

CHAPTER 1

Focusing on Confidence and Competence in Learning

If we are to understand how teaching relates to learning, we have to begin at the closest point to that learning, and that is students' experience.

—Graham Nuthall (2001)

CONFIDENT AND COMPETENT STUDENTS AT WORK: SIR FRANCIS DRAKE HIGH SCHOOL

Nestled between a range of rolling mountains in Marin County, sits a high school with a teacher who routinely engages in conversations with learners about their learning. When you enter Mrs. Mall's classroom at Sir Francis Drake High School, students (or *learners* as they are called) track their own academic performance, discuss their performance levels with her and their peers, seek feedback from others, and codevelop next steps to improve. On any given day, an observer in the classroom can sense that learners value feedback, are emotionally prepared for criticism, and are clearly able to balance perseverance of engaging in the same strategy to accomplish tasks while also considering new strategies that may result in a better solution. When prompted, learners can explain their progress by discussing the level of complexity of their learning. For example, students can describe whether they are learning surface-level (basic) knowledge, connecting knowledge to other ideas, or transferring their understanding to new problems. In addition to being able to articulate the level and depth of their learning, they are also able to relate their current learning to overall goals and discuss the steps they need to improve. In other words, they have a clear sense of where they are, where they are going, and what to do next. This describes what John Hattie (2009) has termed "Visible Learning."

Mrs. Mall plays an integral role in the process of the students' learning journey. She does so by regularly tracking performance, providing feedback,

prompting critical assessment of strategies, and asking the students to reflect not only on their own performance but also on how they are supporting each other's learning. Mrs. Mall and the students have developed a shared understanding of content expectations, strategies used to improve learning, common agreements on dispositions that enable effective learning (such as how to handle failure), and effective means to dialogue (such as giving and receiving feedback).

At the conclusion of the semester, the students in the class were asked to identify their reflections from the class, resulting in the following comments:

“I'm honest with where I am in this class. This way of assessment has completely made me feel alright with being ‘in the pit’ because I know that I am not stuck there and that I can get myself out of it. I really appreciate all that you have done to make us feel comfortable with progress.”

“‘Be open to struggling’ . . . Before this class I was not open to struggling at all, so this took me a while to get used to.”

“Now I know that I can get myself out of the pit, so I feel comfortable being in it! I just wish it was this way in the rest of my classes.”

“My annotations and thoughts on written pieces were at about a 1 level at the beginning of the semester, but with guidance in class and a lot of practice I have grown to getting a 4 on the last annotation [out of 4.0]. Next semester I hope to grow further.”

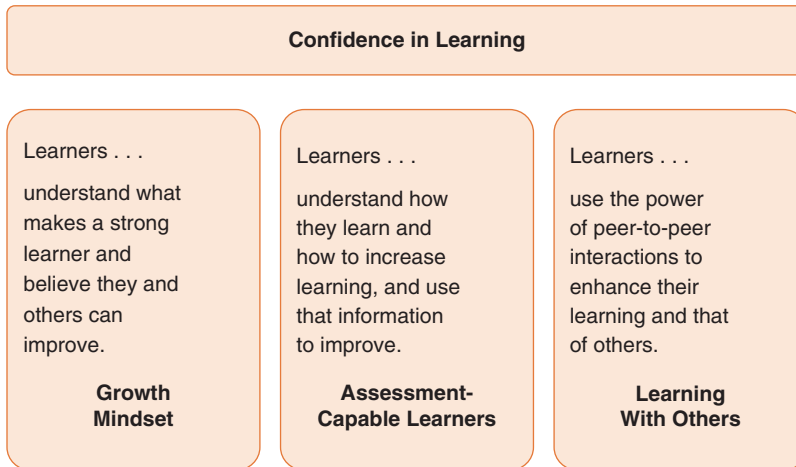
CONFIDENCE IN LEARNING ATTRIBUTES

Such experiences and student feedback directly relate to confidence in learning and echo the sentiment of Seymour Papert when he said, “The kind of knowledge children most need is the knowledge that will help them get more knowledge” (cited in Way & Beardon, 2003, p. 68). The statements of the students in Mrs. Mall's classroom shine a light on core attributes of confidence in learning, including having a growth mindset, becoming assessment-capable learners, and collaborating with peers (see Figure 1.1).

Growth Mindset

Learning does not occur without great effort, perseverance, and patience. This process begins with a belief, or “mindset” that intelligence is malleable and can be changed through very specific actions. Having a growth mindset is in direct contrast with the belief that intelligence is fixed and immutable regardless of effort, persistence, and change in improvement strategy. The growth mindset enables all learners to understand that learning at high levels

FIGURE 1.1 Confidence in Learning



is achievable for all children and that by using feedback to identify next steps, reflecting on performance to improve, and accepting guidance they can improve their own learning. Additionally, a growth mindset enables learners to see mistakes as part of the process of learning and, as such, learners are often more willingly to seek and accept feedback.

A growth mindset couples a set of beliefs that drive the right actions necessary to meet challenging outcomes. A growth mindset may be more appropriately named a growth *mind to action* set whereby students take action to improve. As Eduardo Briceño (2015) argues, “[S]tudents often haven’t learned that working hard involves thinking hard, which involves reflecting on and changing our strategies so we become more and more effective learners over time, and we need to guide them to come to understand this.” Strategies such as organizing and transforming ideas, seeking help, goal setting, and developing self-consequences are all metacognitive and study skill strategies that can have a substantial impact on learning (Lavery, 2008) and should be coupled with the belief that such strategies can improve a child’s learning. This *belief to action* system is critical to drive students to improve their learning through practice and to develop and reinforce the idea that through effort and strategy, they can improve their learning. Often students develop this belief system through their actions. As Doug Reeves (2009) states, “Behavior precedes belief” (p. 44) and as such, teachers should consider using strategies that enable students to specifically measure, discuss, and improve their own learning.

Many schools have translated the growth mindset belief system to specific dispositions, habits, and strategies to improve learning. For example, at Stonefield School in New Zealand, students (or *learners* as they are called at Stonefield) have identified strategies such as using questioning, being determined, being self-aware, reflecting on learning, and connecting ideas

as important for learners to improve their own learning. In essence, the growth mindset is much more encompassing than expecting students to use raw persistence, grit, and work ethic to improve. The important point is that students must believe not only that they themselves can learn at high levels but that they can and will do so through deliberate actions. One key way to instill this growth mindset is by developing students' assessment capabilities whereby they monitor their progress and take action to improve.

Assessment-Capable Learners

Assessment-capable learners have a specific set of behaviors and skills that are associated with monitoring, evaluating, and improving (e.g., through feedback) learning. This set of behaviors allows learners to understand both expectations of learning and their performance, and to identify and act on data that drives next steps in the learning process. Learners have knowledge of what drives effective learning, a language to describe their level of learning, and a number of strategies they use to improve their learning. They are able to work with teachers and others to ensure alignment of current performance and craft subsequent actions.

Assessment-capable learners “think hard” by reflecting on the strategies they are using to advance their learning, seeking feedback from others, and monitoring performance to continually improve. In particular, assessment-capable learners monitor their performance by ensuring they can answer the following questions:

- Where am I going in my learning?
- Where am I now in my learning?
- What’s the next thing I need to improve in my learning?
- How do I improve my learning and that of others?

Having assessment capabilities has a significant impact on improving learning (Hattie, 2009). Many schools around the world have incorporated assessment-capable strategies to enable children to develop responsibilities for their own learning. For example, in the Mangere Bridge School, students take part in data teams to review their performance levels. Through these discussions, students receive feedback from teachers and peers on their performance; reflect on their own performance; advocate for resources, instructional support, and time to enhance their learning; and create a series of actions for improvement.

The means by which to measure one’s performance is clearly a motivator outside of the academic arena. In Patrick Lencioni’s (2014) book *Three Signs of a Miserable Job*, he illustrates that a key sign of job dissatisfaction

included “immeasurability.” Lencioni described this sign as the frustration employees have when they are unable to track their progress and lack a clear understanding of their performance relative to work expectations. Daniel Pink (2011), in his popular text *Drive*, cites mastery—or the pursuit of developing one’s skills and knowledge over time to reach beyond proficiency—as one the key factors influencing human motivation. Clearly, humans like to keep track of their performance and work to improve. Engaging in pedagogy that ensures students develop the capabilities to assess their own learning will provide them with the skills necessary to continually engage in their learning and will be invaluable in their future careers.

Collaboration

Collaborative learners recognize the tremendous power of the social aspect of learning and the need and desire to enhance each other’s learning through shared understanding, debate, and collective action. Learning is very much a social experience, and a student’s confidence is inextricably linked to the power of working with, supporting, and learning from peers and teachers. In this text, the *collaboration* is defined as the means by which students act as learning resources for one another to improve individual and collective learning.

If particular practices are not established that focus on enhancing individual and collective learning, it is extremely difficult for learners to actualize a growth mindset or action set and develop the skills to be an assessment-capable learner. The challenge is that feedback from peers is often incorrect (Nuthall, 2007) and often absent in classrooms (McDowell, 2009). The means to facilitate the level of engagement required is also difficult for teachers, as it demands a unique set of skills that are rarely taught in school- or district-level professional development (McDowell, 2009). The establishment and use of common and explicit agreements and structured protocols that are focused on measuring performance, sharing and discussing ideas, and giving and receiving feedback can rapidly improve collaboration among and between students. Moreover, collaboration among students can be enhanced when teachers and staff model similar group behaviors in school.



Collectively, the attributes of confidence (i.e., a growth mindset, assessment-capable learning, and collaboration) yield substantial gains on student academic performance. In fact, assessment-capable learning has one of the greatest effects on student learning ever researched (Hattie, 2009). Carol Dweck (2007) found that students who have a growth mindset outperform others who believe their intelligence is fixed. Leveraging peers to give and receive feedback has been found to very beneficial to students in their academic work and relationship development (Nuthall, 2007). Collectively these three attributes enable students to think and feel confident in their learning and, accordingly, improve academically.

COMPETENCE IN LEARNING LEVELS: SURFACE, DEEP, AND TRANSFER

Confidence in learning is intertwined with the development of a student's knowledge and skill set. Mrs. Mall expected her students to build a core set of knowledge and skills, connect that learning to other ideas, and apply that information to various situations. She stressed the importance of having the breadth and depth of knowledge and skill required to address real-world problems. By design, she ensured that students developed both competency and confidence.

The competencies needed in today's knowledge-based economy require students to develop the ability to use knowledge in ambiguous, social, and dynamic situations. Today's workforce puts a premium on employees who have the ability to solve problems, understand and use data, and engage in team-based situations (Bersin, 2014). Likewise, today's employees demand similar expectations and experiences from their employers (Wagner, 2012; Wiliam, 2011; Zhao, 2012). As such, employees and employers are attracted to people and environments where meaningful tasks, collaboration, and problem solving are present.

It is imperative that schools develop students' abilities to transfer their learning and skills to each new experience and task. Hanna Dumont, David Istance, and Francisco Benavides (2010) state,

Many scholars agree that the ultimate goal of learning and associated teaching in different subjects is to acquire *adaptive expertise*—i.e., the ability to apply meaningfully learned knowledge and skills flexibly and creatively in different situations. This goes beyond mastery or routine expertise in a discipline. Rather it involves the willingness and ability to change core competencies and continually expand the breadth and depth of one's expertise. (p. 3; emphasis in original)

In order to be competent in learning, students need to be capable and knowledgeable on three levels: *surface level*, *deep level*, and *transfer level*. To develop the application of knowledge and skills to new situations, students must possess a thorough knowledge base within and across academic domains (McTighe & Wiggins, 2013). In other words, students need to have a thorough understanding of core content knowledge by understanding facts and using skills within a discipline (surface-level knowledge). They must also be able to relate facts and skills within a discipline (deep-level knowledge). And finally, they need to have the ability to extend those ideas to other disciplines and situations (transfer-level knowledge; see Figure 1.2).

Surface-Level Knowledge

Surface-level knowledge refers to learners' ability to understand single or multiple ideas, but they are limited by the relationship of ideas and to a larger principle or skill set. They are building knowledge and building skills.

FIGURE 1.2 Levels of Learning

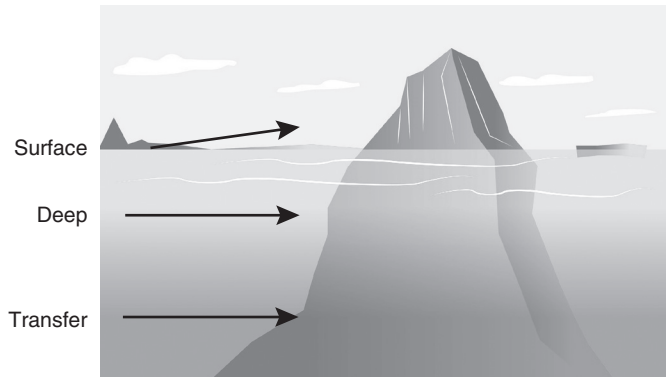


IMAGE SOURCE: Pixabay/Matty Simpson

Deep-Level Knowledge

Deep-level knowledge refers to a learner’s ability to relate multiple ideas. It also describes the ability to understand similarities and differences between concepts and skills. At the deep level of knowledge, students understand how specific ideas are related to the underlying principles of a discipline. They are relating ideas and relating skills.

Transfer-Level Knowledge

Transfer-level knowledge refers to a learner’s ability to apply basic and complex understanding and skills to challenging problems within and between contexts. With transfer-level knowledge, learners are able to link ideas in new ways and can predict, evaluate, and generalize across contexts. They are applying knowledge and applying skills.

The critical challenge is for teachers to find instructional approaches that balance surface and deep learning and also provide opportunities for students to transfer their understanding to real-world problems. As John Hattie (2009) states,

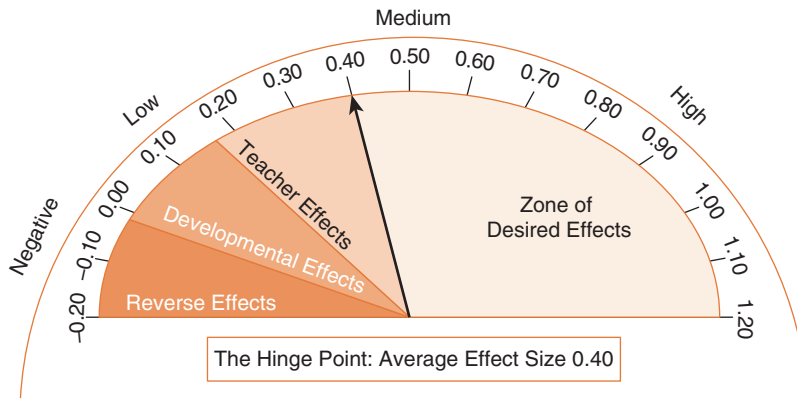
There needs to be a major shift from an overreliance on surface information and a reduced emphasis that the goal of education is deep understanding or development of thinking skills, towards a balance of surface and deep learning, leading to students more successfully constructing defensible theories of knowing . . . [T]he choice of classroom instruction and learning activities to maximize these outcomes are hallmarks of quality teaching. (p. 28)

Dylan Wiliam (2011) writes, “As teachers, we are not interested in our students’ ability to do what we have taught them to do. We are only interested in their ability to apply their newly acquired knowledge to a similar but different

context” (p. 60). Research has found substantial gains in student learning when teachers design curriculum, assess learning, and guide student learning across surface- and deep-level outcomes (see Figure 1.3; Hattie, 2009).

FIGURE 1.3 Conclusion of Research on Interventions Related to Student Improvement

Taking a Closer Look Into the Research



Professor Hattie’s synthesis of the meta-analysis research found that almost everything we do in and around classrooms works (95%) to improve classroom instruction. The average effect of all variables on learning is at a 0.40 (or the hinge point). The figure shows the range of effects from the 800-plus meta-analyses studied.

IMAGE SOURCE: Hattie (2009).

PBL AS A VEHICLE TO BUILD CONFIDENCE AND COMPETENCE IN LEARNING

Educators continually search for practical ways to effectively and efficiently improve learning for children. Although Hattie’s research indicates that almost every intervention works (2009), the key is for educators to focus on

the interventions that promise the most substantial growth in academic performance. One option available to educators is to implement the methods of PBL into their classroom. Problem- and project-based learning are methods that aim for developing deeper-learning outcomes including transfer-level expecta-

PBL is an approach to teaching that has the potential to codify the practices that have the most impact on learning and is a succinct and doable approach for practitioners.

tions (competence) as well as affective outcomes that encompass the attributes of confidence (McDowell, 2009). Moreover, PBL is an approach to teaching that has the potential to codify the practices that have the most impact on learning and is a succinct and doable approach for practitioners.

Research has shown that students within schools that use PBL as their primary methodology, on average, outperform their peers in traditional classrooms on state and national tests (Zeiser, Taylor, Rickles, Garet, & Segeritz, 2014). However, according to Hattie's (2009) findings, PBL in and of itself has yet to yield the substantial achievement gains that schools are aiming for. For instance, problem-based learning and other inquiry methods have shown a minimal effect at improving surface-level acquisition (effect size = 0.15 and 0.30 respectively). Although the research has not shown PBL to have a significantly positive effect on surface-level knowledge, it does show that PBL has a substantial impact at deeper levels of learning (effect size = 0.68). In order to achieve both goals—surface-level mastery as well as deeper-level knowledge—educators at the leader level and classroom level need to design and implement PBL by incorporating practices that have shown a consistently high effect on learning. This happens sometimes; with an intentional focus on design, this desired effect could be more common.

In order to achieve both goals—surface-level mastery as well as deeper-level knowledge—educators at the leader level and classroom level need to design and implement PBL by incorporating practices that have shown a consistently high effect on learning.

CONCLUSION

To ensure student success, educators need to apply specific practices that have a high probability for enhancing confidence and competency in learning. *When designed and implemented effectively using the three design shifts*, problem- and project-based learning have the potential to support students both in efficiently acquiring surface-level knowledge, deeper-level learning, and desired affective outcomes (such as growth mindset, assessment capabilities, and collaboration skills), and in emulating practices sought for in the careers of tomorrow.

QUESTIONS FOR REFLECTION

- What evidence do you have from student behavior (language, actions) that they are modeling a growth mindset? How are you expressing these behaviors in your own actions as a teacher? How do you demonstrate the importance of a growth mindset in the classroom? How do your management, assessment (including grading), and instructional approaches illustrate to students that errors are welcomed in your classroom?

- How have you ensured that students are
 - developing assessment capabilities?
 - using peers to support one another in understanding their learning?
 - giving and receiving feedback to move their learning forward?
 - monitoring their progress to understand what is and isn't working for their own learning?
- How do you support students in discussing surface, deep, and transfer learning?
- What do you think are the strengths and weaknesses of PBL in developing competence and confidence?

NEXT STEPS

- Determine the level of clarity in learning expectations within your current projects or lessons by asking students the following three questions:

Where are you going?

Where are you now?

What next steps are you going to take?

Through this process, determine if the answers are about compliance, completion, and context or about learning goals, current performance levels based on assessment, and next steps as related to enhancing performance.

- Review your current unit of study or project and identify the levels of challenge for students.

Are you able to identify surface-, deep-, and transfer-level learning?

Do you have evidence (i.e., assessments, lessons, rubrics) that these levels exist and are important?

Do the students know this as well? How do you know?

- Ask students the following:

What intentional actions have we put into place that help you understand

your learning?

that errors are welcomed?

that peer feedback is valued?

that we value learning as demonstrated through language and our behaviors?