading (in hard copy or digital form) is a gateway skill that assists students regardless of what subject they study. Reading outside of class provides learners with a time tested way to improve their reading ability. Unfortunately, students seem steadily less likely to use their spare time for reading. Instead, many students prefer to access the increasingly bedazzling array of largely mind numbing software that runs on the increasingly varied array of electronic devices on offer. One of the best ways to convince our students to read more is an indirect approach: let them know that we teachers are enthusiastic readers (Jacobs and Farrell 2012).

It's fine if all we have time for is a local newspaper (print or digital copies) or online news sites. Also, what we are reading doesn't need to be something that our students are likely to want to or be able to read. The point is that we are reading and that we are inviting our students to join the community of people who enjoy reading and benefit from it. Furthermore, we can also learn by viewing. For example, TED talks and other informative videos present information in a concise form, often with transcripts for reading.

Strategy 8—Tell Students What We are Reading/Viewing

How to let students know what we are reading/viewing? If we have your own classroom, we can post a sign near the entrance to our class with our name and what we are currently reading, for example, "Mr. Aaron is reading 'Math Curse' by John Scieszka and Lane Smith." The sign has two parts: (1) our name, which isn't likely to change (at least not very often); and (2) the name of the book, magazine, website,

etc., which will change fairly often unless we're reading Tolstoy's "War and Peace, which is about 1500 pages long."

For instance, a friend of Michael's recently visited a school where not only the teachers but the administrators and the school secretary had signs by their doors announcing what they were currently reading. When other school personnel share their reading habits, it sends an important message to the students that reading is not just something teachers do.

If we don't have our own classroom, two others ways to show off our love of reading are: (1) carry around what we're reading or if we use an ebook reader, stick a label on it with the name of what we are reading; and (2) tell students about what we're reading as we ask about where they are visiting in the wonderful world of reading.

This strategy links to Chap. 6 on Diversity, because everyone can read different books, magazines, blogs, websites, and we can discover new reading materials from each other and then share what we learned.

Background 9—See Our Teaching Through Students' Eyes

Teachers learn in many areas, including how to improve our teaching. Student evaluations of teachers provide a tool for us to gain feedback on the how and what of our teaching (Ackerman et al. 2009). Also, when we ask our students what they think of our teaching, their ownership of their own educations—a SCL hallmark—increases. Of course, just as with evaluations of teachers by principals and others in the education hierarchy, evaluations of us by students are only meant to provide data for dialog; they are not inflexible mandates for or against change.

Thus, for example, just because a majority of our students do not like a particular aspect of our teaching does not mean that we should change that aspect. Similarly, just because most students like a certain aspect of our teaching does not mean that we should keep it forever. Likewise, students should be encouraged to evaluate themselves as learners and to reflect on what is working for them and where they could improve their learning skills.

Strategy 9—Ask Students to Evaluate

Teachers can use many data collection techniques to gain insight into how students view our teaching. A simple data collection method takes place via a questionnaire consisting of statements to which students respond via a 5 point scale, ranging from Strongly Agree to Strongly Disagree. Younger students can use smiley face, neutral

face, and sad face. Just a few of the possible items for this probably anonymous questionnaire could be: gives clear explanations; talks too much; is fair; gives assignments that are too tough; and has a sense of humor.

Questions for student self-evaluation could include: I am good at organizing my work; I ask good questions; and I know how to find out more about what we study in class.

This strategy links to Chap. 7 on Thinking Skills, because it encourages students to develop their skill in evaluating.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Teachers and Students as Co-Learners?

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Chapter 2
Student–Student Interaction

Abstract We humans are social animals. We learn best and enjoy learning most when we learn with and for others. The research-supported benefits of students working together include increased higher order thinking, greater engagement, higher self esteem and higher test scores. Thus, student–student interaction, a.k.a., peer interaction, collaborative learning, and cooperative learning, should be a regular and significant aspect of students' learning experiences.

Keywords Student–Student interaction · Cooperative learning · Collaborative learning · Peer interaction · Collaborative skills

Background 1—Making a Learning Space

Something as simple as the furniture arrangement can impact the success of group activities (Jacobs et al. 2002). Students need to be seated near each other in order to converse in quiet voices and to be able to see what group mates are doing. In fact, sometimes, teachers can tell from across the room that a group isn't functioning well, because the members have not made the effort to sit near each other.

Strategy 1—Arrange the Room to Facilitate Peer Interaction

Classroom furniture varies widely as do the shapes and sizes of classrooms. Regardless, the general principle is to encourage students to sit as close together as is comfortable and possible. Three ways we teachers can help to achieve this are: (a) keep groups small, for example, it's much easier for two people to sit close together than for a group of six to do so; (b) explain our reasons for asking students to sit close together or ask them to guess our reasons; (c) be persistent, as most new behaviors take some getting used to; for instance, sometimes George has to ask a

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few reluctant students to please do him a favor and sit within easy hearing distance to their partners.

This strategy links to Chap. 9 on Learning Climate, because the way the classroom is arranged sends a message about the classroom atmosphere.

Background 2—The Size of Student Groups

The last strategy talked about groups of two. Indeed, pairs probably make the best size for groups, at least in the beginning. Pairs require the least amount of collaborative skills, because only two people need to be managed. Also, each student's activity level reaches its peak in groups of two, and active students are a hallmark of SCL.

Certainly, large groups have advantages, including fewer groups for us teachers to monitor and more group members to do tasks and contribute ideas and information. However, most of the time, smaller groups are probably better. Here is what one teacher whom George knows said about the problems of large groups of six or more:

> My main suggestion is not to give into the impulse to make larger groups. I instinctively once suggested that students form large groups of 6 because they said they felt so "crammed" when there were too many smaller groups. **Don't do it!** That is WAY too many people in one group.

Strategy 2—Start with Pairs

Introduce students to group activities by starting with pair activities. For a simple pair activity, students can take turns to do tasks. One does the first task, thinking aloud as they do it. Their partner acts as their coach. Roles reverse for the next task.

This strategy links to Chap. 7 on Thinking Skills, because each pair member can coach their partner as they take turns to think aloud.

Background 3—Larger Groups

While groups of two offer many advantages, larger groups also have advantages. For example, if "two heads are better than one," four heads may sometimes be better than two. Plus, if "many hands make light the work," compared to a twosome, a

foursome brings four more hands (and two more brains) to the task. Another advantage of foursomes is that they provide a way to extend the student–student interaction. For example, after students have worked in pairs to do some math problems, instead of one pair or one pair member sharing with the whole class, pairs can share with the other pair in their foursome, and, perhaps learn even more approaches to solving the problems.

Strategy 3—Combine Pairs into Foursomes

Twosomes can sometimes work alone and at other times combine with another pair, as seen in the cooperative learning technique, Write-Pair-Square, which works as follows. Students first work alone to Write their ideas on a task/problem. Next, students pair with a group mate and discuss what each wrote. Finally, students form a Square, that is, each student takes a turn to discuss with the other twosome about the dialog they had with their original partner. The foursome then further discusses.

This strategy links to Chap. 6 on Diversity, because a group of four is likely to have a more diverse range of perspectives than a group of two.

Background 4—Cooperative Learning

Cooperative learning, a.k.a. collaborative learning, is built on principles designed to promote effective group functioning and, thereby enrich the learning experience by building academic and social skills (Johnson et al. 2013). (Note: You may find different sets of principles and different names for principles in different resources on cooperative/collaborative learning.) The principle of *equal opportunity to participate* encourages groups to allow all group members space to play important roles in the group, whereas the principle of *individual accountability* encourages each group member to do their fair share in the group.

These two principles go hand-in-hand. The cooperative learning principles of individual accountability and equal opportunity to participate are most productive when group members feel they have common goals. For example, a group's goals could be that everyone in the group needs to understand the group's answer (or the various answers the group discussed) and be able to explain that answer(s) and how the group developed it (them).

Strategy 4—Group Members Have Numbers

To check if everyone has understood the group's work, individual group members can be asked at random to give and explain their group's answer(s). To facilitate random selection of who will represent their group, the members of each group can have a number based on where they are seated in the group. Such a standardized numbering system saves time and makes it easy for teachers to know which students have which numbers. [Just to be clear, students are still called by their names also.]

> This strategy links to Chap. 10 on Motivation, because everyone will have an equal chance to share their group's work with others.

Background 5—Collaborative Skills

Students' lack of collaborative skills or unwillingness to use such skills is one reason why group activities may not achieve the promise they seem to offer. Educators have compiled long lists of collaborative skills including:

- checking that group mates understand
- disagreeing politely
- seeking clarification
- asking for reasons
- praising and thanking others, and
- asking for suggestions

Even teenage and adult students who know these skills may fail to use them. By spending just a few minutes to emphasize collaborative skills, we can enhance the probability that group activities will succeed.

Strategy 5—Teach Collaborative Skills

Teachers can choose a collaborative skill that students need to use more or ask students to nominate one. Next, the class discusses the importance of the skill and a few phrases used to deploy the skill. For instance, the simple but too seldom used skill of showing appreciation to others for their contributions to the group can be enacted via *such phrases as, "Thanks a lot for …," "I really appreciate that you …," and "I owe you one for …". Such discussions can be held just before a group activity, and students can choose a partner in their group and, during the group activity, students can count how many times their partner thanks someone.*

At the end of the activity or even better in the middle of the activity, students report to their group on how many times their partner thanked others. The class sticks with one skill, such as thanking others, for a while until it seems to have become a fairly natural part of how groups interact (Johnson et al. 2013).

This strategy links to Chap. 3 on Learner Autonomy, because collaborative skills help groups function more smoothly on their own.

Background 6—Believing in the Power of Groups

Yes, we humans are social animals. We enjoy doing things with others. But, no, group activities do not always succeed, even when the group in question is a group of teachers. Sometimes, we would have been better off working alone. To encourage students to persevere in striving to make groups work, we need to help them see a vision of what groups can achieve (Kohn 1992). Fortunately, we can find lots of examples, both second hand and first hand, of successful groups. Second hand examples can be seen in the media, such as sports teams and music groups. As to first hand examples of successful groups, we can refer to our and students' experience in families, with friends, in clubs, on projects, or in sports.

Strategy 6—Encourage Students to Remember Successful Groups

Teachers start by telling students about a successful group they were or are in, including analysis of why the group succeeded. For example, the group might have succeeded because everyone did their fair share or because weaker members were encouraged and supported, or because all group members shared a common identity, such as sports teams share a common identity via their team names, colors, and mascots. Then, students share their own successes in working in groups and why they think the group was successful. Finally, the class considers how the lessons learned from past group successes can be used to promote success among their own classroom groups.

This strategy links to Chap. 1, Teachers and Students as Co-Learners, because teachers and students share their own experiences and what they took from those experiences.

Background 7—Individual Work

Yes, lots of research heralds the benefits of cooperative learning. However, cooperating does not mean always working together. Students can sometimes work alone even when they are part of a group, and, in the final analysis, perhaps a group's most important goal lies not in the quality of the group's products, such as a presentation, but in the strengthening of each individual member of their group.

Strategy 7—Do Individual Assessment

After students have worked in a group, and after they have learned from and with each other, it may often be best for them to do individual assessments, that is, students learn in a group, but they take assessments which measure individuals' progress. For instance, after doing a project together, each group member works alone to reflect on what they learned and present their reflections.

> This strategy links to Chap. 8, Alternative Assessment, because someone other than the teacher is participating in assessment.

Background 8—Sponge Activities

One issue that arises when groups are used is what to do when one group finishes before others. Of course, just because a group seems to have finished does not mean that they really have. For instance, perhaps they have finished a set of math problems with all the answers correct, but are all the group members capable of doing similar problems on their own? If the answer is No, the group has not finished the task, because the key goal of group activities involves strengthening the abilities and attitudes of each of the group members.

Assuming that the group has indeed finished the task, instead of students doing "busy work" until the other groups finish, group members can do what are known as "sponge activities." They are called sponge activities, because they usefully soak up time, just as sponges soak up water. Many sponge activities can be found in the literature on cooperative learning. Here is a list of sponge activities that could fit a student centered approach.

1. Check your own work.
2. Check others' work—ask members of other groups to explain how they arrived at their answers.
3. Think about what else you would like to know on the topic.

4. Make a goal for future learning on this topic.
5. Look for those in your group or in another group who are having trouble.
6. Do Exchange-A-Question (see Chap. 7).
7. Do journaling (see Chap. 1).
8. Read, for instance, continue reading a novel.
9. Imagine that you are going to explain what you did to your grandparents or to a younger student (to encourage clear explanations with lots of background).
10. Do a drawing or graphic organizer to illustrate what you studied or what you have done.
11. Make your own puzzle or riddle based on what you are studying.
12. Wait patiently.
13. Think about how to do the task better.
14. Think about your own and your partner's use of a particular collaborative skill or the overall functioning of your group.
15. Use mime to create a kinesthetic symbol to represent a key idea.
16. Write a poem or song to represent a key idea.
17. Create a joke based on a key idea you studied, such as a knock-knock joke.
18. Do teambuilding: learn something new about your partner(s).
19. Do teambuilding: tell your partner a strength of theirs that helped your group.
20. Design your own sponge activity.

Strategy 8—Ask Early Finishers to Help Others

To highlight one of the sponge ideas that especially fits with this chapter's SCL element of Student-Student Interaction, if a group has finished before others, they can divide up and circulate to other groups to provide assistance. Students need to understand that assistance means guiding others from the side, not doing for others.

> This strategy links to Chap. 3, Learner Autonomy, because students are deciding how to use their time.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?

3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Student–Student Interaction?

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Chapter 3
Learner Autonomy

Abstract Students move toward becoming lifelong learners when they take responsibility for their own learning and for that of their peers.

Keywords Learning autonomy · Choice · Doable tasks · Peer feedback · Student-Developed materials

Background 1—Choices

A key aspect of Learner Autonomy involves students having choices (Benson 2013). For example, students might be able to choose the topic for a group project. Often, choice does not mean no restrictions; instead, it means choice within certain criteria. For instance, groups might need to choose a topic from a list given by their teachers or related to the overall topic that a class has decided to investigate as a whole, as in the Group Investigation technique (Sharan and Sharan 1992). In Group Investigation, the class functions as a group of groups. Thus, if the class chooses the topic of healthy diets, each group could study one aspect of that.

Strategy 1—Give Students Choices

What choices do your students already make related to their learning? What is another choice that, with teacher guidance, they might be able to make? What guidance might be useful, such as examples or criteria?

This strategy links to Chap. 10, Motivation, because student control increases student ownership, and greater ownership may encourage students to work harder so that teaching and learning succeed.

G.M. Jacobs et al., *Simple, Powerful Strategies for Student Centered Learning*, SpringerBriefs in Education, DOI 10.1007/978-3-319-25712-9_3

Background 2—Independence

Learner Autonomy promotes students moving away from dependence on teachers. Students can move toward independence alone or with support from class mates, but either way, becoming more independent may be scary for many students. Thus, we teachers need to adopt the slogan that one of George's supervisors taught him during his early days as a teacher: "Play to success." In theoretical terms, Vygotsky (1978) called this the Zone of Proximal Development, that is, providing students with some challenge within what is overall a doable task.

Strategy 2—Use Doable Tasks

Is the task students are about to attempt a doable task? If it might not be doable, the task can become more doable by such means as teachers: (a) modeling how to do the task; (b) doing part of the task and asking students to do the rest; (c) modifying the task difficulty, such as by explaining difficult terms; and (d) helping students form groups with at least one relatively high achieving student in each group.

> This strategy links to Chap. 2, Student-Student Interaction, because when groups are heterogeneous as to their levels of past achievement, peer tutoring is encouraged and the task becomes more doable for lower achievers and more challenging for higher achievers, who now have the additional challenge of teaching others.

Background 3—Peer Feedback

When students finish a task, they often want our feedback, and research suggests that timely, detailed feedback promotes learning (Lin et al. 2013) in keeping with the spirit of SCL, we want to encourage students to include others, not just their teachers, when they look for feedback. Peer feedback supplements teacher feedback. Advantages of peer feedback include: (a) it can be faster, because students have a classroom full of peers but usually only one teacher; and (b) students learn from giving feedback on their peers' work, regardless of the relative quality of their peers' work.

Strategy 3—Promoting Peer Feedback

We need to look for occasion for doable (one of this book's authors' favorite words) peer feedback. Doable, in part, means that students need not give feedback that is as extensive as teachers give, for example, peer feedback could cover only one aspect of a task. Furthermore, peer feedback can focus, not on students' errors, but on what they have done well. This emphasizes the positive and makes it doable for lower achieving students to give feedback to their higher achieving peers.

This strategy links to Chap. 8, Alternative Assessment, because now, in addition to teacher feedback, students also receive and give feedback to each other.

Background 4—Student-Developed Materials

Students as materials developers (Jacobs 2013) forms another component of Learner Autonomy. By contributing materials for the learning of all, students put their stamp on their studies, so that their learning no longer exists as property of the school or the teachers; it becomes their property, too, both individually and collectively as students.

Students as materials developers can take place in many ways. One way is to use work students do on assignments as materials for the whole class. To make student work even better models for others, teachers might want to do some minor editing or ask students to do so. When editing students' work before sharing with others, we may need to walk a fine line between, on one hand, making the work as good a model as possible, while, on the other hand, not usurping ownership of the work. Another perspective would be to see imperfect models as more accessible to students and to let students identify areas for improvement (as well as strengths) in fellow students' work.

One advantage of using student work as class material is that it encourages students to take editing their work seriously. Often students are reluctant to edit their first attempts because they have already made an initial effort and are ready to move on. They may lack the diligence to make second and third attempts or they may lack strategies for improving their work. This is where students as material developers may prove useful. When students realize their work can be helpful to their peers, they may be more likely to put in the effort to improve it.

Strategy 4—Help Students Share Their Work with Others

When a student or group of students has done better than average work, teachers can ask for a soft copy or ask permission to create a soft copy to share, with proper attribution, not just with the current class but also with other classes now and in the future. Even student work that lies a fair distance from what might be viewed as excellent, can serve as material the class can use to develop their feedback skills.

This strategy links to Chap. 9, Learning Climate, because it fosters a climate in which everyone contributes to what happens in class.

Background 5—Students Taking Responsibility

What happens when students miss class? Often, we teachers take responsibility for making sure that absent students get caught up. However, by taking this role, we deprive students of opportunities to build bonds with one another, to better understand what was studied by summarizing it for others, and to remember what needs to be done in preparation for future classes.

Strategy 5—Encourage Students to Look Out for Peers

Students can see themselves as responsible for each other. One example occurs when their peers miss class. Group mates or other class mates can help absent students make up what they missed. That is a student responsibility, with teacher assistance.

This strategy links to Chap. 7, Thinking Skills, because students need to identify main ideas to share with their absent group mates.

Background 6—Peers as the First Resort

Lack of confidence in peers' guidance constitutes a major stumbling block to Learner Autonomy. Part of overcoming this reluctance to listen to peer feedback lies in using doable tasks, tasks on which students can provide each other with assistance. Another

part of this lies in teachers encouraging students to look to their peers as a first resort when students have questions or otherwise need help.

Strategy 6—Don't Be the First Resort

We can promote a TTT (Team Then Teacher) policy, in which students ask their group mates before asking us. Or, we can take TTT a small step further with 3 + 1 B4 T. In other words, before asking their teachers, students first ask their three group mates. If the group mates can't supply sufficient help, students ask one other group before (B4) finally asking us. Yet another way to get across much the same message is C3B4ME, which translates to teachers asking students, "Please see three of your classmates before coming to see me with questions."

A related strategy is to ask students, either individually or with their group mates, to check the information on the internet before they come to us. When they finally ask us, they will be more ready to have a more productive discussion with us.

This strategy links to Chap. 6, Diversity, because it helps students see that different people can help them in different ways.

Background 7—Teacher as Guide

The slogan "Teachers should be guides on the sides, not sages on stages" incorporates a key thrust of SCL. Another slogan, one popularized by the Singapore Ministry of Education, goes, "Teach Less, Learn More," that is, if we teachers talk less, students can become the active ones and, thereby, learn more.

Please note that the operative word here is "less," not "zero." We teachers still do talk, but we do not talk for the entire class period!

However, teachers as guides on the side takes a bit of getting used to for both teachers and students. We are so conditioned to jump in at the first sign of student difficulty, and students look for us to put on our Superteacher tights and cape, shout "Never fear, your teacher is here," and solve all their difficulties, whether the difficulties concern understanding content, performing skills, or working well with others.

This is what one teacher recounted about encouraging students to rely on themselves and peers for help, instead of right away going to the teacher.

> The transfer of control is probably the main obstacle (at least for me it is). Many people (teachers, parents, administrators) may get concerned when a teacher plays a less central role in the classroom. It is hard to convince others that there is real quality learning happening

when the teacher is not directly teaching a lesson or talking. I always feel bad when my kids are working in groups and the noise level is up a bit. I feel like even though I know the kids are creating great learning for themselves, others may see it as an unruly classroom environment. Mind you, they are not shouting, but there may be many students talking at the same time. I can accept this "buzz," because I know that they are on task. On another note, seeing kids quietly reading at their seats may concern others as well. They may think the teacher is being lazy or not involved.

Strategy 7—Sideline Yourself

The next time students are working in groups, teachers can stand a bit to the side of the nearest group and just observe, without making eye contact with group members. If students ask us a question, we can act like Socrates and reply with a question, such as, "What do you think?" "What do the others in your group think?" or "Why don't you find out what Google or your course materials say?"

A similar strategy is to stand by group A while monitoring group B. If teachers are standing by A and listening to their interactions, but looking at B, both groups are less likely to depend on the teachers. We can use this observation time as a learning opportunity. We can ask ourselves a question that we want to informally research, such as "How do groups help members who are having difficulty?" or "In their group interaction, to what extent are students incorporating what I taught them?"

This strategy links to Chap. 1, Teachers and Students as Co-Learners, because teachers are learning from their observations, and we can share this learning with our students and explain how this learning will impact our teaching.

Background 8—Reflecting on Learning

Cognitive psychology tells us that the way each person processes information is unique based on their experiences and past learning, and each learner's understanding differs from that of everyone else's. Thus, what each student takes away from a lesson will differ from what their peers take away. To promote Learner Autonomy, we hope that students will monitor their own learning, including what they have learned, how firm their grasp of what they have learned is, what they still need/want to learn, and how they might do that additional learning.

Strategy 8—Ask for Exit Tickets

Students do Exit Tickets (Owen and Sarles 2012) *near the end of a class, a topic, or an activity. In their Exit Tickets, students might:*

a. *Summarize what they have learned,*
b. *Discuss what questions they have, what more they want to learn and how they might learn it,*
c. *Reflect on what they enjoyed or did not enjoy about the lesson, and/or*
d. *Consider how they might apply what they learned.*

In case you are wondering, yes, in addition to Exit Tickets near the end of a lesson, there can also be Admit Tickets near the beginning of a lesson. In their Admit Tickets, students might:

a. *Remember what they know from the past lesson, from the homework, or from their background knowledge on the topic of the current class,*
b. *Write down some questions they still have about the past lessons,*
c. *Think about goals for the current class, and/or*
d. *Prepare to focus on any learning to learn skills they have decided to prioritize, such as using mind maps to record their ideas or to check how their group mates are doing in the lesson.*

This strategy links to Chap. 4, Focus on Meaning, because the Exit and Admit tickets are looked at only for their content, not for matters such as spelling or grammar.

Background 9—From Practical to General Learning

When students do Exit Tickets and other activities that encourage them to monitor their learning, we teachers need to help them see the big picture. For instance, one time after George had spent 50 min helping a class of university students prepare group wikis, he asked the groups to nominate one idea that they would want to remember from the lesson.

The most common point that students nominated to remember was to use large fonts. This response disappointed George, because he had been hoping to hear more big picture points, such as to use clear, appealing visuals or to think about your audience's present knowledge and needs. Yes, concrete takeaways, such as larger fonts, are important, but they need to be linked to more generalizable points.

On reflection, George realized that he was in large part to blame for the students' small picture focus. He should have done more to guide them to see the big picture

(such as to think about your audience), while not forgetting concrete applications of that picture (such as to use fonts that are large enough for everyone to see). As Kurt Lewin, a famous social psychologist noted, "Nothing is as practical as a good theory." The big picture is the theoretical; the concrete applications are the practical. Students need to understand both and how they link.

Strategy 9—Highlight the Big Picture

Look for opportunities to help students see how the smaller points they are learning fit with the larger, more generalizable, more generic points, and vice versa. For example, a common activity in science classes is for students to build bridges out of simple materials and see how much weight these bridges can hold. Students might focus too much on the number of structural pieces or how much glue they need. To refocus themselves on the bigger picture and make the discussion more meaningful, students could view the video available online of the collapse of the Tacoma Narrows Bridge in 1940: https://www.youtube.com/watch?v=XggxeuFDaDU.

This strategy links to Chap. 5, Curricular Integration, because big picture ideas, such as audience awareness, resonate across the curriculum.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Learner Autonomy?

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Chapter 4
Focus on Meaning

Abstract Students understand the what and why of their studies, and they help shape their curriculum. Students' ideas are valued over the way they express their ideas, i.e., substance is valued over form, although form is also important.

Keywords Focus on meaning · Learning in context · Real tasks · Content-Specific language · Extensive reading

Background 1

Transparency plays an important role in SCL (Winklemes 2013). Students should understand why some things are in the curriculum and others are not, and they should understand why we teachers are using particular means of teaching, such as SCL. Of course, an explanation for kindergartners won't be the same as an explanation for third year students at a university. When students understand some of the what, why, and how of their learning, their education takes on more meaning, thereby increasing motivation and understanding.

Once we teachers have explained, we can seek students' views, but we need to remember that we are the educational professionals in the room. Yes, students' views are unique and valuable, but we should not agree with whatever students propose.

For instance, George once did a workshop for university students to prepare them for an essay assignment. He began the workshop by carefully going through an essay written by a student in the previous term, helping students to identify the strengths and weaknesses of that essay. Then, George asked the students whether they wanted to go through another past essay or whether, instead, students wanted time to work on their own essays.

Before you guess what the overwhelming majority of the students voted for, you should know that they were supposed to have brought with them a draft of their own essays but, as had happened in past terms, most students had not brought a draft. George and his colleagues who taught the same students diagnosed most of them

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with a bad case of procrastination (a malady which also besets the authors of this book, i.e., "it takes one to know one").

You're correct, the students wanted George to continue to lead the show, whereas George wanted them to take center stage and start working on or continue working on the draft which should have already been written. In the end, there was a compromise. Should George have been more dictatorial?

In a somewhat related incident, Michael was teaching an ESL class for high school students, and in the interest of wanting the students to be engaged in their learning, he left it up to them to select the topics on which he would build the language lessons. It probably should have been no surprise to him that they chose topics they had studied in previous English classes and therefore already knew a lot of the vocabulary. Should Michael have been more prescriptive to stretch their learning?

Strategy 1—Explain the What, Why, and How

Teachers explain to their students about the what, why, and how of their education. In other words, what the key objectives of a lesson or unit or a term and why those objectives are important? Plus, teachers discuss with students what methods are being suggested for use in the lesson/unit, and why might those methods be useful? For example, it may be obvious to teachers that a concept in the textbook plays an important role in students' future learning, but the concept's importance may be completely lost on students.

This strategy links to Chap. 10, Motivation, because students understanding why they are studying a particular content in a particular way and students having some voice in shaping their curriculum may increase students' feeling of ownership and control.

Background 2—Framing Learning

Surprisingly, or maybe not, some researchers have found that when, after a lesson, teachers and students were asked separately what the lesson had covered, the teachers' and students' accounts did not match. This mismatch is unfortunate, because when students know what a lesson is to cover, they can construct a kind of frame, akin to a photo frame, to hold the lesson's main points. Cognitive psychologists tell us that our minds store information not in isolated bits but in connected networks (Gardner 2008). Frames assist network building. But, what does this network building have to do with SCL? The connection comes because students are

in a better place to suggest changes to a plan when they first understand what the plan is.

Strategy 2—Share the Plan

A former colleague of George and Willy's, Stephen Hall, has a simple way to let students know what is on his proposed agenda for that day's class. He uses the board or screen to show students the lesson's agenda, consisting of the what and how he has planned for the lesson. Students can give input. Near the end of the lesson, this agenda can be a tool to guide review.

This strategy links to Chap. 9, Learning Climate, because sharing the plan helps students understand the big picture of their instruction, thereby making it easier for students to contribute to the plan.

Background 3—Instruction Connected to the Real World

We teachers learned about lesson planning during our days as student teachers, and many schools reinforce the need for planning. The previous strategy was about preparing an agenda of what would be studied during a particular class. While such agendas are useful, we also need to be flexible and spontaneous enough to sometimes temporarily set aside or adjust the plans we have so painstakingly crafted, especially when we see a chance to connect to students' lives (Sherman 2001). That happened to George one day way back in 1991 when he was teaching 9th grade. One morning, the headline story in the newspaper was that the basketball player, Magic Johnson, had announced that he was HIV positive. Even students who did not follow basketball knew who Magic was. So, when George asked his class if they would like him to read from the lengthy coverage of the announcement in that day's newspaper, students readily agreed. As you can imagine, students' engagement reached higher than average levels as George read and led the class in discussion.

Strategy 3—Be Willing to Change the Plan

Teachers keep their eyes open for opportunities to bring in news from the outside world. No need to put aside an entire lesson plan; even a few minutes of something from today's news can reinforce to students the importance of what they are learning.

This news need not be from the headlines. Anything that captures students' attention may justify a change of teaching plan.

This strategy links to Chap. 3, Learner Autonomy, because when teachers are willing to change the lesson plan, students can take more control of their learning.

Background 4—Linking Instruction to Students' Interests

It was easy for George to talk to his students about Magic Johnson, because George is a big fan of professional basketball. However, teachers' interests do not always match those of our students. For instance, from back in the days of Pokemon to the present, George has never been into video games, mobile gaming, etc., despite those activities being the no. 1 recreational activity of many of his students, nieces, and nephews. Despite his aversion, as a good teacher, George has tried such games so as to be better able to connect the classroom to students' lives. Fortunately, Wii games and similar platforms have been invented, and George enjoys some of the activities there.

Strategy 4—Learn About What Students Are into

Teachers find out what students are into, learn a bit about it (remember the SCL element about Teachers and Students as Co-Learners), perhaps by asking students to teach us, and think of ways to integrate that into classroom activities. Perhaps, our students will be able to suggest such ways.

This strategy links to Chap. 1, Teachers and Students as Co-Learners, because by being willing to find out what students are into, teachers show that they too are learners.

Background 5—Keeping It in Context

Many times, whether it is a passage in language class, a word problem in math class, an example from a science text, or a story from a history book, the meaning of what

students read, view, or listen to takes a distant second place to (or is completely subsumed by) the teaching point. As a result, learning becomes decontextualized.

One math teacher whom Willy knows gave this example of decontextualized thinking. The teachers had asked her students to solve a word problem in math that went like this:

Mr. Tan has booked two coaches for a field trip to the Yeo Chu Kang Farm on Feb 28. The coaches each have a seating capacity of 20 people. There are 39 students in Mr. Tan's class. How many students will there be in each coach?

Some students proudly answered: 19.5!!

Strategy 5—Ask for Students' Views and Experiences

Teachers look for ways that students can connect what the class discusses with their own lives. To do this, teachers ask for students' opinions or ask them if they have had a related experience or even a very different experience that connects to the topic of the lesson.

This strategy links to Chap. 10, Motivation, because including students' views and experiences increases students' ownership of their own learning.

Background 6—Keeping It Real

Real world tasks offer fantastic opportunities for students to see meaning in the tasks they do in class. George heard the following negative example from a university teacher, Neva Ong (names have been changed), in Australia.

The Letter That Was Never Sent

Neva was a lecturer in a teacher training college in Australia. When Neva's niece, Crystal, who lived in another part of Australia, was 11, Crystal's teacher gave her class the assignment of reading a book and then writing a letter to the book's author. Neva had a colleague, Mem Fox (her real name), who is a well-known author of children's books, and Crystal had read and liked Mem's work; so Crystal called her Aunt Neva to ask for Mem's postal address (this was in the days before kids had email).

A couple months passed and Mem had never said anything to Neva about receiving a letter from Crystal: so, one day when Neva was speaking to her sister, Crystal's mom, she asked, "What happened with Crystal's letter to Mem?" Her sister sadly replied, "Oh, Neva, you wouldn't believe it. Crystal had tears in her eyes when she told me. When she showed her letter to the teacher, the teacher thanked her for the letter and then kept it for marking. When Crystal asked about posting her letter to Mem, the teacher looked surprised at such a foolish question and stated, 'But Crystal, you didn't really think we were going to post the letters'.

In other words, the teacher started with a great idea—a task for which students could easily see the meaning of what they were doing—but sadly felt forced to revert to making the task into a mere exercise.

Strategy 6—Look for Real Tasks

We teachers can ask other teachers, surf for ideas on the internet, and ask students for ideas as to how they can use what they are learning to do something outside the classroom. It doesn't matter how small students' actions might be. They are taking a step toward seeing the meaning in their learning.

This link provides many examples of real world tasks: http://jfmueller.faculty.noctrl.edu/toolbox/examples/authentictaskexamples.htm.

This strategy links to Chap. 7, Thinking Skills, because real tasks bring in all the complexity of the real world, which demands the application of thinking skills.

Background 7—Meaning Over Form

Sometimes we teachers, as well as our students, can be so focused on how students express their ideas, i.e., the form of what they say or write, that we pay no attention to the students' actual ideas. Here's a story which illustrates that point. The story involves a father and his elementary school son. The dad is so intent on the grammar of what the child is saying that he neglects the meaning.

Note: To best appreciate this story, you might want to read it aloud to yourself. In particular, use your acting skills to reflect the increasing exasperation of the misunderstood boy. For even more fun, you can do the actions attributed to the father.

The story begins with the boy recounting what happened at a garage sale he attended earlier that day.

Boy: My friend, Robin, didn't have enough money, so I gived him one of my coins, and then he buyed a cake, and then I gived the man another coin too for a cake.
Father: You shouldn't say, "I buyed a cake." You should say "I ……."
Boy: "Bought."
Father: So why did you say, "Buyed?"
Boy: I don't know. Let's switch it off! [in other words, the boy is asking his father to stop bothering him about grammar]
Father: Well, all right then … and what did you do with the cake you bought?
Boy: I eated it all.

Father: You said, "I eated." What should you say?
Boy: "Ate."
Father: Well, why did you say, "Eated"?
Boy: Well, er … I don't Knooooooooooooooow!
Father: Oh, all right! … How about if I hop around like a kangaroo every time you say "eated" and "buyed"? (the father begins to hop)
Boy: Stop!
Father: All right.

Strategy 7—Remember the Meaning

Yes, how a message is communicated matters, but we teachers should not forget the message itself. Teachers should give feedback on the content, not only on the form, of students' messages.

> This strategy links to Chap. 2, Student-Student Interaction, because students also need to give feedback on the key points in their peers' work, rather than focusing too much on minor matters.

Background 8—Content-Specific Language

Language plays a big role in learning almost anything (Airey 2012). Even students who are fluent in the language of instruction will often be weak in the language of the subjects they are studying, as each field has not only its own specialized vocabulary but also its own ways of phrasing ideas. Our job as teachers is to invite students to join the community of people learning and applying ideas from a particular field. Part of the invitation process includes patiently trying to understand what students are trying to communicate and helping them to "translate" their ideas into the language used in the particular field.

Strategy 8—Be a Translator and Language Teacher

Teachers coach students not only in the concepts used in the various subject areas but also in the language used to communicate about those concepts. Teachers talk with students about unique vocabulary in the lesson and ask how else they could say that same thing. Students come to understand both the technical and common meanings of words such as "table."

This strategy links with Chap. 5, Curricular Integration, because language plays an important role across the curriculum.

Background 9—Learning the Language of School

Many students come to our classrooms unprepared to deal with the language demands they will face. Perhaps, the language(s) they use at home differs from the language that serves as medium of instruction in our classrooms. Or, the language may be the same, but the dialect students use at home is not the standard dialect used in their classrooms. Students will need a lot of time to develop the necessary proficiency in the language/dialect of the classroom. We can help this process in some of the ways mentioned earlier in this chapter. Additionally, we can share strategies that students can employ outside of class to build their overall proficiency in the medium of instruction.

Strategy 9—Encourage Students to Read, Listen, and View Extensively in the Medium of Instruction

Extensive reading (ER) is a well established method for increasing proficiency, not just in reading but in all language skills. In ER, students read large quantities of materials that are at or only slightly above their current proficiency levels. If materials are initially too far above students' levels, they can do repeated readings of the same materials, with understanding growing with each new reading. ER can be combined with listening to same materials, for instance, TED talks often come with transcripts. The internet provides lots of opportunities for reading in other languages. For instance, George sometimes reads about professional basketball in Spanish, his second language.

This strategy links with Chap. 6, Diversity, because students can choose what they read, listen to, and view.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Focus on Meaning?

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Chapter 5
Curricular Integration

Abstract Students can link what they study in one class to other classes and to other school activities, to their own lives, and to the wider world beyond their classroom and beyond themselves. In this way, students can better understand what they are studying and can better appreciate why they are studying it (Morris 2003). Unfortunately, in the subject-specific way we break down the curriculum, especially in the upper grades, students can be forgiven for thinking that in the real world, people stop doing math when it's time to do science! Of course, in the world outside of school, everything connects to everything else.

Keywords Curricular integration · Problem solving · Service learning · Collaboration among teachers · Realia · Ethics

Background 1—Make the Connections Explicit

Integrating the curriculum involves not just what teachers do but also what goes on in students' minds. For instance, do students see how activities in one class include skills and knowledge from last week's class or from another course, this year or in past years? Sometimes the connection might be obvious to us, but not to students.

Strategy 1—Help Students See Connections to Other Classes

When we teachers see some connections between what is happening in our class and what happened or is happening in a previous session of this class or in one or more of students' other subjects, teachers ask students, perhaps in groups, to identify connections they see.

Here are some math formulas to stimulate integrated conversations in class. Teachers ask students to make sense of these formulas and discuss why they might

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be true. Are there other curriculum formulas that students can come up with on their own?

Music = Math + Science
Literature = Language + Social Studies
Health = Science + Physical Education
Writing = Reading + Communication

These connections can be made even more explicit by students illustrating them, for example, by putting them on posters to hang in the classroom, or better yet, in the hallway for all to see.

The cooperative learning technique, Everyone Can Explain, can be useful here. In this technique, students work in groups of 2–4 on a question or task. Their goal is to answer the question or do the task and, as the name of the technique implies, be sure that everyone in their group can give and explain their group's answer/solution (or the different answers/solutions developed in their group). Finally, the teacher calls on a student at random to share their group's (not their own) answer(s) + explanation(s) either with the class or another group.

This strategy links to Chap. 2, Diversity, because collaborating with a range of peers enables students to know about connections to a wide range of other courses.

Background 2—Putting It All Together

We live in the Information Age, with the web offering seemingly endless streams of information on a seemingly endless range of topics. With this increased access to information, it has become increasingly easy to connect our class' current topics to what takes place beyond the classroom (Voogt and Knezek 2008). Seeing these connections allows students to better understand why they study what they do, thus increasing their motivation to learn and to use what they learn.

Strategy 2—Invite Students to Make Connections Beyond the Classroom

Teachers invite students to find connections beyond the classroom to what the class is studying. Connections can be found on TV shows, YouTube videos, billboards, cereal boxes, etc. *Teachers ask questions like, "Where do you see…? Have you ever seen… on TV? Does this remind you of something in your home? Does this remind you of something you learned before?"*

This strategy links to Chap. 1, Teachers and Students as Co-Learners, because when students make connections, teachers can learn from students.

Background 3—Focus on the Big Picture

Many students, even college students, do not have a clear idea of what they will do when their full time formal education concludes (or at least pauses). This lack of clarity can arise from being taught so many things in isolation that students lose the big picture understanding that in the real world everything is connected.

Of course, students being unsure about their futures is not necessarily a bad thing, as in that way, students open themselves to so many possibilities in our changing world. However, learning can take on more meaning when students see the impact of what they learn.

Here's a story that illustrates how learning, in this case learning a second/foreign language, links to learners' success in life.

It's Great to Be Bilingual

A little mouse, named Minerva, awoke one morning and was about to go out from her mousehole when she heard "thump, thump, thump, thump" "meow". "Hmmm," said the wise little mouse. "Cats go 'meow'. Cats eat mice. I better not go out now." So, Minerva returned to her little mouse bed and went back to sleep.

Later, after a pleasant 30 min of extra sleep, Minerva was feeling very hungry, so our little friend again started out to search for food, but stopped before exiting from the mousehole when she heard, "thump, thump, thump, thump" "woof-woof." "Hmmm," said the mouse. "Dogs go 'woof-woof'. Dogs do not eat mice. I'll go out."

As soon as Minerva stepped outside the mousehole, there was Lydia, the cat. Lydia grabbed our little hero and soon the mouse was no more. After the cat had finished devouring her prize, Lydia licked her lips and said, "No doubt about it. It sure is great to be bilingual!"

Strategy 3—Illuminate Links to Careers

The class can brainstorm about careers that utilize the knowledge and skills they are currently studying. Then, they can search a jobs website to see if they can think of any future careers for themselves. To take this a step further, students can communicate with people who use or benefit from the knowledge and skills that the class is

studying. For example, when students encounter someone at their job, such as a dentist or designer, they can ask those people how they use reading, math, or science, etc. as a part of their job.

This strategy links to... [Beginning with this chapter, we the authors, invite you, the readers, to make some of your own links between a strategy in one chapter and the themes of the book's other chapters.]

Strategy 3—Growing Connections

Here's an example of adding just a little integration focus to an activity you might already have planned. Let's say students are experimenting with growing beans. They plant the seeds in various types of containers, use different soil mixtures, vary the heat and light, etc. *They collect all these data, create charts and graphs which associate the growth of the plant with all of the corresponding variables, and then write a report.*

After the activity is concluded, students go back over their reports with colored markers (or use highlighting in word processing) marking where they used specific skills or content knowledge in doing their work. They could highlight in yellow where they used math, green for reading, blue for drawing and other art skills, etc. *They would also have used communication skills for their group work. After students have done this highlighting with a variety of activities, they will develop the habit of seeing connections.*

Background 4—Problem-Solving Opportunities

There are many problems in the world that seem unsolvable because they are so complex: economics, history, cultural identity, scientific progress or lack thereof, politics, and breakdowns in communication. If our students want to make a difference in the world, seeing the big picture is essential and making those connections starts in the classroom.

Strategy 4—Simulate Real Uses

Students simulate real world uses of what they are studying. These simulations should have an evaluative component, so students can appreciate the difficulty and complexity of real world issues. A common example can be seen in a Computer Applications class when students build a sample website for a real or imagined organization that seeks to address a contemporary issue. Even better, students can actually create the organization and open the website for public use. Alternatively,

students can contact a local business or organization or a school club and offer to design a website or webpage for them or help them with their Instagram.

This strategy links to Chap. 8, Alternative Assessment, because instead of being assessed via traditional paper and pencil tests, student learning can be assessed via the quality of their task performance.

Background 5—Learning to Be of Service

Service learning combines the benefits of service to others with learning of important information and skills. By participating in service learning, students can see the practical impact of what they study. They can be part of a larger effort.

Strategy 5—Promote Service Learning

Service Learning projects can be large or small. Examples of small projects include raising funds or writing letters in support of an organization which has worthy goals, after studying the issues the organization addresses. Also, in the interest of diversity, students can have options as to the beneficiaries of their service or how they do the service. For instance, if students are raising funds for charity, different groups within the class can raise funds for different charities. This type of choice highlights another key aspect of SCL.

Background 6—Teacher Collaboration

This book is about small steps toward SCL. Yes, curricular integration can take place on a grand scale, with many subject areas and many teachers and their classes involved. Can one teacher pull off something like that? It's not impossible, but it's much more likely if teachers form a team. Teachers tend to spend their time with those colleagues who teach the same subject matter. This is fine, but for curricular integration to work well, it's important that teachers share ideas with teachers of other subjects.

Strategy 6—Find a Friendly Colleague

One of the great things about being a teacher is that the profession attracts lots of friendly, helpful people. Thus, we shouldn't have much trouble finding someone who teaches another subject or another grade level, or even the same subject and grade level, with whom we can collaborate on a brief integrated curriculum activity. In fact, we probably already have some friends whom we can ask.

Background 7—Realia

Objects from the world beyond the classroom offer another means of curricular integration. Additionally, the internet possesses so many new, easy ways to do curricular integration. Of course, we do have to be careful about the realia and the web resources we bring to our students, as is illustrated by this story from a former colleague of George and Willy's, B.R. Sundara Rajan, who, long ago, taught in India.

Too Real Realia

A well-meaning teacher in India believed in using realia to teach new terminology to his elementary school students. One day, he was planning to teach some of the terms for the parts of a cow's body, such as horns and tail. Thus, the logical thing to do seemed to be to bring a cow into the classroom.

This the teacher did. The lesson might have gone all right had not an inspector from the local school district chosen that very day and that very class for a surprise lesson observation. The classroom was rather crowded, leaving the only place for the inspector up in front with the cow. As the teacher had aptly chosen a cow with large horns, the better to teach this term, the inspector decided to seat himself at the other end of the cow.

This decision also had its drawbacks, as the cow felt the call of nature, and the poor inspector, who had entered the room dressed in a spotless white uniform, suddenly had his favorite uniform decorated in various shades and shapes of brown.

Needless to say, the inspector was furious and wanted to demote the teacher. However, after the teacher explained that he had only been following the guidance of his university professors, the inspector decided to let him go with just a warning, as long as he promised to forget all that the idiots at the university had taught him.

Strategy 7—Use Realia

What's an example of realia that you could bring to class to illustrate a key point? This could be real or virtual realia. Of course, students can be invited to do the same.

This strategy links with Chap. 4, Focus on Meaning, because realia makes concrete what students are learning.

Background 8—Reading Across the Content Areas

Reading fiction is associated with Language Arts and Literature courses. In most other courses, students read only their textbooks or selected textbook-like readings (the length of which varies according to the students' reading level). However, every field has been the subject of fiction, biography, autobiography, and other types of books far from the realm of the textbook. Including such broader types of reading materials provides students with another learning mode and can excite students about the given field of study. Also, students are likely to be more motivated when they have access to a large variety of different text genres (Gambrell 2011). Examples include "A Beautiful Mind" by Sylvia Nasar, the dramatic true story of a troubled mathematics genius, or for younger students, "Math Curse" by John Scieszka and Lane Smith, a fun look at math problem solving run amok!

Strategy 8—Encourage Fiction Reading to Compliment Academics

Students explore lists of non-textbook reading materials and are on the lookout for works to add to such lists. Furthermore, as suggested in the first strategy in Chap. 1 on Teachers and Students as Co-Learners, students should know that their teachers enjoy occasional reading dips outside the textbook beach.

Background 9—Ethics

It seems like barely a month, or is it a day, goes by without another ethics scandal breaking somewhere in the world. And it's not just politicians involved. People in all fields, even physicists and physicians, are caught committing ethics violations. Such sad events provide us teachers with opportunities for curricular

integration by bringing together our subject areas with the key curricular concerns of values and ethics.

Strategy 9—Talk About Ethics

Teachers find opportunities—from today's or past days'/years' headlines, from teachers' own experiences, or from imaginary examples—to encourage students to think about what it means to do the right thing in various circumstances. Life is full of ethical dilemmas.

This strategy links to Chap. 7, Thinking Skills, because students need to think deep as they delve into dilemmas.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Curricular Integration?

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Chapter 6
Diversity

Abstract Any class of students will, in one way or another, form a diverse group. The diversity may be due to race, country of origin, religion, sex, family background, personality, interests, achievement level, intelligence profile, and/or academic aptitude. By being aware of and strategically encouraging students to embrace this diversity, we teachers involve all students, enliven learning, and expand students' learning experiences (Gonzalez-Mena and Pulido-Tobiassen in Teaching diversity: a place to begin, n.d.). Of course, students not only differ from each other; they also differ from us, their teachers.

Keywords Diversity · Team building · Multiple intelligences · Bodily/kinesthetic intelligence · Cross-Age instruction

Background 1—Mixed Grouping

We have many different goals when we ask students to work together in groups (see Chap. 2 on Student-Student Interaction). One of those goals is to form diverse groups so that students to get to know fellow students different from themselves. If we ask students to form their own groups, often "birds of a feather flock together," and the resulting groups do not reflect the diversity of our classes. This is why many teachers and researchers recommend teacher selected groups or student selected groups but with various criteria for diversity, such as a mix of females and males and of native languages.

Strategy 1—Think About How Your Students Differ

Teachers look around their classes, get to know their students better, and think about the various ways they differ. Teachers consider how diversity could aid students both

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with learning the subject content and with learning to work with and appreciate people different from themselves.

This strategy links with Chap. 5, Curricular Integration, because diversity is very much part of the real world.

Background 2—Teambuilding

One problem that arises with heterogeneous student groups is that students may not feel comfortable with their unfamiliar group mates and, as a result, may not want to interact with them. Teambuilding is one way to enable students to come to know and feel comfortable with their new and different group mates. Teambuilding activities serve to bring students together toward a common goal and/or to share safe information about themselves (Jacobs and Kimura 2013).

Strategy 2—Do Teambuilding

Many teambuilding techniques exist. Here's one called A Surprising Fact about Me.

A Surprising Fact about Me
Procedure:

1. *Each person works alone to think of something about themselves that their group mates may not know. Examples are an interesting family member, a hobby, a favorite holiday, a sport, a favorite movie or food, or a wish for the future.*
2. *Group members take turns, moving from left to right, to tell group mates their surprising fact.*
3. *Each time, after one person has spoken, the person to their right asks a question. Other group members can also ask questions or make comments. As preparation for this activity, students can discuss what are appropriate, respectful questions.*
4. *Before the game begins, teachers might want to model the process by telling a surprising fact about themself and encourage students to ask questions about their teacher's surprising fact. Teachers and the students can brainstorm question starters that they could use, such as, "Why?," "What were the effects of …?," and "Did you ever …. again?"*

Background 3—Multiple Intelligences

Multiple Intelligences Theory advises us to:

1. Ask not, "Are students smart?" but, "How is each student smart?"
2. Teach in a variety of ways so as to connect with all our students, especially those who struggle when taught by traditional means which emphasize learning via words and logic.

Fortunately, teachers have developed a wide variety of tools to facilitate learning via many different intelligences (Gardner 2011). Also, the internet has added a burgeoning cornucopia of new tools to our toolboxes. Learning in multiple ways not only helps students who do not flourish in standard learning contexts, it also broadens and deepens everyone's learning, as they learn similar ideas via multiple modes. Drawing is one such learning tool.

Strategy 3—Add Drawing

Some students, including ones who do not do well learning via traditional means, might benefit from drawing to illustrate concepts. Students can draw by hand or with electronic devices. Drawing can be done in groups in several ways. Examples include: (a) each student draws and a group mate adds words, such as labels or captions, to their drawing; (b) a group plans a drawing, and each member does a part; (c) students do a group drawing with each student using a different color; and (d) each student draws to illustrate concepts and group mates make suggestions for improvements.

Background 4—Variety Is not Only for Fun

When students learn in unorthodox ways, such as via drawing, we need to ask ourselves, "Is this activity just for a change of pace or does it really achieve important curricular objectives?" If students really are meeting key objectives, for instance, students learning about plants by drawing the parts of a plant and listing the functions of each part, we can make these SCL changes a regular part of learning in our classrooms, because we can justify their use to students, administrators, and other stakeholders.

Strategy 4—Be Rigorous

Whether students are learning in traditional or unorthodox ways, teachers help students identify key learning goals associated with diverse ways of learning. Students come to recognize whether and to what extent they and their class mates have achieved those goals. For example, did drawing plants and listing the functions of each plant part help them achieve their learning goals, or were they just drawing for fun?

This strategy links with Chap. 3, Learner Autonomy, because when students can recognize whether they have achieved their goals, students become better able to set and achieve their own goals.

Background 5—Bodily/Kinesthetic Intelligence

When students act out ideas, they deploy their bodily/kinesthetic intelligence, which is a powerful tool to enable them to grasp, individualize, and teach each other concepts (Kambouri and Michaelides 2014). We teachers might be surprised to find normally quiet students come to life when role playing someone else. For instance, one of the moments George remembers best from his high school studies occurred when in English class he acted out part of a scene from Macbeth. Not just the teacher and the rest of the class were surprised to see this normally shy boy acting in such an animated manner, but George even surprised himself.

Strategy 5—Add Acting

Acting, via skits, role plays, etc., offers another way to diversify the range of instructional activities in which students participate. Electronic devices, such as video cameras, as well as video editing software and animation programs, provide so many new ways to add the power of stories to learning. Again, everyone needs to consider how students' acting brings to life key points from the curriculum.

Background 6—The Benefits of Mixing Students by Age

Most classrooms may be diverse in many ways but not in terms of age. For instance, even at university, people in their late teens and early twenties most often form the bulk of students in first year classes. In contrast, in the outside world where students

live, they normally experience cross age situations, such as in their families and communities. We can partially replicate this mix of ages via cross age tutoring and other arrangements that bring together people of different ages. Such mixing allows students to see different perspectives and play different roles. For instance, when high school students tutor elementary school students, the older students take on the role of teachers. Some schools have successfully implemented cross age tutoring programs such as buddy reading programs. We need to see more schools doing this.

Strategy 6—Initiate Cross Age Tutoring

We teachers look for teacher friends, former university classmates, or colleagues in our own school whose students' ages differ from those of our students. Then, we set up cross age tutoring programs. We need to take steps to enable tutors to succeed, such as helping them learn some teaching skills. Similarly, the younger students need to understand what to expect from their big brother and sister teachers and how to relate to them.

Background 7—Addressing Academic Status Differences

Sociologists of education talk about status differences that arise among students in a class due to their performance on assessments, both formal assessments, such as tests, and informal assessments, such as being called on to answer a question in class. Over time, some students become known as the bright ones and others are labeled by peers and even by teachers as the, to put it charitably, less bright ones. However, if we indeed hold the belief that all students are smart, just in different ways, we need to re-see our students and help them re-see each other and themselves. This can be done by using tasks that require a variety of intelligences.

Strategy 7—Find and Praise Everyone's Strengths

By using tasks that call upon many different intelligences, some aspects of those tasks will likely fit the ways that all our students enjoy learning and in which they can perform well. Indeed, in some cases, low achieving students will outperform the higher achieving students. Two possible responses by teachers are: (1) upgrade our own view of these students; and (2) loudly proclaim to the class what these students have done well, so that their peers also notice it. It's a bit like the song "Rudolph the Red Nosed Reindeer." After Santa praised Rudolph, the other reindeer accepted him.

Background 8—Unequal Distribution of Teachers' Attention

Some research suggests, perhaps surprisingly, that teachers, including female teachers, tend to call on male students more often than they call on female students. This inequality seems to occur even in the case of teachers who are strong believers in equal rights between the sexes. Teachers may be differentiating unconsciously. Why this disparity in the attention females and males receive from teachers? One hypothesis is that males demand attention, as though they are saying, "Pay attention to me, teacher, or I'll cause trouble in your class!" Other studies suggest that teachers pay more attention to students who make frequent eye contact and to those who raise their hands often.

Strategy 8—Measure Your Attention Distribution

We teachers pay attention when teaching a class or giving written feedback. Is our attention distributed equally? If not, who receives more attention, and is this differential justified? Maybe female/male is not a significant differential in our classroom. Maybe something else is.

Background 9—Supplement Your Impressions

Gut feelings and impressions are very often correct, but sometimes it is useful to supplement them with some data. For example, a colleague or a student can use an observation record to quantify various aspects of our behavior, from something as minor as how often we end sentences with "Right?," to something more significant, such as how we respond to wrong answers.

Strategy 9—Video Record Our Own Teaching

Video-recording our own class can help us see whether we give too many turns to students sitting in the front, middle or back rows, whether we ask challenging questions only to the brighter students, or whether we give compliments to certain groups of students only.

This strategy links with Chap. 1, Teachers and Students as Co-Learners, because when students see teachers striving to be better teachers, that may motivate them to strive to become better learners.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Diversity?

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Chapter 7
Thinking Skills

Abstract As students learn, they go beyond the information given to them, and are able to make meaningful connections across the curriculum by applying, analyzing, creating, evaluating, categorizing, observing, reflecting, etc. These types of thinking processes help students to construct their own learning and build their capacity to do additional learning (French and Rhoder in Teaching thinking skills: Theory and practice. Routledge, New York, NY, 2011). Thinking skills are just like other skills; they need to be explicitly taught and practiced in all subject areas so that students can apply them in all their learning.

Keywords Thinking skills · Student created questions · Graphic organizers · Going beyond the information given · K-W-L-S · Conflict

Thinking skills are essential, because shifting toward SCL includes a power shift, with students having more explicit power over how and what they learn. Of course, the reality, according to cognitive psychologists, has always been that learning is necessarily student centered, necessarily in the power of students. Constructivism forms the key concept here. Each human uses thinking skills to construct their own learning. No one—not teachers, family members, textbook writers, departments of education—nobody, no matter how skilled, well intentioned, and well funded can pour knowledge into students' heads. Students determine, either through active participation or by choosing not to participate, what they learn and how they use what they learn.

Background 1—Asking for Reasons to Encourage Thinking

Bloom's Taxonomy of Cognitive Objectives provides one of the best known tools for promoting thinking. Its six levels of thinking—knowledge, understanding, application, analysis, synthesis, and evaluation—have been used by teachers for more than 50 years, with all the levels (maybe even the knowledge level) sparking thinking

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among students. Questions starters have been developed to coincide with each of the levels in Bloom Taxonomy. The simple three-letter word "Why" probably offers the most flexible way to provoke students to think.

The following story by David W. Johnson of the University of Minnesota illustrates the importance of "Why."

> A psychologist at a mental hospital had been working with three patients for about a year, and they had made a lot a progress. So, she was planning to release them from the hospital and allow them to return home to their families.
>
> However, she wanted to make one more check to be sure the patients were really ready to be released. So, she called the three of them into her office, and she asked them, "Please tell me - what is 3 times 3?" The first patient said, "Sure, I know. 3 times 3 is Thursday." The psychologist couldn't believe it. She'd worked so hard with this patient, and now this! What had gone wrong?
>
> But, undaunted, she turned to the second patient and said, "You know what 3 times 3 is, don't you?" "Of course," the patient replied, "3 times 3 is mangoes." Well, the psychologist threw up her hands in frustration. She was ready to tear up her diplomas, quit her comfortable, well-paid job, and set up a stall selling mangoes and mango juice.
>
> In desperation, she faced the third patient. With a pleading voice, she asked, "Please, please, you know, I'm sure you do, what 3 times 3 is." The reply came without a moment's hesitation – "3 times 3 is 9." The psychologist let out a huge sigh of relief. At least she wasn't a total failure; one patient could be released.
>
> Then, the psychologist had an idea. She'd get the third patient to explain to the other two how 3 times 3 equals 9, they'd understand, they could all be released, she'd be a success. However, when she asked the third patient to explain his answer, he said, "3 times 3 = 9 because Thursday times mangoes = 9."

Strategy 1—Ask "Why" and Encourage Students to Do the Same

Teachers occasionally sprinkle in a Why. Nonetheless, the Knowledge level in Bloom's Taxonomy—the level involving recall or identification of information that has already been presented—remains important, because knowledge provides a foundation for higher order thinking. Young children often ask "why" so often that it drives adults crazy, but subconsciously they know that answers to Why questions generate a lot of language which allows them to build their own language skills, in addition to finding out "why"!

Also, Why combines with other words to form many mind strengthening questions, e.g., Why was? Why might? Why does? Be warned: students unfamiliar with using Thinking Skills as part of the regular curriculum—of course, students use Thinking Skills outside of school—may accuse their teachers of overworking the "poor" students' brains.

Background 2—Students Create Questions for Other Students

Let's continue with questions. In too many classrooms, the questions students answer come only from us teachers and from the course materials. But students too can create questions. By creating questions instead of only answering them, students play a larger role in their own learning and gain a greater understanding of the topic currently being studied.

Strategy 2—Use Exchange-A-Question

The cooperative learning technique, Exchange-A-Question, provides a platform for students to create questions for themselves and others. The procedure follows:

- *Students work alone to write one or more questions/problems.*
- *They write answers to their questions on another paper.*
- *Students exchange questions but not answers.*
- *After students have answered their partner's questions, they compare answers.*

A fun alternative is to have students exchange answers and their groupmates guess what the question was, like in the U.S. television game show "Jeopardy."

Teachers model the types of questions that students might create. For instance, students who understand how to write the types of questions found on their exams are better prepared to answer those same types of questions when they encounter them on exams.

Note: Once, after George had taught Exchange-A-Question to a group of teachers, one of them objected, saying that he didn't see much point in students exchanging questions to which they already knew the answers. Instead, students should be asking questions to which they do not yet have answers.

George maintained that, as explained above, Exchange-A-Question does have value, but he welcomed the teacher's observation for several reasons. For instance, questions to which students do not have answers send them off on exciting quests. Maybe by working with peers, students can find answers or parts of answers.

Background 3—It Is Okay to Be Wrong or to not Know

Fear of being called wrong and, even worse, being laughed at for being wrong (or at least perceived as wrong) constitutes a major reason students are reluctant to attempt activities that require thinking skills. Thus, the SCL element of Learning Climate, discussed in Chap. 9, plays a vital role in promoting thinking. To promote

a climate in which it is okay to be wrong, it is okay to take chances, we teachers should admit when we are wrong and when we do not know something.

Strategy 3—Admit Ignorance

Either in response to student questions or of our own initiative, we teachers talk about what we do not know but want to know. Then, we do not take full responsibility for finding answers. Instead, we talk about how we might go about searching for answers and invite students to do the searching on their own or to search along with us.

Background 4—Graphic Organizers

Graphic organizers offer one way to integrate thinking skills into our teaching. Among the many graphic organizers are mind maps, tables, graphs, pie charts, pyramids (such as the food pyramid), double bubble maps, and Venn diagrams. For example, students can be asked to generate a Venn diagram comparing and contrasting reptiles and mammals. Students need to put on their thinking caps to transfer ideas and information from word form, such as a paragraph, to a graphic organizer, such as a mind map. Fortunately, software has made graphic organizers easier to create and share.

Strategy 4—Teach Graphic Organizers

Teach students how to use one or more graphic organizers. Then ask them to include a graphic organizer in their work. They can choose any graphic organizer they know. They can also go to the web and learn others.

Background 5—A Technique to Assess and Build Knowledge

The K-W-L-S technique encourages teachers and students to talk about what they know and don't know (Ogle 1992). Here's a cooperative learning version of KWLS.

K What I *Know* on a topic—students work alone, listing what they already know about the topic, and then share their list with a partner, including explaining how they gained their knowledge. Next, a whole class discussion takes place, with teachers perhaps adding their own knowledge and the sources of that knowledge

W What I *Want* to know on the topic—again, students work alone, this time to make a list of what they want to know on the topic, and then share their list with a partner, including why they are interested in a particular area of the topic. Next, a whole class discussion takes place, with teachers perhaps adding their own questions and the reasons for their curiosity

L What I *Learned*—after the class has read, listened to, or watched something on the topic, students first work alone to record what they learned, followed by pair and whole class discussions

S What I *Still* want to know—students and teachers combine to list remaining or new questions on the topic and discuss how to investigate those questions

Not only is there much that we do not know, but much of what we think we know turns out to be wrong, or at least partially wrong. We see such changes from established orthodoxies in both the physical and social sciences. Astronomy provides both old and new examples of this phenomenon. The first example involves the famous issue of whether the sun rotates around the Earth or vice versa, including the persecution of Galileo for his stand on the issue. More recently, astronomers have decided more amicably that our solar system has only eight planets, with their "demotion" of Pluto from its former status as planet.

Strategy 5—Encourage Questioning of Information and Interpretations Presented in Textbooks, Etc.

Teachers look for opportunities to highlight the tentative nature of knowledge. Perhaps, teachers contrast what we were taught when we were students with what is taught today. Or, they look for new studies that question established knowledge. We encourage students to not just receive knowledge but also to question and seek to disprove what their teachers and instructional materials tell them. It is often said, "History is written by the victors." This applies beyond history. Students could have a lively and productive exploration of questions such as, "How might the world be different if automobiles hadn't won out over horses?"

A similar strategy is called QtA "Questioning the Author" (Beck 1997). *Students work together to uncover or clarify authors' meanings or to question their opinions and choices. Sample questions include What are the authors saying? What do they really mean? Do the authors provide evidence to support their opinions? How reliable are the sources that the authors cite?*

Background 6—Going Beyond the Information Given

The educational psychologist Bruner (1973), came up with a concise, useful phrase to explain thinking: "Going beyond the information given." Students have many

ways to go beyond the information given by their teachers and instructional materials. The term "elaboration" encompasses many of these. When students elaborate, they push themselves to understand more deeply. To elaborate, students can compare and contrast, define terms, give examples, supply reasons, and offer details.

Strategy 6—Ask for Examples

Examples bring statements to life. Students' examples can come from many places, including their own imaginations. Examples can also come in forms other than word narratives. Indeed, examples can also be drawn, mimed, acted, visualized, and embodied in poems.

Background 7—The Benefits of Conflict

In schools, we often fear and seek to avoid conflict, because conflicts can escalate; they can linger and fester. Avoiding unsafe or disrespectful conflict is important, but sometimes avoidance of conflict of ideas may be unfortunate, because conflict can be a great thought provoker. Visit any of the websites with quotations from famous people and others, and you are likely to find lots of quotations about the virtues of conflict, such as "Question assumed facts." One of our favorites is attributed to Francis Crick, one of the co-discoverers of DNA, who is alleged to have said regarding his working relationship with one of DNA's other co-discoverers, James Watson, "Our … advantage was that we had evolved unstated but fruitful methods of collaboration … If either of us suggested a new idea, the other, while taking it seriously, would attempt to demolish it in a candid but non-hostile manner." Thus, if any of Crick or Watson's ideas could pass their partner's test it was probably a solid idea.

Strategy 7—Teach Constructive Disagreement

We teachers encourage students to act toward us and toward their classmates as Crick and Watson acted toward each other. Looking back at Crick's quote, the first step involves the words "non-hostile manner." Here are a few phrases that might help students engage in non-hostile disagreement:

a. *"Thanks for your idea. I don't completely agree."*
b. *"I see things differently."*
c. *"What if we look at it from another angle?"*

d. *"I'm going to try to paraphrase what you said. Please tell me if my paraphrase is correct. After I correctly paraphrase you, maybe you would like to paraphrase me."*

Teachers model these polite disagreement gambits for students, and remember to wear a friendly face while doing so.

Background 8—Developing Thinking Skills

What we teachers do is to guide students' learning. Thinking skills play a critical role here. For instance, students need to form opinions on important issues in their lives and the lives of others, and these opinions need to be backed up by reasons and logical thinking. (For examples of the many not-so-logical ways that many of us, even professionals, think, see *Thinking, Fast and Slow*, the book in which Nobel Prize winner Kahneman (2013) describes some of the typical biases that lead us to think illogically.)

We may feel strongly that students' opinions on a particular matter are wrong and/or that their reasoning is flawed. We may see students changing their opinions frequently. No worries. We teachers need to keep in mind that the development of thinking skills is a life-long process. Let the process begin!

Strategy 8—Ask Students' Opinions

We teachers look for opportunities to ask students their opinions, opinions about anything from class content, to how the class is taught, to the food served in the school cafeteria. After stating their opinions, students explain the reasoning behind them. Students may be pleasantly surprised to be asked for their opinions. Or they may be alarmed! The wife of one of George's friends went to school in a very teacher-centered culture. When she went to college in the United States, it was the first time a teacher had ever asked her opinion. She was afraid she'd fail the class because she didn't know what opinions her teachers expected her to give!

Background 9—Giving Students Time Is Saying "I Believe in You"

Thinking tends to take more time than does answering questions that involve only repetition of what has been taught. In this context, textbooks on teaching discuss the notion of "wait time" (Tobin 1987). As the term implies, wait time is the time teachers wait for a response after asking students a question or asking students to do a task.

Some research suggests that students are more likely to provide elaborated replies when we provide more wait time. Research also suggests that by providing wait time, teachers are telling students, "I believe in you. You can do it." In addition to providing wait time, we can also offer clues. Let's hope that students follow our example and offer peers wait time and clues when, during group activities, peers struggle to develop responses.

Strategy 9—Provide Wait Time and Clues

Teachers who implement SCL ask students more thinking questions, but do we also give students time to formulate elaborated answers. One way for teachers to provide wait time is to set aside time for students to write or to discuss in groups before we ask anyone to share responses with us and the rest of the class. Similarly, when students seem to be struggling, teachers offer clues or suggest that students consult group mates. The general principle is for teachers to offer the least help possible, as long as the task is indeed doable.

Background 10—Benefiting from Failure

In general, we teachers want to do what one of George's first supervisors urged, "Play to success," that is, help students succeed. However, perhaps students also benefit from failure, as failure builds what is called the "Adversity Quotient" (Stoltz 1997). The Adversity Quotient involves how well students respond to difficulties and failures. As the saying goes, "When life gives us lemons, we should make lemonade." Another helpful concept to share with students is "Fail forward"—make failure a stepping stone to future success.

Thus, we should not be too quick to intervene when students, working alone or in groups, encounter difficulties. If we feel the task really does lie within students' "stretch zone," that is, students should be able to do the task if they try for a while and use effective strategies (including student-student interaction) to stretch their current proficiency level, we should delay our interventions. Instead, we can observe the process students use to overcome the adversity they face. Indeed, if at last we do intervene to assist students with their difficulties, we might first focus our interventions on how students cope with adversity.

Strategy 10—Observe Students' Adversity Quotient

We teachers appreciate that errors can be great learning opportunities. We give students space to correct what seem to be failures, and we encourage them to reflect on how they cope with adversity.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Thinking Skills?

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Chapter 8
Alternative Assessment

Abstract For teachers and students to monitor student learning, assessment should be frequent and realistic, and it should involve students. Assessment should allow students to show how they know, not just what they know. Other terms that are synonymous with or similar to alternative assessment are authentic assessment, integrative assessment, holistic assessment, and assessment for learning (Butler and McMunn in A teacher's guide to classroom assessment: Understanding and using assessment to improve student learning. Jossey-Bass, San Francisco, CA 2006).

Keywords Alternative assessment · Formative assessment · Comment sandwiches · Think aloud · Group tests

Background 1—Formative Assessment

A term that often goes hand in hand with alternative assessment is formative assessment, which contrasts with summative assessment. Summative assessment usually takes place at the end of a course or term, whereas formative assessment takes place while students are learning and helps them build on their learning by providing a way for them to use what the class has been working on.

It isn't the form or content of the assessment that distinguishes formative and summative, it's how the results are used. The focus of formative assessment is for students and teachers to use what they learn from formative assessment to enhance learning and teaching.

Here is an example of how formative assessment might be used as part of a SCL lesson. Too often, we teachers fall into the trap of trying to pour knowledge into students' heads. For example, if class is going to end in five more minutes, but we have eight more minutes of things to say, we teachers might be sorely tempted to start talking faster and not pause for questions and student-student discussions.

However, in a SCL approach, instead of rushing, we might want to stop talking a few minutes before class ends and do formative assessment via a quick activity to help students and ourselves check what has been learned, as well as help students,

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alone or in groups, to consolidate (1) what has been learned, (2) what remains unclear, and (3) what new areas have arisen for exploration.

Strategy 1—Do 3-2-1

3-2-1 (The Teacher Toolkit n.d.) provides a flexible way to do formative assessment. Here is how one version of 3-2-1 works:

3. *Students write three points they have learned in class that day or from preparation for that day's class*
2. *Students write two questions that have arisen—one that the individual student has and the student's group mate has (either an "I'm not clear" question or an "I want to learn more" question);*
1. *Students write one way they can use something they learned today.*

Teachers and students can construct their own version of 3-2-1 (or just 2-1 or even 1) and give it a whirl.

Background 2—Learning Orientation versus Performance Orientation

In addition to the distinction between formative and summative assessment, another useful distinction in assessment involves learning orientation vs. performance orientation. A learning orientation focuses more on what students have done well. A performance orientation looks exclusively at whether what students have done is correct. When a learning orientation is adopted, teachers and students appreciate and can build on the progress students have made and what students have done correctly, even if much room for improvement still exists.

Strategy 2—Serve Comment Sandwiches

A class can try out more of a learning orientation with the next task students do. First, the class strives for clarity on the criteria for success on the task. Then, teachers appreciate what students do well by making a "comment sandwich," starting with what students have done well, followed by an area for improvement, and concluding with another area of success. Subsequently, students serve comment sandwiches to peers.

Background 3—A Process Orientation

A learning orientation also looks at students' processes, that is, how they go about doing tasks. This process orientation encourages students to learn strategies for doing tasks. For instance, when reading from their textbook or other instructional materials, the strategy of stopping occasionally to summarize main points can be useful.

Strategy 3—Ask About Process

Instead of only looking at students' products, teachers also ask about how students did a task. We show our appreciation of what students did well or tried to do well, and perhaps suggest alternatives. Students can also do this in pairs so that they can compare and contrast their different learning processes and learn from each other.

Background 4—Metacognition

A good way to focus on students' processes, not just their products, comes from what cognitive psychologists call "metacognition," which means thinking about our own thinking (Waters and Schneider 2010). Thinking aloud provides one way to promote metacognition. As the name implies, thinking aloud involves saying out loud what is on our minds as we prepare for, engage in, and end (perhaps temporarily) a task. Thinking aloud is a bit like reflecting in real time.

Thinking aloud can be compared to opening a window onto our minds. When we teachers think aloud, we let students in on our thinking processes; they see not just what we do but also what we think about, as well as our feelings, as we do it. Similarly, when students think aloud, peers and teachers can better learn from and assist them.

An English teacher whom Willy knows was at first skeptical about using thinking aloud in her composition class. After some persuasion, she gave it a try in a lesson on writing a narrative. She thought aloud the often hidden processes that writers go through when writing a narrative, talking out loud about such points as how she chose her opening paragraph, why she used certain words and not others, and how she rewrote or revised a sentence. To her pleasant surprise, this teacher's students reported that they found the lesson 'eye-opening' and many said that it was the first time that a teacher had done that for them.

Strategy 4—Think Aloud

As teachers model a task for students, we say aloud what we are doing and feeling and why we are doing and feeling it. We verbalize the process, warts and all. While verbalizing, we use appropriate jargon, stopping to explain any jargon students might not know.

Background 5—Inclusive Education

As many schools move toward inclusive education, facilitating equal opportunity for success for all students becomes more challenging. For instance, special arrangements for assessment will have to be made for particular students. Such assessment accommodation allows special needs students to show what they truly know, whereas if these students had to do the same assessments as their peers under the same conditions, the result might provide a less accurate depiction of these students' abilities. Teachers provide the accommodation not to give special needs students an advantage but to allow them to show what they know and can do. For instance, a scribe might be provided to a student who has dysgraphia, and extra time might be given to a student with physical limitations.

Strategy 5—Gladly Arrange Assessment Accommodation for Students with Special Needs

Special needs students may already feel marginalized, which could sap their motivation. By happily arranging for their assessment and other needs, teachers help these students feel they are valued members of the classroom community. This positive feeling can be a great motivation booster. Furthermore, teachers who accommodate the needs of their students model what a caring classroom is all about.

Background 6—Groups as a Scaffolding Tool

Scaffolding provides assistance when students undertake difficult tasks. Working in groups that are heterogeneous as to past achievement offers one form of scaffolding. The final goal in scaffolding is to remove the scaffolding so that each student can do the tasks on their own. Assessment done in groups provides one way to provide scaffolding and to help teachers and peers to know when and to what extent we can begin to remove the scaffolding.

Strategy 6—Give Group Tests

Group tests are taken by groups of 2–4 students. These groups usually consist of students who are heterogeneous as to past achievement. Group tests use the same types of questions and the same content as individual tests. Most often, group tests precede individual tests. As a result of the thinking, discussion and modelling that take place during group tests, students may be better prepared for individual tests. Naturally, group tests are unlikely for high stakes testing, but that doesn't mean group tests can't be used to prepare students for such tests.

Background 7—Encouraging Peer Feedback

Formative assessment is supposed to be frequent, and that's good, because most students want to know how they are doing, and peer feedback can mean faster feedback. In contrast, too often, especially with large classes, when we teachers are the only ones giving feedback, students have to wait a long time for that feedback. Thus, by the time the feedback comes, students struggle to remember what they were doing or thinking when they did the initial tasks.

Strategy 7—Give Fast Feedback

Sure, teachers can't always give fast feedback on everything students do. We have lives, too! We should not give up our lives outside school. But, please remember that this book is about small steps. We just do the fast feedback now and then, when possible. To make it more possible, more often, we can:

a. *Give shorter assignments, which may mean less on which to give feedback;*
b. *Use holistic or impressionistic feedback, not detailed feedback;*
c. *Give feedback just on points highlighted in the lesson, not on everything in the assignment;*
d. *Train students in the use of rubrics for peer and self-assessment;*
e. *Provide answer keys or guides to help students feel more confident about doing some of the assessing; or,*
f. *Just focus on a specific skill, such as doing accurate calculations or providing comparisons.*

Background 8—Transparency in Testing

Traditionally, tests and other assessments have been prepared by teachers and other educational professionals, often in conditions of secrecy. This secrecy can involve not only what the specific tasks/questions are, but even what kinds of tasks/questions will be used. In contrast, when we open the assessment construction process to students, we reduce their anxiety and increase their engagement and understanding.

Strategy 8—Invite Students to Construct Assessments

The class discuss the sorts of tasks/questions that might appear on the assessments. Students can provide input. Teachers even offer to use items that students construct (without necessarily telling them which of their items will be used). Also, the class discuss the criteria for possible responses to the tasks/questions.

Background 9—Matching Assessment Tasks to Real World Tasks

A hallmark of alternative assessment involves using tasks/questions similar to those that people might encounter in the world beyond school. In this way, students more readily see the relevance of their studies, and they feel better prepared for life outside the classroom.

Strategy 9—Make it Real

The class looks for ways that assessment tasks can mirror real world tasks. Teachers help students see the parallels between assessment tasks and real world tasks. For instance, many tasks in math class are similar to those done by people on the job or in their personal lives.

Background 10—Rubrics to Take the Surprise Out of Assessment

As stated previously in this chapter, assessment should not be a surprise. Students should know not only what they are expected to know, but how they will be assessed on it. For example, will their work be assessed based on how well they followed

directions (essential in some technical fields) or on their creativity? Plus, do students know how those assessment activities will be graded?

To make the grading criteria clear to students before they start their work, many teachers provide scoring rubrics (Gough 2006) that explain this. A good rubric describes the desired end product of the students' work and also what work looks like that exceeds expectations or falls short. Many rubrics in all subject areas, as well as templates for creating them, are easily found online. Even if tasks call for students to "think outside the box," criteria can still be developed, and students can still benefit from feedback using those criteria.

Strategy 10—Provide Sample Responses

We let students see and, perhaps participate in developing, exemplars of good work. These exemplars need not be perfect (if perfect is even possible); imperfect exemplars can also be useful. The key is that the class work together to discuss and identify features that they might want to incorporate in their own work.

Background 11—Students Assess Themselves

SCL encourages students to take charge of their own learning. One way for students to grasp greater control of their own learning is for them to take a role in monitoring their own progress. Some teachers encourage this progress tracking via portfolios which consist of students' work during a term or beyond. Students and teachers look through these portfolios and reflect on what the work collected in the portfolio says about how students have improved and how they might move forward (Butler and McMunn 2006).

Strategy 11—Ask Students to Track Their Progress

To make it possible for students to track their own progress, near the middle or end of a term, students can select one task they did earlier in the term. Then, they compare their earlier work and the feedback received on that work with their more recent work and the feedback received on that. Feedback can include self-assessment.

Alternatively, rather than looking back at what was done earlier in a term students can compare two versions of the same task, such as two drafts of the same lab report or of the same drawing. Note: for students to track their progress, they need to save their previous work.

Teachers can work with students to prepare a simple 'can do' list to check as the term progresses, whether they now "can use subject-verb agreement correctly in all

writing assignments," "can create an accurate data display for historical events," "can use art skills to illustrate science concepts," etc.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Alternative Assessment?

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Chapter 9
Learning Climate

Abstract Classrooms, and schools generally, should be places where students and teachers feel excited to be, where they feel safe and supported, and where they feel in control. Research suggests that a positive classroom learning climate can help students become more focused and more willing to participate and to participate more optimally in the learning process (Froh and Parks in Activities for teaching positive psychology: A guide for instructors. American Psychological Association, Washington, D.C. 2013). When students are, thus, more engaged, they feel encouraged to take more control over their own learning. Therefore, a healthy learning climate needs to be continuously nourished.

Keywords Learning climate · The power of stories · Positive psychology · Happiness · Water for the brain

Background 1—Fractured Focus

Students and even we teachers may have difficulty focusing on what happens in class, because outside events and concerns intrude. Indeed, we live in a hyperactive culture in which people seem to crave to simultaneously do multiple tasks. Such a fractured focus impedes students' and teachers' ability to devote cognitive and affective resources to the class learning objectives.

To encourage everyone to be fully present during class activities, students and teachers can try to set aside other thoughts and find a way to dedicate themselves to what will be studied or how the studying will be done. Students can use these same focusing methods in other contexts, thereby offering another means by which what students do during class becomes part of students' repertoire of lifelong learning strategies.

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Strategy 1—Help Students Focus

Many teachers give students warm-up activities before the lesson, and these activities don't have to be purely academic. They can be fun and relaxing, setting a tone of engagement for the day. For example, before a math lesson, a student calls out a number from 1 to 100. Then, everyone closes their eyes and counts backwards from that number to 1. Next, they count from that number to 1 by fives and then by threes or whatever multiple will work. By doing these activities which get their "brains in gear," students can temporarily set aside other thoughts and begin class with a fresh mind.

Similar ideas include brief meditations, either guided or done individually. Something similar to a meditation is visualization, for example, everyone pictures themselves and others engaged in learning, or everyone visualizes a happy moment or a favorite place.

Background 2—Words to Learn By

Proverbs and quotations are short and sharp words to live and learn by. Well chosen proverbs or quotes can help to set the mood in a classroom and signal to the class that the work they are doing is meaningful. These proverbs and quotes often get across ideas better than a much longer set of words. Because of their shortness, proverbs and quotes are more easily remembered and can be written on posters, used in the opening to blogs, etc.

Strategy 2—Use Quotations and Proverbs to Promote a Purposeful Climate

The teacher or students read a proverb or quotation that emphasizes the usefulness of what the class is doing. For instance, here are some proverbs and quotations that highlight the value of reading, of writing and of cooperation. Many websites offer quotations on a wide range of topics.

A book is like a garden carried in the pocket.

Arab Proverb

There is more treasure in books than in all the pirates' loot on Treasure Island.

Walt Disney

You have brains in your head. You have feet in your shoes. You can steer yourself any direction you choose. You're on your own. And you know what you know. And YOU are the guy who'll decide where to go.

Dr. Seuss (this quote goes with people choosing what they read)

Reading without reflecting is like eating without digesting.

Edmund Burke, 18th century Irish philosopher

I have often reflected upon the new vistas that reading opened to me. I knew right there in prison that reading had changed forever the course of my life. As I see it today, the ability to read awoke in me some long dormant craving to be mentally alive.

Malcolm X

Outside of a dog, a book is man's [a person's] best friend. Inside of a dog, it's too dark to read anyway.

Groucho Marx, U.S. comedian from the first half of the 20th century

All there is to writing is having ideas. To learn to write is to learn to have ideas.

Robert Frost

You can never be an artist if your work comes without effort. That is the problem with modern ink from a bottle. You do not have to think. You simply write what is swimming on the top of your brain. And the top is nothing but pond scum, dead leaves, and mosquito spawn.

Amy Tan, The Bonesetter's Daughter, 2001, New York, Ballantine, pp. 224–225.

It's wonderful for the players. It's a huge challenge and a huge responsibility for us to get our act together, get our butts in gear. Phil isn't going to bail us out because of our mental lapses.

Basketball great Kobe Bryant commenting on Los Angeles Lakers coach Phil Jackson's approach of giving responsibility to his players. June 15, 2001, AFP, retrieved 30 June 2001 from http://sg.sports.yahoo.com/010616/1/yuni.html.

Synergy is everywhere in nature. If you plant two plants close together, the roots commingle and improve the quality of the soil so that both plants will grow better than if they were separated. If you put two pieces of wood together, they will hold much more than the total of the weight held by each separately. The whole is greater than the sum of its parts. One plus one equals three or more.

Stephen Covey, The 7 Habits of Highly Effective People: p. 263

For more quotations related to education, visit https://www.academia.edu/3460176/Quotes_about_cooperative_learning_and_education_generally.

Background 3—The Power of Stories

Stories offer another means of encouraging a climate in which everyone focuses on learning (Green and Bradford 2012). Students and teachers can share stories, both about some of the content the class may study and about ways the class might study it.

Here are two examples of using stories to emphasize the importance of the content the class is studying:

a. before the start of a mathematics class about percentage, a story could be told about how knowledge of percentage helped someone bargain for discounts;
b. before the start of a science class, a story could be told about someone's family member (or someone in the news or in history) who benefited from the area of science to be studied today or a problem that this area of science hopes to address. Short clips on YouTube from the old TV show "McGyver" could be shown illustrating how the fictional detective uses everyday science concepts to get himself out of difficult situations.

Strategy 3—Use Stories to Create a Positive Climate

An example of using a story to promote positive classroom climate before students are about to engage in a cooperative activity is to tell stories about the ways flocks of geese cooperate.

a. *A flock of geese flies in in a "V" formation. As the birds flap their wings, they create uplift that helps everyone fly faster, further, and with less effort.*
b. *When the lead geese become tired, they rotate backward in the V, and other geese take over.*
c. *The geese honk to inspire those in the front of the V to maintain their speed.*
d. *If any geese become sick or are wounded by predators, two other geese will leave the formation to support them.*

After hearing about geese, students can discuss how this relates to their work together.

Background 4—Positive Psychology

Positive Psychology is a relatively new approach to psychology which highlights people's strengths and the happy aspects of their lives, rather than their weaknesses and the problems they face. Advocates of a Positive Psychology approach believe that by emphasizing happiness, we can create learning environments which are not

only more enjoyable but also more productive (Achor 2010). Contrast this with a traditional teacher centered approach in which learning is seen as a very serious "no pain, no gain" endeavor, in which the teachers' roles often seem to be highlighting what students are doing wrong, either academically or behaviorally.

Strategy 4—Emphasize the Positive

Students list three things they are grateful for in their lives. These "things" can be individuals, places, objects, or devices. Teachers can set the tone by giving their own examples of what they are grateful for, such as their mother, the place where they go to exercise, a great teacher they had, or the fact that they had their mobile phone when their car broke down the other day. By the class focusing on what we are grateful for, rather than on what annoys us, we see the world through happier eyes.

"But I don't have time for activities like this and others recommended in this chapter," is a response that may come to many of our colleagues' minds. Here are a few suggestions we can make to them:

a. *Students do this for homework.*
b. *Students put the three things they are grateful for on their blog, journal, Facebook page,* etc.
c. *This activity and others in this chapter are done during home room, assembly, or any other time with less of an academic emphasis. Teachers can then follow up in their classes.*

Background 5—Reverse the Happiness Formula

Positive Psychology proponents also believe that we need to reverse the happiness formula. For most people, to be happy, first they need to achieve results, such as good grades, strong performances in sports or other competitive events, or some form of recognition from others. Only then can they be happy. Reversing the happiness formula means that we start by being happy, and because we are happy, we are more likely to succeed, whether that involves higher grades, better results in competitions, or more recognition.

Positive Psychology offers ways to reverse the happiness formula and rewire our minds (Achor 2010). Some of these ways are the focus of our next sets of strategies. They include short activities that may seem to be taking the class away from the curriculum. However, by promoting happiness, these activities enhance the learning climate.

Strategy 5—Encourage Acts of Kindness

Doing acts of kindness for others (Masterson and Kersey 2013) *is a simple yet powerful way to create a happier, more supportive climate for learning and to develop habits that will benefit students throughout their lives. These acts can be as simple as saying "Gesundheit" (German for "health") when someone sneezes or offering to take notes during a group discussion. Experts on Positive Psychology emphasize that doing kind acts links to controlling our own lives. Students can control whether or not they do acts of kindness, and life abounds in opportunities for such acts. Of course, teachers often serve as excellent models of how to act kindly.*

Background 6—Physical Exercise

Another way that Achor (2010) says we can take control of our lives is by exercising. Exercise promotes a happy, productive classroom climate by reducing stress and encouraging alertness and activity. Exercise can be done even in classrooms, even when students are not specifically dressed for exercise.

When Michael was teaching English as a Second Language to college students, he would start each lesson with both physical and vocal warming up. One student would suggest a sound such as "oooo", or "waaaa" and the whole class would make that sound, stretching out the vowel and doing other fun vocal enhancements. This helped to start the lesson in an upbeat mood.

Strategy 6—Use Brief Exercise to Enliven Learning

Teachers can lead or ask one or more students to lead the class in a minute or two of exercise. This can be as simple and quick as standing up and doing neck, shoulder, and ankle rotations. Such brief exercise can be especially helpful between tasks or before and after assessment.

Background 7—Water for the Brain

This book is about pedagogy, not about nutrition, but what we and our students eat and drink does impact learning, and diet offers another area in which students can take some control of their lives. One oft-recommended idea is to make sure to drink sufficient amounts of water.

One advocate for the value of water in boosting educational outcomes is William Watson Purkey, co-founder of Invitational Education (Purkey and Novak 1996), an

approach to education inspired in part by Humanist Psychology. George once attended a talk by Professor Purkey at which he advocated, perhaps hyperbolically, that teachers and students make a pit stop at every water fountain they pass.

On a different point, but still related to SCL, we couldn't miss a chance to share what Purkey is perhaps most famous for—this poem with which he often closes his talks.

> You've gotta' dance like there's nobody watching,
> Love like you'll never be hurt,
> Sing like there's nobody listening,
> And live like it's heaven on earth.
> (And speak from the heart to be heard.)

Getting back to water, recent research suggests that students may not be drinking enough water and that this mild dehydration may impede learning (http://nutritionfacts.org/video/does-a-drink-of-water-make-children-smarter).

George once attended a workshop for teachers on how to protect our vocal apparatus. The workshop leader had a one liter bottle of water on his desk and announced at the beginning of the two-hour session that he would finish the bottle before the workshop ended, and he was true to his word. (By the way, another suggestion he made, one particularly relevant to this book, is that teachers protect their voices by employing more group activities.)

Strategy 7—Increase Water Intake

Teachers encourage students to drink enough plain water, and we act as role models for water consumption. For example, we can have a water bottle—to be good environmental role model, the bottle should be a reusable one—on our desk and drink from it regularly. An additional benefit for teachers is that water can protect our throats. Indeed, throat damage seems to be an occupational hazard of teachers.

Background 8—No Tolerance for Bullying

Bullying, insults, and other forms of physical and emotional violence obviously have a detrimental impact on classroom climate. How to deal with them? Some schools have zero tolerance policies to punish such behaviors. Of course, the optimal way of dealing with such behaviors is to lower the chance of them occurring. What might be a student centered way of nipping such behaviors in the bud?

Strategy 8—Discuss Bullying and Insults with Students

Students may be unaware that certain terms should not be used. For instance, some insults against homosexuals have become almost standard usage among many people. Your students, especially if English is not their native language, may not realize that some words have a special meaning in some contexts and therefore may use words like "gay" and "queer" in unintentionally hurtful ways.

Students need to know that some terms are hurtful and detract from a supportive classroom environment in which everyone participates. The class discusses how such language can be hurtful and interfere with learning. This conversation should be carefully guided by the teachers, as some students lack the maturity to discuss such topics in a respectful manner.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Learning Climate?

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Chapter 10
Motivation

Abstract Sustainable motivation is best generated from within students. Such motivation most often arises when learning takes place in settings to which students look forward. Ingredients of such motivating settings include that students feel they: (a) have a reasonable chance to succeed, (b) are known and valued as individuals, (c) are welcome, (d) are supported, (e) have a sense of control, (f) are working toward a useful goal.

Keywords Motivation · Control · Goals · Flow · Thank students

Background 1—Success and the Prospect of Success

Motivation is complicated; so many factors affect students' willingness to try hard to learn, and these factors interact with each other and with individual students' profiles in myriad ways. Success and the prospect of future success figure prominently in many theories of motivation (Wigfield and Eccles 2000). This next strategy looks at helping all students believe in their prospects for success.

Strategy 1—Don't Fly Only with the Eagles

Teachers may be tempted to "fly with the eagles." In other words, after we have finished teaching something, such as algebraic equations, we may pause to gauge students' understanding. This gauging could be done by giving some algebra problems to the whole class or just by asking the class, "Is that clear?" Flying with eagles occurs when a few students demonstrate to us that they can do the algebra problems and these same students reply that everything is clear. When that happens, it's very tempting for us to fall into the trap of believing that everyone in the class understands and then go on to the next topic in the algebra book.

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How can class proceed at a pace comfortable for all students and not just the eagles, while at the same time not boring the eagles? One way is for students to work in groups of 2–4 with an eagle in each group. Then, the eagles have to be taught, in part by our example, to appreciate that "if something is not clear to everyone, it is not clear," and to see that "those who teach learn twice."

However, not all the responsibility falls to the eagles to help their (temporarily) lower flying classmates. The lower flying students also need to:

a. *do their fair share, whatever that may be*
b. *let others know when they do not understand*
c. *try their very best to gain the understanding and skills that peers and others teach them*
d. *prior to class, reread materials and search on the web to enhance their understanding, rather than their first resort always being to ask others.*

Background 2—The Importance of Background Knowledge

Cognitive Psychology tells us that humans learn by connecting new information to previous knowledge. The technical term for this integrated network of knowledge is schema. Difficulty in integrating new learning into prior knowledge is a big reason why students who fall behind or who start behind their classmates face so much trouble and lose motivation (Fuchs et al. 2004). This difficulty can arise from many factors including language challenges, cultural differences, or lack of prior quality learning experiences. Thus, we need to be aware of who these at risk students are and have strategies for helping them catch up.

Strategy 2—Identify and Help Struggling Students as Soon as Possible

By looking at assessments from previous classes and by doing frequent, brief assessments near the beginning of the school year, teachers can identify students who are likely to struggle. Help can then be found. Maybe the easiest way to provide help lies in forming groups of two–four students based on past achievement, so that each low achiever has higher achieving groupmates who are right there to provide timely assistance. Working with peers who have better developed schema can help struggling students make their own connections. Connections which are obvious to teachers are not always as clear as those communicated by peers.

Background 3—Increasing Students' Feeling of Control

SCL is about giving students more control over their own learning. Psychologists such as Glasser (1986) highlight the connection between control and motivation. One way to increase students' feeling of control involves students setting their own goals, thinking about what they need to do to achieve those goals, and monitoring their own progress.

Monitoring is a tricky matter. As Einstein is alleged to have said, "Not everything that counts (that is, is important) can be counted, and not everything that can be counted counts." Fortunately, educators have developed ways to measure even emotions, but the point is that while measurable goals are important, students can also set meaningful goals that are less easy to measure precisely.

Strategy 3—Help Students Set Goals

Near the beginning of the year or term, students set goals for what they hope to accomplish. For some students, it may be best to encourage small-step, achievable goals, rather than "I believe I can fly; I believe I can touch the sky" goals, although such goals also have a place. Then, students think about what they need to do to achieve those goals and how teachers, classmates, and others could help. Next, students should consider how they will know whether they have achieved those goals.

As teachers, we can also tell students about our goals; these can relate to what we want to learn about the content the class is studying, or to how we want to improve our teaching, or how we want to increase our enjoyment in teaching.

Background 4—Education to Help Society

John Dewey was a well known educator and philosopher of education of the first half of the 20th century (Dewey 1997). Dewey's student centered ideas still resonate in today's world. For example, Dewey believed that students should see education not as a means of self aggrandizement, but as a way to help society. Thus, students' motivation for studying and learning should not center on finding a well paid job at the end of their formal schooling. Instead, students' motivation can flow from wanting to learn and to contribute to the overall sum of humanity's knowledge in order to solve the many problems confronting us humans and the other beings with whom we share the planet.

Strategy 4—Encourage Students to Learn for the Benefit of Others

Many ways are available for students to use their learning for the general good and to develop their knowledge and skills as they do good. These ways will depend on the students and the context in which they live and study. Examples include campaigns to change people's behaviors, such as lowering their greenhouse gas emissions; letters, email, etc. to governments, companies, NGOs, etc. urging a particular course of action; and collection of data on particular problems and sharing of data and conclusions drawn from those data.

Background 5—Flow

Csikszentmihalyi (1991) is a psychologist best known for his work on what he calls "flow." Flow describes a mental state in which people become completely immersed in what they are doing. Similar to what Maslow (1968) called "self actualization," in a flow state, people are fully engaged, motivated from within, and enjoy what they are doing. Two conditions necessary for achieving flow are that students must perceive challenges and they must believe they are capable of meeting those challenges.

Strategy 5—Tell Students They Can Improve

Students make errors. That's part of learning. We teachers make lots of errors, too, which is part of our learning. We need to challenge students to improve but also help them believe that improvement is possible. For example, we can tell them, "Here are some errors you made in the last molecular biology experiment. I believe you are capable of improving. Here are some resources you can use. I'm one of those resources."

Background 6—Are Classroom Routines Good?

Motivation experts tell us that at the beginning of the school year, many students are motivated, but as the year goes by, their motivation wanes (Dörnyei 2001). Their loss of interest can partially be explained by boredom with the classroom routines. We teachers know too well that daily routines can turn into monotony, an arch enemy of motivation.

Strategy 6—Break the Monotony

Variety is the opposite of monotony. Teachers can enliven class by using a variety of teaching methods and activities. For instance, we can start or end class with a joke. Even a lame attempt at humor will be appreciated. And yes, in terms of variety, a teacher-fronted lesson can be a real change too after whole week of group-based learning.

Lessons don't have to take place in the classroom all the time, either. The classroom can be confining. Examples of a more stimulating environment might be for geometry or art classes to (quietly) walk down the hall to identify basic shapes in the school's architecture. A change of scenery can enliven a class, and students can be involved in choosing their new locale, such as the school's sports hall.

Background 7—Asking Students

As teachers, we have a great deal of experience and have developed powerful intuition which helps us gauge how our teaching is going and how well future teaching ideas might work. However, experience and intuition, even accompanied by what we have learned in the literature on education, can only take us so far. We need to ask students to lend their experience and intuition as to what helps them learn. Motivation is a case in point.

Strategy 7—Do Simple Needs Analyses

A needs analysis involves collecting information about students' wants and needs in regard to their learning. Many means can be used to conduct a needs analysis. The shorter and easier the method is, the more often a class can use it. Maybe the simplest way to do needs analysis is for students to think about and discuss their motivation for learning and what they, their teachers, and others can do to increase students' motivation.

Background 8—Students Motivate Teachers

Motivation is actually a two-way street. In other words, it isn't just teachers trying to motivate our students, but students motivate us, too. Yes, we teachers are supposed to be the professionals in the room, always motivated, always "on." But the truth of the matter is that what our students do can affect us.

Strategy 8—Thank Students for Motivating Us

When our students try harder than usual, e.g., to solve mathematics problems, we can show our appreciation by thanking them and saying that their commitment to learning motivates us to try harder, too. Students can use the same mutual motivation approach with their group mates.

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Motivation?

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Chapter 11
Conclusion: Keepin' on Keepin' on

Abstract The previous ten chapters have each discussed simple, powerful steps toward implementing Student Centered Learning. This chapter looks more strategically at implementing the overall paradigm shift.

Keywords Student-Centered learning · Paradigm shift · Student-Centered staff meetings · Jigsaw · Reflection

Background 1—Going Together to Go Far

An African proverb states, "If you want to go quickly, go alone. If you want to go far, go together." The truth of this proverb can be seen in education. As individuals, yes, we teachers may be able to make useful changes in our classrooms, but sustained, widespread change requires the involvement of our students and our fellow teachers, not to mention other stakeholders. That is why this book has encouraged us teachers to involve colleagues and students in the steps we are taking toward SCL.

However, we often find that, for many reasons, some teachers gravitate toward SCL more readily than others. No surprise. With many phenomena in life, from liking of chocolate to the ability to swim, people will often form what statisticians call a bell-shaped curve, with most people near the middle and smaller numbers of people at each end of the curve. For instance, in the case of liking for chocolate, at one end of the curve are chocoholics, while at the other end are those who avoid chocolate, with most people somewhere in the middle.

No worries. We can work closely with those colleagues near the student centered end of the curve while at the same time, sharing with other colleagues as much as they want to know about our student centered practices.

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Strategy 1—Learn Together with Other Teachers About Student Centered Practices via Books, Articles, Videos, Podcasts, and More

a. *Form a book club* (Mensah 2009) *that meets to discuss books related to SCL. Publishers, such as Continuum, Corwin, Information Age, Routledge, Scholastic, Springer, and Teachers College Press, offer many such books, as do organizations of education professionals, such as the Association for Supervision and Curriculum Development, the International Reading Association, Rethinking Schools, and Teachers of English to Speakers of Other Languages.*
b. *If we are too busy to read whole books at one time, we can read just one or two chapters, or read articles from the wide range of excellent journals and magazines in education.*
c. *Last, but not least, we now have access to a rapidly expanding range of videos on student centered learning. One of the many sources of these videos is Edutopia, sponsored by the George Lucas Foundation.*
d. *Create a library (hard copy and virtual) of relevant books, articles, videos, blogs, websites, lesson plans, and more to share with others.*

Background 2—Staying Positive

What about those colleagues near the teacher centered end of the curve. How can we reach out to them? Firstly, attitude plays an important role. Many SCL teachers learned a great deal in teacher centered classrooms. Thus, we are not suggesting that teachers who use such methods are ineffective teachers who do not care about their students. We are just asking them to consider trying to make the good even better, by supplementing what they are doing with some more student centered practices. Furthermore, our fellow teachers are likely to hear from their students about the student centered practices we are using. Let's hope most of what our colleagues hear about SCL is favorable.

Strategy 2—Share with Less Inclined Colleagues

Volunteer to share at a staff meeting or a similar forum, perhaps on the school website. Use these forums to report on student centered practices we have used with students. Our report should be "warts and all." Also, we need to explain our teaching context, so that colleagues can compare it to their own. Based on that comparison, perhaps colleagues might even suggest variations that fit our good idea to other teaching contexts.

Background 3—Including Everyone

Administrators and other non-teaching education professionals constitute another group with whom we need to communicate about our increasingly student centered practices (Wolfe et al. 2013). Chances are that administrators, curriculum specialists, textbook writers, school social workers and others will support the changes we are making, given that much of the current professional literature in education promotes student centered teaching methods (Doyle 2011).

Strategy 3—Share with Education Professionals Who Are Not Teaching

When our principal or someone else comes to observe our class, we need to be ready to explain not just what we are doing but also why we are doing it. We connect our rationale to student centered learning and ask for our visitors' feedback and advice. For instance, do they know other student centered practices or do they have strategies on how to prepare students to thrive in student centered classrooms?

Background 4—Including Families

Other stakeholders, in addition to those who work in education, have a major impact on our students' learning and need to understand our steps, however small, toward SCL (Epstein and Salinas 2004). For instance, this is what one teacher planned as a way to inform students' families about the Extensive Reading (ER) program she was implementing.

> I am thinking that maybe a letter to families early in the year might be a good idea. This way, they would be more aware of the benefits of ER and what it would look like in my classroom. I could also explain to what extent I would be involved as the teacher in this process. That way, they would understand that it is not a lack of instruction. They would understand that this is just a small piece of the puzzle, and many other teaching strategies would be used as well. I will bring home the idea that "people learn to read and to read better by reading."

Strategy 4—Keep Everyone Informed

SCL offers so much promise for enlivening and enhancing education. Once people know about it, they are more likely to support it. Furthermore, as SCL is about more democratic decision making, it is incumbent upon us to keep people informed and

to solicit their input. In that spirit, maybe we could send a brief note to students' families, and or to the students themselves.

Background 5—Opportunities for Teachers to Experience a New Way

As the saying goes, "Teachers teach the way that they were taught." Unfortunately, many teachers, even ones in their 20s and 30s, have mostly experienced teacher centered practices, even during their university studies. These teachers need to experience student centered learning from the students' perspective. When they do, they likely will see how much more enjoyable and effective such learning environments can be.

Staff meetings are an example. Too often, these are dominated by an administrator or outside expert talking at the involuntarily assembled teachers. Thus, staff meetings offer a great setting for teachers to experience the differences between teacher centered and student centered instruction.

Strategy 5—Create Student Centered Staff Meetings

We can encourage our building/school administrators to try out student centered activities at staff meetings. For instance, to introduce a new document to teachers, rather than do a lecture explaining the main points of the document, some administrators have used the Jigsaw (Aronson 2015) *technique. Here are the steps:*

a. *Teachers form a group of four, known as their Home Group. Each Home Group member receives different material on a related topic or a different part of the same document.*
b. *Teachers leave their Home Groups and form Expert Groups of no more than four members with people with the same jigsaw piece, i.e., the same material. The goal of the Expert Groups is twofold: learn their piece and prepare to teach it to their Home Group members.*
c. *Teachers thank their Expert Group members and return to their Home Groups. There, they take turns to teach their Home Group members. Each turn include time for questions, comments, and additions by the other group members, and perhaps by the presenter as well.*
d. *Teachers do something that requires information presented by all of the Home Group members. This could be an individual, self scored quiz. Other possibilities include mindmaps, entries in a reflection journal, or playing their part in a group project.*

Jigsaw is more complicated than most of the other cooperative learning techniques in this book. Here are some pointers:

(1) *Be sure that the materials that each Home Group member has are understandable on their own, without having to read the other pieces of the document. Perhaps, the materials need an introduction or glossary;*
(2) *Provide the Experts with some help, so that they can really teach their piece to their Home Group member, not just read it to them. An example of such help could be for the Expert Teams to prepare a summary, mind map or other type of graphic organizer.*

Background 6—Seeing Is Believing

"Seeing is believing." Therefore, just hearing about SCL may not suffice; colleagues will want to see it in action. Even experiencing it in a staff meeting may not be enough, because, after all, getting an activity to work with a room full of teachers is much easier than pulling off the same feat with a room full of real students.

One way to let colleagues see SCL happen with their school's students is to invite them into our classes. Finding time for such peer observation isn't easy. Sometimes, administrators can facilitate, for example, by arranging for substitute teachers or taking the colleague's class while they visit ours.

Strategy 6—Invite Colleagues to See SCL in Action

We can do this as a general invitation or just invite specific teachers, such as a new teacher who we are mentoring or our department head. Before our guest arrives, we give the person a preview of what they are going to see. We might also ask them to help facilitate the class, such as by looking out for particular behaviors among students (perhaps the use of a cooperative skill) or watching some lower achieving students.

Background 7—Many Ways to Share

Examples are powerful. While it may not be convenient for colleagues to visit our classes, fortunately, we can share in other ways, such as video taping classes and sharing lesson plans and materials.

Strategy 7—Share Lesson Plans and Materials

If a student centered lesson seemed to go particularly well, we can share the experience and materials (including student products) with others who teach the same or a similar course.

Background 8—Social Skills Use Among Teachers

Students' use of social skills enhances student-student interaction. Similarly, teachers too benefit from positive interaction with their peers, their fellow teachers. For instance, one study with junior high school teachers found that collegiality increased when teachers shared praise notes with each other (Nelson et al. 2013).

Strategy 8—Praise Fellow Teachers for Their Use of Student Centered Strategies

Following up on strategies 6 (colleagues inviting each other to observe their teaching) and 7 (colleagues sharing lesson plans and materials), teachers can send each other short praise notes for their use of student centered strategies. These notes should be sincere, should be specific about what the colleague did, and should explain why the colleague's behavior was valuable.

Background 9—Research and Reflection by Teachers

We teachers are often encouraged to take part in professional development activities, such as doing conference presentations. Conducting small research projects, for example, via Action Research (Schmuck 2006) or Lesson Study (World Association of Lesson Studies 2015), provides another professional development opportunity which strengthens our understanding of education and increases our credibility with colleagues, students, and others.

A first step in doing research and a good step, whether or not we do research, involves reflection. Reflection simply means stepping back from our busy schedule to think about what we are going to do, what we are doing, or what we did. Reflection (Farrell 2003) develops our insights into our professional practice and encourages us to try something new.

Strategy 9—Reflect on Use of SCL

We're now on the final chapter in this book. How's it going? How are students reacting? Any reaction from colleagues, administrators, or others? Any steps toward SCL that seem to work and should be continued? And any steps that might need modifying?

Background 10—The Power of Visuals

"A picture is worth a thousand words." What about the pictures that schools use on their website or other materials which schools use to project themselves to staff, students, and the general public? Do they show teachers in "Sage on the Stage" mode, lecturing to a class, or are teachers pictured in "Guide on the SIde" mode, observing and facilitating groups of students as they work together? These images can send powerful messages.

Strategy 10—Pay Attention to Pictures

Have a look at the school's website. Is the site focused on student learning or is it full of adult centered material, such as photos of administrators, teachers, coaches, and others talking while students listen? If so, we can suggest increases to the number of images of student centered activities. Our classroom is a source of such images, with our students posing for, and maybe taking, these images. Of course, parents/guardians have to give permission for their children's picture to be published.

Background 11—New Technology

New technology offers so many new ways of doing SCL (November 2012). Indeed, so many internet tools open new doors for students to collaborate and for students to learn without having information poured into their heads by teachers. Schools want to keep up with the times by employing these tools.

Strategy 11—Use Electronic Tools

We need to keep our eyes open for electronic learning tools that our school is adopting or might adopt. How is this technology already designed to promote SCL?

Can we and our students figure out even more ways to use the technology to promote SCL? How can we teach students and colleagues to use the technology in ways that encourage SCL?

Background 12—The Power of Dreams

This book has been about simple strategies, about small steps with potentially powerful consequences. We have a big goal, a goal of shifting education toward a student centered approach, as part of an overall shift to a more democratic, more participatory, more innovative, fairer world. So, while the steps in this book are small, the dream is big. In the words of the 1949 musical South Pacific, "You got to have a dream. If you don't have a dream, how you gonna have a dream come true?" (Rodgers et al. 1947). We should share this dream with students, just as Martin Luther King shared his dream in his famous 1963 "I have a dream" speech.

Strategy 12—Share Our Dream

What inspires us to use SCL? How does that fit with our vision for what education can be? Students should know about this. Does SCL fit their dreams for education? Maybe students and teachers can work together so everyone's dreams can come true!

Your Turn

Please reflect on the following questions.

1. Have you seen others, such as your own teachers or your colleagues, using any of the SCL strategies mentioned in this chapter? If so, what was your impression?
2. Have you used any of the strategies discussed in this chapter? If so, how did it go?
3. Are you keen to try any of the strategies in this chapter that you haven't yet tried? If so, how do you think your students might react? Would you modify any of the strategies in any way?
4. Do you have any colleagues who might like to discuss this chapter with you?
5. How else do you or could you promote the idea of Keepin' On Keepin' On?

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