STEMD²

AUTHENTIC SOCIAL LEARNING

Diversity, Equity, & Inclusion in Action

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 First published (2021) by the Center on Disability Studies, University of Hawai'i at Mānoa, Honolulu, Hawai'i. This document is based upon work supported by the Department of Education, Native Hawaiian Education Act Program under award #S362A180011. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the United States Department of Education. For further information about this book and Ne'epapa Ka Hana 2.0 project, please contact kabhari@sdsu.edu.

ISBN: 979-8-4730058-0-6
Second edition, 2021.

TABLE OF CONTENTS

PREFACE

At its best, teaching is one of the most engaging and rewarding experiences available to modern professionals. Helping students to master concepts and conquer challenges is often the "calling" that draws individuals from far and wide to pursue a career in education. However, the peaks of success achieved by teachers can be overshadowed by the valleys of frustration they face in the modern classroom. As the introduction of modern technologies rapidly outpaces traditional instructional models, many instructors feel that they are being left with little in the way of effective, modern training to meet these changes. Moreover, classroom environments are growing ever more diverse with each passing year, as students of different interests and abilities require equal consideration beyond the rigidity of standardized pedagogical practices. Considering this, it is no wonder that instructors in the 21st century may feel stifled and ineffective, as their training applications and teaching efforts seem in vain when they are not supported by strong, applicable professional training.

It was with this frustration in mind that this book was created as part of the *Ne'epapa Ka Hana 2.0 Training Program*—an evidence-based, socio-culturally focused education program developed and validated in Hawaii from 2014 to 2021. Specifically, this book will provide the reader with new strategies and skills for teaching diverse iGen or GenZ students whose learning styles differ significantly from previous generations in focus, interest, and approach. Thus, this book aims to make teaching less challenging and more rewarding through the introduction of a new model for modern teaching: *The Authentic Social Learning Model* (ASLM). The purpose of the ASLM is to provide both a theoretical framework for educators and an easy-to-follow guide for teachers wishing to foster diverse, modern, and inclusive classrooms. The ASLM was originally conceptualized, created, and implemented in in-person classrooms. Recently, the ASLM has been successfully implemented in online and hybrid classrooms as well, so the model is adaptable to any classroom environment. The ASLM focuses on social learning and the effective use of authentic collaborative experiences to help students develop the conceptual and practical skills needed for future success. Our model helps you to (a) create an inclusive teaching environment, (b) design lesson plans for authentic student engagement, (c)

implement social learning and social technologies to encourage collaboration beyond classroom boundaries, and (e) use formative assessment embedded in authentic social learning to enhance learning outcomes.

As you read this book and consider utilizing some of the strategies it suggests, try to keep an open mind, as the practices and perspectives presented here may at times seem counterintuitive or even bizarre at the outset. However, with some patience and creativity, the strategies presented here can act as extraordinary launch pads for transforming your classroom and teaching style into a more inclusive, authentic, and effective one. Although this book offers a teaching model, our mission is to empower you to lead and make the best decisions for your students rather than following standardized guides. We want to remind you that, as their instructor, you know your students and their needs better than anyone else, especially more than those cloistered education leaders in their ivory towers and companies that publish generalized textbooks. Hence, rather than offering another one-size-fits-all teaching model, the ASLM gives you a framework through which you can exercise your autonomy in lesson planning, instructional design, and formative assessment. In short, we offer a new way to think about teaching and connecting to

students instead of a step-by-step manual. Implementing the ASLM will allow you to have more time for planning engaging instructional experiences and building productive rapport with students and will thus need less time spent on managing classroom behavior and prompting disengaged students.

Our goal is to help you rethink the teaching possibilities offered by social learning and social technologies. This book requires you to unlearn and relearn some key teaching practices, from content curation and lesson planning to delivery and assessment, such that you will be able to offer a meaningful learning experience to *all* learners. Otherwise, curiosity, creativity, and compassion will not survive formal education!

Before we proceed, it would be helpful to understand how the book progresses. Chapter 1 will provide a brief description of the theoretical context that the ASLM is founded on as well as the underlying assumptions and perspectives supporting the different components of the ASLM. Chapter 2 will then describe the ASLM itself. The model's details will illustrate the functionality of Authentic Social Learning in a classroom setting, and explanations of each strategic component of the model will lead to a greater

understanding of the total process this book promotes. Finally, Chapter 3 will present implementation strategies to help you bring the ASLM into your classroom. In this book, you will learn tactics for creating authentic and inclusive learning environments and read about examples of the ASLM in action. As you make your way through this text, we invite you to experiment with your own ideas about creating engaging, authentic, and inclusive classroom practices. After you finish each chapter, we encourage you to take a few minutes to reflect upon the practices, strategies, and concepts that would be most useful to your students. Now, let's begin.

CHAPTER ONE

Inclusive Authentic Learning

I've lost track of the numbers of brilliant people I've met, in all fields, who didn't do well at school... [They] found their real talents in the process, once they'd recovered from their education. This is largely because the current systems of public education were never designed to develop everyone's talents.

Sir Ken Robinson

Before this chapter begins, take a moment to pat yourself on the back—metaphorically or literally. By picking up this book, you have already taken the first step to advance your teaching and enhance your students' experience. That is a milestone worth celebrating. You have admitted that "there should be a better way," and indeed, there can be.

In this chapter we introduce you to some background knowledge that will help you to make the most of the *Authentic Social Learning Model,* or ASLM, and its suggested strategies. The first sections discuss some theoretical and philosophical underpinnings required to

grasp both the need for the ASLM in modern classrooms as well as the perspectives which informed its creation. Then, later sections of this chapter will provide some early-stage strategies to keep in mind and possibly implement before moving to later sections.

While this book is primarily geared toward STEM (Science, Technology, Engineering, and Math) instruction—i.e., in its examples and context—the suggestions provided throughout have been easily applied to many other disciplines and subjects. As you read through these general suggestions, keep these questions in mind:

a. What are my overall instructional *goals*, independent from what is required by the school administrators or my district office?
b. What *changes* might I make in my instruction to better meet these *goals* considering my students' geographical location, background, culture, community, socioeconomic status, etc.?
c. How might I use the examples provided here as a framework or guide for planning and implementing these *changes*?

The Importance of Inclusive Education

Whether or not we are ready for it, the future is here, and digital technologies are paving the way to more inclusive, accessible, and connected classrooms. As a novel model, the ASLM represents a push toward more inclusive teaching environments and practices in all classrooms. While the term "inclusive teaching" may not be familiar to you, it is a continuation of the progressive improvements made to educational standards in the United States over the past few decades. It is informed by many theories and evidence-based practices. However, the process of inclusion goes far beyond abstract theory and shows promise for practical application.

Inclusive teaching is commonly understood as the practice of teaching students with and without disabilities together in the same classroom. While this definition is not inaccurate, for this book, we adopt the much broader UNESCO definition of inclusion, which states that all students have the right to quality education. UNESCO seeks inclusive education that provides equitable educational opportunities to students who have been traditionally excluded from the classroom, such as "children from the poorest households, ethnic and

linguistic minorities, indigenous people, and persons with disabilities."[1] From this perspective, inclusion is a process of learning from differences, removing barriers, and encouraging the presence, participation, and achievement of all students. However, inclusion is not just an individual choice but rather a systematic change to the landscape of modern education—a change that you are a critical part of as an educator.

One major policy shift that helps put this change in perspective is the Individuals with Disabilities Education Act (IDEA). IDEA was created to ensure that students with disabilities have the same access to education as students without disabilities. Since IDEA was updated in 2006, most students with disabilities have been educated in general education classrooms, and as such, education has shifted to the model of inclusion as a general practice. For example, in Hawai'i, the Department of Education set a goal for 2020 to have 51% of special education students receive instruction in general education classes for eighty

[1] Ainscow, M. (2020). Promoting inclusion and equity in education: lessons from international experiences. *Nordic Journal of Studies in Educational Policy*, 6 (1), 7–16.

percent or more of their school day.[2] These are just a few examples of sweeping changes that are positively impacting the experiences of students and teachers. We contextualized this book as an extension of these meaningful changes.

In this way, inclusive teaching practices form a cornerstone of the ASLM and should be considered as an overarching pedagogical orientation for educators. However, unlike what is currently being practiced, we argue that inclusive education must be "authentic" in order to be effective. We need to go beyond "Equality of Opportunity" and redefine "opportunity" itself by teaching what matters most, in a more personalized and self-regulated way. We believe teachers can support diverse learners by offering authentic learning environments where learning autonomy, openness, connectivity, and diversity are celebrated.

The Importance of Authentic Learning

Do you remember the teacher from the Charlie Brown

[2] Hawaii State Department of Education Strategic Plan (2021). Hawaii State Department of Education. Available at: *https://www.hawaiipublicschools.org/VisionForSuccess/AdvancingEducation/StrategicPlan/Pages/home.aspx*

movies and comic strips? Like other adults in that comic, Charlie's teachers were never intelligible to the children around them. Unfortunately, many real-world teachers feel that way at the end of the day, as students often appear unfocused, unmotivated, and distinctly lacking engagement with course content. Though there are a myriad of reasons why this might be the case on an individual level, there are also structural factors that need to be acknowledged to address this issue. Among these factors, the disconnect between the learning environment and students' current and future life is noteworthy. Fortunately, research shows that offering authentic environments can partly address this problem by providing learning opportunities that help students develop relevant skills within an authentic context.[3]

We define authentic learning environments as educational settings (both virtual and physical) that extend beyond classroom boundaries to incorporate the students' communities. Here they can seek knowledge both in real-life situations and through their own personal or social

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[3] Scogin, S., Kruger, C., Jekkals, R., & Steinfeldt, C. (2017). Learning by experience in a standardized testing culture: Investigation of a middle school experiential learning program. *Journal of Experiential Education*, 40(1), 39–57.

Rowe, M. (2016). Developing graduate attributes in an open online course. *British Journal of Educational Technology*, 47(5), 873–882.

experiences. These environments allow educators to use practical experience as a primary teaching medium, leveraging community and local culture as a source of knowledge where students can learn in contexts that are relevant and important to them. In these environments, the learning process is not separated from the students' personal values or immediate applications; instead, it draws upon these elements to improve learning at large.

Authentic learning environments are now more important than ever. Technological advancements, environmental challenges, political movements, and societal changes have dramatically changed the way students think and behave. Students today will be engaging with a world that is dramatically different from the past, and they need a different set of "hard" and "soft" skills to productively participate in this future. Hard skills are those that are job-specific and can be measured like computer or technical skills. Soft skills are universal skills that help a person be successful in any workplace, such as communication, problem-solving, and collaboration skills. In response to these shifting needs, educational theories and practices must be revisited to equip students with both hard and soft skills. While the future remains shrouded in mystery, there is no doubt that in the future, your students will be

expected, more than ever before, to collaborate, communicate, think critically, and solve problems creatively. Current and future workplaces are situated in a hyperconnected global economy where employees are expected to collaborate with a team to ideate and solve problems.

As with any new era of education, there are essential skills students must learn to navigate the world. Specifically, and now as much as ever, students are expected to utilize soft skills to live and work across social, cultural, and demographic lines and solve unprecedented, complex problems with direct social implications. Given the need for employees with effective soft skills, it is necessary to create learning environments where such skills are embedded in the content, delivery, and evaluation of lesson plans. Hence, implementing authentic learning environments where students can organically develop and exercise soft skills are critical for nurturing these skills and in turn, engaging students in a more meaningful manner. However, we argue that establishing and maintaining authentic learning environments is not feasible within the confines of traditional teaching methods. Therefore, it is necessary to discuss and evaluate the role of teachers in modern learning environments. Authentic learning is one

way to address this challenge through which students can develop, practice, and master soft skills.

Teachers and Students: New Roles, New Responsibilities

While traditional teaching methods do have their benefits, there are some significant differences between modern teaching methods and those of established approaches. For instance, research indicates that classrooms with teachers who provide all the information in a lecture-style format are inadequate for teaching collaboration and communication skills.[4] Further, studies conducted on interpersonal communication between teachers and students found that instructors who spend substantial amounts of time giving whole-group instruction had limited connections with students; these students also tested significantly lower for higher-order thinking processes.[5] In

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[4] Ayaz, M.F. & Sekerci, H. (2015). The Effects of the Constructivist Learning Approach on Student's Academic Achievement: A Meta-Analysis Study. *The Turkish Online Journal of Educational Technology*, 14(4).

[5] Garcia, E., Elbeltagi, I., Brown, M., & Dungay, K. (2015). The implications of a connectivist learning blog model and the changing role of teaching and learning. *British Journal of Educational Technology*, 46(4), 877–894.

a traditional, lecture-based classroom, the teacher is the sole source of information and the only resource available to answer questions and provide feedback. In contrast, to understand today's complex and unprecedented problems, students need to acquire knowledge from a variety of diverse sources, including their peers, online resources, and of course, their teacher, to create the most comprehensive learning path possible. In an era of fake news and misinformation, they also need to question everything, including authority—in this case, their teachers—, to develop critical thinking. Therefore, we encourage you to empower students and focus on facilitating learning instead of direct instruction. As such, the following sections will detail how you can begin to shift your perspective toward a new role as a teacher.

Implementing more modern teaching strategies is not merely a new teaching trend. Instead, it is a transformation of common pedagogical approaches to fit the needs of a rapidly diversifying population of students. The necessity of this transition is supported by research that recommends teachers shift their role from providing information through teacher-centered lectures to a focus on creating opportunities for open, student-centered learning. This requires teachers to help students adapt to new

collaborative, self-regulated, and complex learning environments beyond the boundary of the classroom. In these environments, teaching, as a service, re-manifests as co-learning, relearning, or even unlearning with students, whereby students acquire knowledge on how to learn effectively and what to learn judiciously.

Some teachers believe that a student-centered classroom means that the teacher is obsolete, as student-driven education seems to imply a lack of instructor input. On the contrary, the teacher's role is more critical than ever for the success of the students in such a process. In traditional classrooms, teachers are responsible for the transmission of "pre-validated" knowledge (e.g., textbooks), critical analysis is optional, knowledge construction is discouraged, and soft-skill development is not a priority. The reality of modern life challenges these limits due to the boundless sources of unverified knowledge offered by the internet, the importance of knowledge co-creation (e.g., creative problem-solving), as well as the significance of soft skills needed to navigate both personal and professional life (e.g., emotional intelligence). In this way, modern teachers are now responsible for training students in how to verify information, put theories to the test, co-create new knowledge, and verify their ideas beyond hypothetical

learning scenarios.

Beyond an acknowledgement of the necessity of such development, the pedagogical strategies used by teachers play a key role in nurturing these soft skills. *Authentic learning* is one practical strategy that allows this to take place efficiently and consistently. In authentic learning environments, the teacher's role is to gently guide students' learning, rather than micro-manage their information-seeking. In these environments, teachers focus on engaging students in realistic and personally significant conversations to help them first understand *why* a problem is worth solving. Then, this social foundation can be leveraged to encourage students to discover resources, extract knowledge, assess its relevance and reliability, and make connections to other concepts and lessons. In sum, when students know *why* to learn, teaching them *what* to learn and *how* to learn is much easier.

In teaching you some strategies for engaging and encouraging authentic learning, this book will help you shift your initial instructional focus from *what* to learn to *why* to learn, and offers four strategies for teaching *how* to learn. In this vein, the first step is to establish a student-centered learning environment, which is not possible without first

noting the major differences between teacher-centered and student-centered learning environments. The example below briefly compares the two different scenarios.

Example: A Teacher-Centered Lesson *vs* a Student-Centered Lesson

Teacher-Centered Lesson on Ratios: The teacher informs the students verbally of the definition of a ratio, how to write ratios in three different formats, and how to compare different ratios. The teacher then shows examples of each way to write a ratio and walks through the steps of how to compare ratios. Students are expected to sit, watch, and listen as each portion of the lecture continues uninterrupted. Students are then given several practice problems, with no context, to demonstrate their understanding of ratio representations and comparisons. Students are assigned a score according to their number of correct and incorrect problems, with no commentary or corrections provided to indicate where improvements could be made.

Student-Centered Lesson on Ratios: The teacher knew, either through context or observation, that many of the

students enjoy surfing. With this information, the teacher begins the lesson by asking the students how many of them enjoy surfing. Hypothetically, 28 students attend this class, and 16 of them enjoy surfing. The teacher then informs the current class that they asked the same question to a previous class of 18 students, where 12 of them enjoyed surfing. The teacher asks the students how they would decide which class enjoyed surfing more, encouraging students to elaborate on their choices and describe alternative options. The teacher facilitates conversation and discussion through questions, prompts, and hypotheticals. Some students compare absolute student counts while some compare relative counts. Then, the teacher asks the students to develop a step-by-step guide on how to compare different ratios and provides a new set of problem to test their guide in a new context. This helps students to understand the lesson content in a relatable context, as well as across several methods of use. This also helps the teacher to recognize and address misunderstandings along the way for all students.

While certainly significant, the teacher is not the only classroom role that has undergone a dramatic change in the context of modern education; the role of the student has

also evolved to be more actively engaged in the learning process. Mentioned briefly in previous sections, student-centered classrooms encourage students to learn through collaboration, communication, networking, and self-discovery, all of which require greater student engagement and input than traditional pedagogical approaches. To be clear, a student-centered classroom does not mean that the students get to make the instructional decisions about what they learn. Instead, student-centered simply means that students are engaged with *why* to learn first and, equally important, are responsible for their own learning (*how* to learn). Therefore, the teacher's role in the classroom is to guide students rather than push them, such that they can discover "how" and "why" to learn, rather than just "what" to learn. This allows them to take on a more collaborative, creative role as a problem-solver as opposed to an information sponge.

The freedom to be a self-directed learner can be both liberating and challenging for students. Research shows that "ambiguity, even confusion," is a necessary part of effective learning.[6] Your students need to be comfortable "struggling" with learning materials to develop a true and

[6] Siemens, G. (2008). Learning and knowing in networks: Changing roles for educators and designers. *ITFORUM.*

in-depth understanding of concepts. Persistence in learning is thus the key to success. Having a "why to learn" motivates students and keeps them engaged despite the struggle. Unfortunately, teachers tend to want to bail their students out and give them a shortcut or the answer, which can be detrimental to their confidence, self-efficacy, and learning outcomes. A study of interventions in a mixed-ethnicity public high school algebra class found that student-initiated interventions, support, criticism, questions, and compliments all improved student engagement; the same study found that excessive teacher interventions decreased motivation. [7] Students cannot learn through passive absorption; they need to engage and work through problems without an obvious answer. After all, teachers are educating humans, not machines. Only meaningful complexity and reasonable puzzlement can be productive. Planned learning challenges with open-ended answers can help make sure students eventually arrive at the solution before reaching an elevated level of frustration.

Now, in light of this introduction, we can reconceptualize the authentic learning environment to one where the

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[7] Chiu, Y.-W., & Ring, J. M. (1998). Chinese and Vietnamese immigrant adolescents under pressure: Identifying stressors and interventions. *Professional Psychology: Research and Practice*, 29(5), 444–449.

teacher and students can assume new roles and responsibilities without sacrificing productivity and security. Creating such inclusive environments is the foundation of the ASLM model that will be introduced and presented fully in Chapter 2. The applicability and utility of the implementation recommendations, discussed in Chapter 3, also depend upon the quality of the authentic learning environment created by teachers in their respective classrooms.

Strategies for Creating Inclusive and Authentic Learning Environments

This section consists of initial strategies to prepare students for working and learning in an authentic learning environment. While it is recommended that you implement these strategies at the beginning of the school year, they can successfully be adopted at any time. These strategies are designed to be flexible enough that you can modify them to fit the needs of your students. You should feel free to mix, match, add, and subtract at your discretion.

Plan to accommodate students' special needs, including emotional needs.

Once you have access to your class rosters, take the time to learn which students have IEPs, 504s, are gifted, or have other special needs. You need to learn about what accommodations or modifications are needed to adjust instruction as soon as possible. This also allows you to better prepare and modify their lessons to make them relevant, accessible and, importantly, inclusive. Please note that not all students' emotional needs are, or even can be, documented. CDC research shows more than 60 percent of American adults have as children experienced at least one form of abuse, neglect, and other potentially traumatic experiences, and almost a quarter of adults have experienced three or more adverse childhood experiences (physical abuse, sexual abuse, emotional abuse, or neglect).[8] So, it is important to recognize that some students may have special needs that are not documented.

Once you meet your students, you should start planning for their educational, emotional, and social needs,

[8] Merrick MT, Ford DC, Ports KA, Guinn AS. (2018). Prevalence of Adverse Childhood Experiences From the 2011–2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatrics*, 172(11), 1038–1044.

documented or undocumented, by listening to their "stories" and talking to them. *There is no shortcut here.* This will help you to not only learn about students' preferred ways of learning but also to connect with students on a personal level and establish trust. Research consistently indicates that the single most influential component of an effective school is a few individual teachers within that school who treat their students with dignity and respect. These teachers connect to their students on an emotional level to find a "meaning" in learning other than that of attaining good grades. Sometimes, for emotionally neglected students, teachers are the only hope; this is a serious responsibility, as well as being one of the most rewarding opportunities to make a difference as an instructor. At the end of the day, the emotional well-being of your students is far more important than their learning outcomes. Remember, it is easier to fix a broken window than a demolished house; early identification and intervention are key.

Create a student-centered environment to promote positive behavior management.

Setting up an authentic learning environment may pose challenges if not properly planned and executed. While

you should encourage student independence, responsibility, and agency in the classroom, you need to co-design your class structure, roles, and policies upfront. A shift to student-centered teaching models is, in fact, shown to increase teachers' perception of effective behavior management on the part of students. That is, students who are consistently and authentically engaged with assignments, peers, and course content will have less time and energy for outbursts, heel-dragging, and poor classroom etiquette. A sense of communal responsibility, coupled with activities tailored to the cultural and social interests of students, can go a long way in diverting poor behavior in the classroom. Therefore, even when changing to a new pedagogical approach, your control over the classroom does not diminish or go away. It simply shifts from managing the classroom to facilitating student engagement and co-planning the learning process.

Be deliberate about spending time building trusting and productive relationships with your students.

When students know teachers care about them, they work harder in the classroom, and classroom management becomes far easier. Listen to students' stories, aspirations,

pains, and challenges without being judgmental or dismissive. Remember, we need to connect to students' hearts before training their minds. To win students' trust, you should take the time to learn about their lives outside of the classroom as much as is appropriate. This is not wasted class time; it builds trust and stronger relationships among the students themselves as well as between yourself, individual students, and the class as a collective. Effective collaboration and meaningful participation are only achieved through strong relationships.

Most teachers already use "get to know you" activities at the beginning of the school year. However, these activities should not be limited to the beginning of the year and generic introductions. Instead, these activities ought to be used sporadically throughout the year to maintain social ties. Thus, you should consider designing a series of socio-culturally appropriate activities whereby students can genuinely share their learning challenges, especially those that happen outside the classroom. You should also feel comfortable sharing your own teaching challenges, from classroom management to time management, and seek students' help and support as is appropriate. Remember, relationships are a two-way street. Students want to get to know their teachers as much as their teachers want to know

them. Below is an example of an activity that can be used at various points in the school year to promote prosocial interactions between and with students.

Example: The Power of Vulnerability

Print out a blank outline of a t-shirt. Ask your students to design a t-shirt that describes how they dealt with a life challenge or a negative emotion recently. Let them express their vulnerability and their strength at the same time. Their t-shirt should NOT symbolize their favorite hobbies, brands, celebrities, athletes, or similar clichés. Emphasize that they need to design a personally meaningful t-shirt rather than a "cool" one. Then, have the students present their designs and connect to other students with similar stories. Perhaps even offer advice to those who may face the same challenges in the future. Do not forget to also present your t-shirt design.

Recognize that "group work" is not always constructive collaboration.

A key element needed for implementing engaging lesson plans in classrooms is the use of authentic, collaborative

learning assignments. This book will show you how to help your students learn to be self-directed learners who collaborate effectively while contributing, learning, and creating new knowledge. For example, despite the benefits of collaborative assignments, students often do not know how to collaborate effectively. This is a major problem of using group work in class design, as a few—or even one—students typically do the lion's share of the work; the others sit back and do little, and as a result, learn little. In this book, we will share some strategies to avoid this issue.

Develop an authentic learning activity ahead of major lessons or assignments to prepare students.

At the beginning of the school year, you can create a simple and short project that students can work on to learn about each other and establish a learning community. The project should be socio-culturally relevant to the students, feasible for all, with no right or wrong answer, and most of all, meaningful, engaging, and fun. You can use this first project to teach students the skills necessary for working in a collaborative learning environment, build trust, and normalize some social learning procedures. Essentially, this is a chance to teach students how to learn authentically.

Your goal as an instructor is to allow students the autonomy to lead project activities, tap into online resources, seek help from personal networks outside the classroom, and even help shape evaluation criteria. Ideally, this sets the stage for an inclusive learning community and gets students comfortable with authentic learning.

Students should be able to connect and work with several different students in the class. You can ask students to choose their groups for the first project but set new criteria for follow-up projects such that students are encouraged to switch groups. This exposes students to more networking "nodes" at the beginning of the school year than would likely be established if left to their own devices. It is also recommended that you include parents in this very first learning activity. This will help you not only engage parents early on but also gauge their willingness, preferences, and availability to participate in their child's learning experience throughout the school year. This is, again, a unique opportunity to learn about your students and help tailor their learning to achieve the best possible learning outcomes. Below is an example of a collaborative learning opportunity you can use early in the term as it is low-stakes and allows students to express themselves comfortably.

Example: Superhero Leagues

Fantasy and abstract thinking can be a great way to comfortably break the ice with students early in the school year. Ask your students to create superhero leagues to work together and solve a community problem. For example, you might prompt them to create a "superhero" version of themselves and decide what superpower they would have. This helps you learn a little bit about your students and promotes relationship building. Next, ask the students to form a superhero league with 4-5 students. Ask them to work with their league to solve their chosen community problem. The students should interview their parents and use online resources to learn about the root cause of their issue and then use all their superpowers to plan how to fix it. Ask your students to present their ideas in a skit for the class, and when possible, post on the school's website or social media.

Promote collaboration over competition.

In authentic learning environments, students choose to work together because they can complement each other's skills and use different approaches to problem-solving.

Students, in approaching problems from different perspectives, should feel like valued and important members of the team and will contribute more ideas to the group than they otherwise might have without that personal and social investment. For example, a student may struggle with math but might also be a very talented artist. Such a student might not be comfortable with solving the procedural mathematics involved in a project on their own, but might be able to offer their abilities in drawing graphs, tables, or even pictures to represent their group's findings and help everyone in the team to develop a deeper conceptual understanding. This offers a useful tool to the group, makes the struggling student feel like a greater contributor, and allows the group to engage with project materials in a new medium offered by that student's input.

In such collaborative environments, to ensure that all students are participating in solving the problem at hand, you can ask each student to write down a goal to accomplish for that day. Then, start with individual tasks to ensure that everyone participates in the learning process. One possible strategy is to require students to (individually) write two sentences about "why" the problem or question is important and "how" it can be solved or addressed. Asking students to reflect upon the problem rather than

rushing to a solution can minimize unhealthy competition and promote cooperative ideation during group work. Having students work in groups of two (or three, in large classes) is recommended to minimize students simply copying one another. To help ensure equity in participation, you can ask each student to report what they learned throughout this process.

Establishing a learning community with social networks is essential for creating inclusive and authentic learning environments. In these learning communities, students can assume distinct roles. You can have students first take a personality quiz that identifies their strengths. Then, you can discuss the results with each student and help them to determine how their strengths relate to group collaboration and how the skills they possess can contribute to group success. Students can select groups based on the diverse strengths of other students.

The goal of this strategy is to celebrate diversity and allow students to acknowledge difference as a positive characteristic of their group. You should try to let the differentiation happen naturally, if possible, with students being encouraged to use their unique skills to improve the group product collectively. Remind students that being

good at a subject, such as mathematics, is never sufficient to address our complex world's problems, and that is why we need individuals with different skillsets and experiences when understanding and solving problems.

By focusing on strengths, students' confidence improves, and as a result, they may be more willing to tackle different problems even when they would usually be intimidated by such tasks. This can also minimize the chance of higher-achieving students doing all the work while the rest choose not to participate due to feelings of inadequacy. When students choose their collaborators beyond mere perceived intellectual ability, they tend to form heterogeneous dynamic groups and actively participate in competitive ideation and collaborative problem-solving.

Example: Invasive Plants

In establishing strong learning relationships with students, you can kick-start a collaborative mindset by focusing on local, collective issues. Doing so provides some social and contextual structure for students to operate within while applying new concepts learned in class.

For example, if you are teaching your students the equivalency of percentages, decimals, and fractions, you can ask them to compare the percentage of invasive plants in an area. For example, in Area 1, 27% of the plants are invasive species. In Area 2, 17/50 of the plants are invasive species. In Area 3, the invasive species account for 0.3 of the overall plants. You may want to ask your students, "Which area had the highest percentage of invasive plants?" or "Order the areas from least to greatest percentage of invasive plants." However, we suggest, instead of asking them to provide answer to this type of questions, first, give your students time to find an online source to explain "why" this problem is worth solving.

Then, ask them to discuss with their classmates how they found the source or tool to solve this problem, how they used it, and how confident they are about the validity of the source or tool. The students should be able to compare their approaches (not answers) in small groups and decide on the best approach. The goal is to develop a cognitive presence collaboratively—not find the right answer competitively—by which your students construct and confirm the value of this learning activity through sustained reflection and discourse.

Use social learning mechanisms to encourage students to seek and offer help.

Social learning networks are a group or groups of students working together to find, synthesize, and disseminate relevant information among individuals. These networks are informal groupings that are chosen and maintained by the students. Students are more successful when they have access to their peers for help in a social learning network. For example, recent research shows that students feel more comfortable seeking help from their peers than from their teachers.[9] This study found that when some students could not ask their peers for help, they would not seek help at all. Students who work in a learning network or community—within a classroom or beyond—rely on one another for understanding and learning, so seeking help from peers is a natural part of their learning process. As a result, students are not self-conscious about asking for help from other students, as it is viewed as normal social interaction.

Seeking help from a teacher, on the other hand, can make some students feel uncomfortable and self-conscious. For

[9] Rice, R. (2018). *The Influence of Connectivist Learning Networks on Self-Regulation in Middle School* (Doctoral dissertation, Grand Canyon University).

instance, they may think that they are being singled out or that they will be judged by their peers. While changing this mindset is not an easy task, even among adult learners, teachers should encourage and reward students who seek and offer help in the learning community. This means that seeking and offering help, especially in the form of feedback, should be routinized and valued as part of the learning process. The first step toward this goal is the normalization of questioning. Asking questions, especially "why" questions, should be regularly admired and rewarded until it becomes part of your classroom culture.

Students should also be allowed to seek help beyond their group or classrooms. If their peers did not have the answer, the student group should be tasked to use the technology resources available for help. If still unsuccessful, the entire group should seek help from the teacher. It is recommended that you help students navigate and evaluate online resources to find help rather than directly answering their questions. This will help students gain information and develop digital literacy, a cornerstone soft skill of effective learning in digital spaces. For example, using social technologies such as Q&A sites, when they are available and age-appropriate, can be a part of learning assignments and will thus create another avenue for help-

seeking in the future.

A study from 2015 found that when high-needs students were placed in comfortable collaborative spaces, they showed significant improvement because they had access to a network of peers and were able to seek help from those peers.[10] Some teachers raise concerns over "cheating", but it is important to keep in mind that knowledge, at least in the context of K-12, can be a shared commodity, and learning does not mean memorizing or blindly following instructions. When students work together to share knowledge, they are not cheating; rather, they are sharing knowledge and strengthening the understanding of all group members. In this context, true learning is defined by students finding and connecting knowledge sources and articulating their value and applications.[11]

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[10] Lin, J., Huang, H., & Chuang, Y. (2015). The impacts of network centrality and self-regulation on an e-learning environment with the support of social network awareness. *British Journal of Educational Technology*, 46(1), 32–44.

[11] Smidt, H., Thornton, M., & Abhari, K. (2017). The future of social learning: A novel approach to connectivism. *50th Hawaii International Conference on System Sciences*, Hawaii, 2116–2125.

Use social learning mechanisms to ensure equity in participation and access.

"Social learning mechanisms" here refers to democratic processes of individual input by students in the classroom setting. Using social learning mechanisms such as voicing, voting, commenting, and debating makes students feel more comfortable participating in other learning activities—even individual homework assignments—due to the sense of ownership that is fostered. In traditional classrooms, students are often fearful of participating in class. Even when students believe they have the correct answer, you may find that it is difficult to get them to volunteer to answer a question because they are afraid of giving the wrong answer and the subsequent embarrassment.

One way to combat this issue is to value the learning process rather than learning outcomes. For example, you can ask students to present "how" they solved a problem rather than to provide an answer. Moreover, you can also reward efficient and creative problem-solving procedures rather than only correct answers. Another way is to minimize the number of learning activities with right or wrong answers. This allows students to participate in discussions without competing to provide the right answer

or doubting their competence in finding the right answer. One effective way to achieve this and scale student participation is to use social learning networks. In a 2017 study, researchers discovered that even students who were not comfortable speaking up in class were comfortable interacting in a discussion within a collaborative group of peers.[12]

Here, it is important to keep in mind that students may have different preferences and comfort levels when engaging in social learning. Make sure to provide options for students to make their voices heard such that different personality types are valued. You can use a simple personality test and classify your students as introvert, extrovert, or ambivert to guide social learning activities. For example, introverted students prefer to ask questions anonymously, while extroverted students are comfortable posting questions and contacting new people. Ambivert students can be tasked with asking follow-up questions and participate in discussions.

[12] Ying, A. N., & Yang, I. (2017). Academics and learners' perceptions on blended learning as a strategic initiative to improve student learning experience. *MATEC Web of Conferences*, 87(1), 1–7.

Example: Project on Invasive Species

Imagine your students are working together on a public awareness campaign about invasive species in Hawai‘i. For the project, you may suggest that your students adopt roles as ecologists, botanists, public relations specialists, and project managers. You should make sure each role is equally interesting and well-explained. First, ask your students to think about the traits that would fit each role. Then, encourage your students to select their social networks from the students who are best suited to each profession. A simple strategy is to have students take a personality test and use their results to choose the role for which they are best suited. Assign a corner of the room for each role and have students stand in their appropriate corner. Then, tell students to choose groups with a member from each corner. You may have to intervene if you have too many students in one area that seems less demanding and ask them to rethink their decision. Then, help students make decisions about their role and team to ensure the success of the team. Use social learning mechanisms to maintain student engagement.

As stated earlier in this book, a primary goal of this training

program is to help instructors (re)engage students in an inclusive manner. Only in engaging environments can we expect students to use higher-order thinking skills to solve complex problems and create a deeper understanding of concepts. When students use onsite or online learning communities to seek or offer help, they develop deeper understandings of different perspectives. Students who choose to seek or offer help are not doing so to only understand a concept or solve a problem, but also to satisfy their psychological needs— from the need for autonomy and a sense of competence to the need for identity and relatedness to like-minded peers. Thus, assuming that students are just looking for a source to give them the answers does not depict the full picture.

For some students, personal and social motivations that need to be recognized and cultivated to realize a higher level of engagement in order to teach course content. These motivations include a sense of community, socialization, voicing opinions, and curiosity, to name a few. In many classrooms, social interactions are the key to student engagement, not the course content. Therefore, teachers can encourage students' engagement with course materials by leveraging social learning to also engage

students' cognitive presence.[13] As a result, diverse groups of students learn the course content even if that was never their motivating factor.

Arrange your furniture to accommodate social learning and provide seating options.

An easy change you can make to your classroom is adjusting its physical layout to maximize interactivity. Ideally, classroom furniture should provide various seating options so students can sit where they feel most comfortable. When possible, you can try to use a mix of tables and desks to give your students options; items like yoga balls, stools, or other seating methods allow for more creative, engaging arenas for students to interact in. As you experiment with different seating arrangements, resist the urge to assign seats, as assigned seating limits student-selected social learning networks. Part of this effort could be inviting the students to design the class layout or provide you with feedback. This simple practice also allows you to learn about your students' preferences and create a more comfortable classroom environment for them.

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[13] Garrison, D., Anderson, T. & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, 15(1), 7–23.

Find experts or community members who are willing to connect with or mentor your students.

Finally, one of the greatest head-starts you can make to set up an authentic learning environment is collecting resources and maintaining relationships with local community members and experts. You can make connections with community members, parents, experts, or mentors who can help extend students' learning beyond the classroom. Ask around at businesses, government entities, and universities to find volunteers. Some of these experts may even be able to provide inspiration or ideas for authentic learning opportunities too. Authentic community-introduced projects or learning challenges can enrich students learning experiences and engage them at a higher level, both culturally and academically. Connecting with individuals whom students can identify with and learn from about the real world is an excellent step toward building an authentic learning environment. Inviting community members who represent a local cultural group can also serve as a mechanism to promote inclusivity and encourage students from underserved or underrepresented communities to participate in class discussions and activities, because they will see personal representation and respect being given to their community

The above strategies for creating inclusive and authentic learning environments within a student-centered classroom are the first steps to implementing our new pedagogical model, the ASLM, and engaging your social and technology-driven learners. In the next chapter, you will learn more specifically about the ASLM and how to implement it in your classroom.

Summary

This chapter introduced the foundation of the ASLM with emphasis on the importance of an inclusive and authentic learning environment. We argued that in the age of constant connection and unprecedented complexity, teachers cannot rely solely on entrenched, traditional teaching methods that typically do not provide authentic learning opportunities with any reference to the real world. What is more, this chapter discussed how authentic learning can be achieved within an inclusive learning community and supported by social learning mechanisms. Lastly, we proposed some strategies for establishing such environments, including the adoption of new perspectives on student-teacher roles in the classroom and the encouragement of active engagement.

End of Chapter Reflection Questions

Teachers and Students: New Roles, New Responsibilities

Consider a lesson you have recently taught as a teacher-centered lesson.

(1) Reflect on the level of student engagement and how well they understood the lesson.

(2) Consider how you could re-teach this lesson as a student-centered lesson using some of the modern teaching strategies already mentioned. Reflect on how well you think this student-centered approach might increase student engagement.

Strategies for Creating Inclusive and Authentic Learning Environments

The end of this chapter presented some strategies for creating authentic, inclusive classroom environments. Reflect on your current classroom environment and answer the following questions:

(1) Do you already use any of these strategies in your classroom? If so, which ones do you use, and how can you improve their implementation?

(2) Are there any strategies listed that you do not use but think would be beneficial to your classroom? If so, how could you successfully implement them into your classroom?

CHAPTER TWO

The Authentic Social Learning Model

The whole purpose of education is to turn mirrors into windows.

Sydney J. Harris

Congratulations! By completing Chapter 1, you have made it to another milestone in the process of improving your students' learning experiences. Well done! In summary, Chapter 1 introduced the key dimensions of inclusive and authentic learning environments, giving you a general look at why we advocate for this learning model. Additionally, Chapter 1 established the need for authentic classrooms which are designed to meet the diverse needs of current and future learners. You were also introduced to some possible strategies that can help you in achieving this goal.

Now that we have built a solid foundation for designing a more authentic learning environment, we will turn our

attention to the teaching strategies associated with the Authentic Social Learning Model (ASLM). Throughout Chapter 2 you will be provided with a rationale for using the ASLM as a pedagogical model, as well as details on each component of the model with respect to their theoretical and practical functionality. Overall, the purpose of this chapter is to provide you with a simple framework that centers course activities around authentic student-centered teaching and assessment practices.

Synthesizing, Updating, and Improving Education

As stated in Chapter 1, it is useful to have some background on the creation of the ASLM, as this heavily influences the model's purpose and its related strategies. Much of the technological and social advancements of the past few decades have largely outpaced similar developments in the field of K-12 education. Despite greater levels of class diversity and more robust technological tools for inclusive teaching, little progress has been made in terms of pedagogical innovation to fully realize this potential for change. This, however, by no means implies that there have not been attempts to do so.

Education scholars have exhibited considerable efforts toward creating new theories of education intended to leverage both modern technologies and new social norms and practices. Nevertheless, the results of these attempts rarely enter the mainstream due to the limitations of feasibility, scalability, and generalizability.

Two leading examples of such efforts are *connectivism* and *networked learning*. Both ideas are inspired by concepts such as the theory of social constructivism, adjusted for our current hyperconnected and digitalized world. These theories posit that students learn best when utilizing "networks" of various educational resources rather than simply relying on teacher-and-textbook style learning. These resources may range from teachers to peers to technology, even local community members and experts. These models also promote an educational orientation that utilizes technology as an essential means to seamlessly acquire, assess, reflect, create, share, and provide feedback on knowledge and its applications in various learning contexts.

In connectivism and networked learning, education is conceptualized as more than just one's schooling and

extends far beyond the boundaries of the classroom. While this is a commendable effort toward a useful theory of modern education, the main critique of these theories is that they fall short of providing a practical approach to teaching in classroom environments with limited access to technology. Each theory provides a conceptual framework for teaching but little or nothing in the way of established practices and strategies, especially for teachers working in underserved communities. Considering this, the Authentic Social Learning Model (ASLM) was developed as a synthesis, addition, and improvement to both approaches. More specifically, the ASLM represents the adaptation of each of these educational methods into a *manageable* teaching model.

In the following sections, you will read about the individual components of the ASLM as well as their function in the greater model. We begin with a brief overview of the ASLM, including its connectivist teaching principles, authentic learning environment, and formative assessment components. These sections will also explain the processual constructs of this model—*Social Exploration, Social Ideation, Social Experimentation,* and *Social Validation*.

Introducing ASLM

As you read previously, the Authentic Social Learning Model (ASLM) combines the best practices reported by several educational models and theories, including connectivism, networked learning, contextual learning, authentic learning, and inclusive teaching. The result of this combination is an authentic social learning model for K-12 classrooms that creates an inviting, engaging, and rigorous classroom experience for students and teachers alike.

The ASLM is designed to provide a framework for implementing research-based strategies without having to learn and attempt to implement them all separately; the model itself aims to be a framework for the integrated application of these teaching and learning models. Each component of the ASLM will be thoroughly explained and discussed in subsequent sections of this chapter so that you can see how they are all merged into the ASLM strategies (Figure 1). While you read, remember to take some time to reflect after each section and make note of which strategies and concepts seem most valuable for your unique class roster and teaching style. Implementing a new

teaching strategy takes considerable time and thought, so it is useful to get into the habit of considering how ideas might apply to your classroom. Chapter 3 discusses the ASLM implementation and provides answers to the practical questions that you may ask yourself while or after reading this chapter.

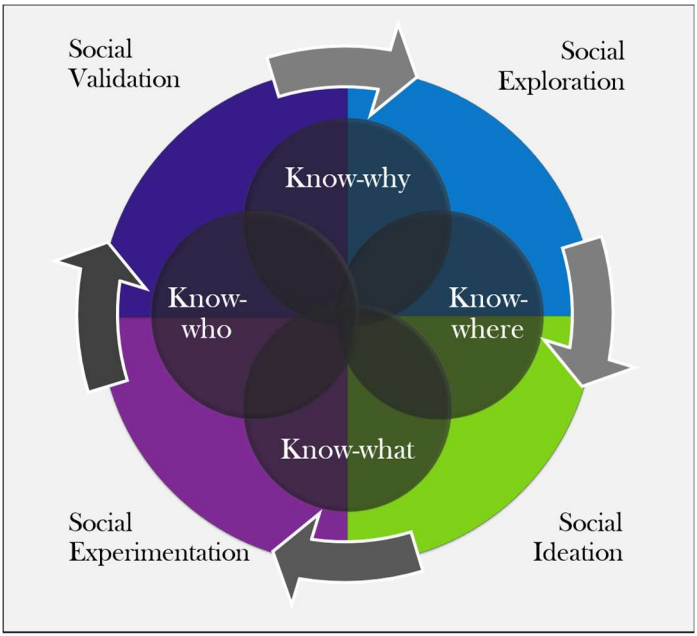

Figure 1. The Authentic Social Learning Model (ASLM)

Connectivism: The ASLM's Guiding Principles

This first section will discuss the "core" of the ASLM: *connectivism*. Connectivist teaching is a central concept of the ASLM that bridges many disparate areas of educational theory. Connectivism is a student-centered learning approach for the digital age which applies the principles of networked learning to social networks.[14] From a connectivist perspective, social learning—such as that enabled by the ASLM—allows all learners to experience knowledge discovery and formation through social activities enabled by networking and interactivity. The purpose of this kind of social learning is to enrich the context of education not only through socialization but also by tailoring the learning process to fit students' individual needs and interests. Because learning is a social phenomenon, technologies can help develop the capacity to learn beyond classroom boundaries: for example, by helping students experience the distributed nature of knowledge, discover and navigate connections between

[14] Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology & Distance Learning*, 2, 3–10.

ideas, entities, and events, and nurture social connections.

In connectivist classrooms, your students will simultaneously collect, synthesize, and share information to improve both their individual knowledge and the collective knowledge of the class or social network. Social learning through connectivism strengthens the social relationships among your students while increasing their knowledge. Social learning strategies are much more engaging to students, as the establishment and maintenance of social-educational networks encourage personal and social investment in course content. Social technologies also help students learn about diversity through social exchange and teach respect and tolerance in diverse social settings.

To operationalize connectivism, the ASLM is centered around the four principles of connectivism; namely, *agency*, *openness*, *diversity*, and *connectivity.* [15] Understanding these principles is crucial to understanding the rationales behind the ASLM instructional strategies.

[15] Downes, S. (2012). Connectivism and connective knowledge: Essays on meaning and learning networks. Online.

Agency

Learning agency or autonomy is illustrated by researchers with concepts of choice, expression of the self, control, and independence. An autonomous learning environment is one where your students are expected to make choices about resources, connections, and information to improve their learning.[16] Unfortunately, despite its evidenced value, the ability to learn independently and the freedom of choice have not been utilized well in traditional educational settings.

This, however, does not have to continue to be the case. You can explore the concept of agency by minimizing traditional instructional processes and power structures (e.g., allowing students to occasionally define learning goals and choose learning tasks and resources). You can also use online learning resources and platforms to provide your diverse students with personalized learning environments, where they can decide which learning tasks will satisfy their learning goals and learning style.

Consider using material tools like choice boards or menu

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[16] Lerma, O. & Kreinovich, V. (2015). Student autonomy improves learning: A theoretical justification of the empirical results. *Departmental Technical Reports*. Paper 973.

lists to offer students a selection of possible assignments. When students can choose the option, they prefer to demonstrate their knowledge. This sense of agency helps individual students to make appropriate academic choices and in turn, it will give them the greatest chance of success with course materials. It will also benefit the class at large, as it exposes students to a variety of potential means for describing, framing, and learning materials.

By way of example, if you want students to show their understanding of the order of operations, you could allow them to explain the order of operations in a written (essay) format, using examples of mathematical equations, through an infographic, or with a verbal presentation. In this way, the students are showing proof of their understanding but have autonomy over their learning methods. This higher level of autonomy will allow your students to set their own learning goals. This, in turn, will offer a more meaningful learning experience while nurturing a healthy competition among the students in completing learning millstones.

Openness

Openness refers to open access in a learning environment to gain knowledge, share resources, ideas, and expertise,

and create new information and insights.[17] Resource openness refers to students' ability to access a variety of resources to meet their individual learning needs. Openness is critical for learners' engagement and can be operationalized through the application of social technologies that give students access to a variety of resources. You can guide your students on how to build their own personal library of resources to fit their individualized learning styles.

For example, social learning platforms house collections of learning content in different formats which students can utilize to solve the problems they are tasked with. This approach will also help with learning personalization. Here, your goal is to guide your students while they assess and collect resources that match their personal learning style. Creating a personal library of such resources can help your students have access to help when they need it. These platforms also serve as a starting point for connectivist knowledge building, as they host knowledge and point to

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[17] Couros, A. (2009). Open, connected, social – implications for educational design. *Campus-Wide Information Systems*, 26(2), 232–239.

Firdausiah Mansur, A.B., & Yusof, N. (2013). Social learning network analysis model to identify learning patterns using ontology and clustering techniques and meaningful learning. *Computers in Education*, 63, 73–86.

other resources. Bookmarking of useful content such as videos, articles, and web pages is an easy starting point that will benefit all students and can be updated/rotated easily on an annual basis to stay relevant.

Connectivity

Developing and maintaining networked and social connections is necessary for facilitating continuous learning.[18] However, traditional teaching models fall short in helping diverse learners find and elaborate upon connections and contradictions between fields, ideas, and concepts, which is essential for meaningful learning. Establishing these connections beyond the classroom boundaries helps you to provide multiple experiential learning opportunities for your students to learn effectively in today's networked society.

For example, your students can take advantage of technologies to find connections between resources and seek answers through social engagement. Coupled with the sharing and discussion encouraged by resource o*penness*, students can either share the connections they have

[18] Dunaway, M. K. (2011). Connectivism: learning theory, and pedagogical practice for networked information landscapes. *Reference Services Review*, 39(4), 675–685.

personally made or combine information with other students to create new connections. Additionally, your students can seek knowledge in their network of peers, where social networking tools allow them to network, share learning experiences, and work collaboratively.

Diversity

The theory of connectivism asserts that productive learning relies on the diversity of opinions made available in an educational environment. This characteristic cannot be taken for granted, though it may be acquired in many ways beyond formal educational efforts. The connectivist approach values diversity by promoting access, critical evaluation, and the synthesis of concepts, opinions, and perspectives which are embedded in diverse nodes across social networks.[19]

You should encourage your students to seek out different opinions by connecting to other learners and even educators beyond the classroom setting. This may require you to provide some contacts, information, and possibly even introduce experts or mentors to your students. This

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[19] Dunaway, M. K. (2011). Connectivism: learning theory, and pedagogical practice for networked information landscapes. *Reference Services Review*, 39(4), 675–685.

is where your prep work early in the year with community members will pay off! In connecting students through social technologies, diversity can be capitalized upon to encourage and promote a variety of opinions and problem-solving approaches when working toward a common goal.

The example below describes the difference between more "traditional" teaching styles and a modern, social learning-focused approach. This example will help you understand how you can incorporate learning *autonomy*, *openness*, *connectivity*, and *diversity*—the four principles of connectivism—as part of your teaching method.

Traditional Teaching vs. Connectivist Teaching

Imagine what you consider to be a fairly "traditional" classroom. In this setting, perhaps the teacher has just taught a lecture-style lesson on multiplying fractions. After the lecture, the teacher hands out a worksheet with 25 problems of fraction multiplication. This worksheet is intended to be done individually, with students sitting quietly, working on the problems presented.

While some students are content working on these challenges, some students may not have understood the lesson and will use the wrong procedure for all 25

questions but never know that they are erring. More so, students will be individualistic in their approach, only able to rely upon their own knowledge, and therefore miss crucial opportunities to expand their functional grasp of course content.

Now, imagine an authentic classroom environment that uses connectivism to inspire social learning. In this environment, the teacher poses a problem to the students. For example, a student just had a birthday, so the class had a birthday cake. The instructor might use this shared social experience as an opportunity to present relevant challenges to students. For example, the instructor could reference the distribution of cake amongst the class to prepare a lesson on percentages, fractions, odds, or proportions. Questions related to this approach might read: "If Samir has 1/2 of the cake, and Isabel has 1/3 of what Samir has, how much cake does the rest of the class have?" Questions can be altered as needed but should always focus on creating relevant challenges for students.

After some discussion, the teacher asks the students for their solutions and how they arrived at them. After discussing their solutions and approaches, students can be asked to visualize the best solution, based on their opinion,

to present to the class. The students are making connections with the content through visual representations of their thinking. At this point, the teacher shows the students the procedure for multiplying fractions. Then, the students are given two real-world problems that require them to multiply fractions. The students are asked to work together to solve the first problem. The students are not working in isolation and making errors without knowing it; rather, the students are helping one another and pointing out errors as they occur. Lastly, the teacher can ask students to try the second problem individually to ensure proficiency.

This example can be taken even further. Consider a secondary component to the assignment that encourages students to apply this information to the classroom and their immediate social network. For instance, students might be asked to spend a week devising their own example multiplication problem from local or domestic interactions. Students can then have their work checked for accuracy, with you as the instructor encouraging dialogue and gentle correction when necessary to form strong examples. Then, students might swap their work with one another, trying to "solve" the student-inspired work and guess who within the class wrote it and why.

In this classroom, students are asked to discuss their ideas with peers and figure out three separate ways to solve this problem. The students have the *autonomy* to decide how to solve the problem and with whom they will work. Network *connectivity* is evident when the students use their self-selected network of peers to communicate their understanding of the problem as they make connections with one another and to the content. *Openness* is achieved as the students openly communicate their thoughts on the problem and solutions. In this inclusive environment, all students can participate in the discussion and learning as they share ideas. This requires that students share their knowledge of fractions with one another and develop more than one solution to this problem. *Diversity* is evident as the students are exposed to diverse approaches to the problem and use those approaches to synthesize their solutions.

Inclusivity & Authenticity: The ASLM Learning Environment

Though the ASLM has principles of connectivist teaching

at its core, the model is similarly invested in transforming your classroom environment and culture for the better. As discussed in the previous chapter, the ASLM utilizes authentic learning and inclusive teaching as major conceptual elements of the transformation process. Specifically, these concepts provide the underpinning for all other concepts in the ASLM by promoting a classroom that engages all students respectfully, equally, and at a conceptual and social level that meets their needs. To illustrate the importance of these concepts, each will be detailed separately below—first, authentic learning, followed by inclusive teaching.

Authentic Learning

Paramount to the success of implementing the ASLM is the cultivation of an *authentic learning environment* in your classroom. As defined in Chapter 1, authentic learning refers to the use of relevant, real-world scenarios, examples, and problem sets to explain and test students ' knowledge of course concepts. Authentic learning is especially important for two principal reasons.

First, authentic learning recognizes and utilizes students' personal expertise on their culture and community to provide a common context for understanding ideas and

questions presented. This helps build rapport and respect between instructors and students, as the flow of knowledge in an authentic learning environment is far more fluid and reciprocal than in a traditional, lecture-style class format.

Second, authentic learning primes students for more consistent, quality interactions with one another. In an authentic learning environment, students are presented with issues and challenges that relate to "realistic" problems they might face in the world outside of the classroom. During these challenges, students are more motivated to collaborate broadly because the contextual relevance of challenges offered by authentic learning environments necessitates cooperation and collaborative strategies.

To demonstrate these qualities, the example below first illustrates a "traditional" lesson plan and then contrasts it with a lesson plan for an authentic learning environment. After reading this example, take a moment to reflect upon which of these your current lessons are most like and whether it would be beneficial to consider how they might develop in an authentic learning environment.

Traditional Learning Environment vs. An Authentic Learning Environment

Imagine you are teaching a unit on geometry and need to provide students with examples to work through. A typical textbook problem for finding surface area might read: You have a rectangular prism that is 14 units long, 15 units wide, and 10 units high. What is the surface area of the prism?

This question *only* tests the processual knowledge of your students. Presenting this kind of problem to students is a missed opportunity. Such a question only tests one concept, in a vacuum, with little or no context to help students evaluate not just how, but *why* they should be able to answer such an example. Simply put, it is a "chore" that no one enjoys. As such, most students are likely to either finish the problem and quickly forget it or not understand the question at all.

In contrast, in an authentic learning environment, a teacher can instruct students to create a box and wrap it as a special gift box for a loved one. The box should be the shape of a rectangular prism (six rectangular faces) and can be any size. The students must find enough wrapping paper to

cover the entire gift box. Ask students how much area they will need to cover, what size wrapping paper, and how much they will need.

In this example, students are provided with much more content to engage with. First, the question offers an opportunity for students to apply this question to their real-world experience, making the example immediately more practical as well as personal. Further, rather than merely asking students to provide the steps necessary to calculate surface area, the example instead asks about the minimum wrapping paper area needed to cover the box. The students are also asked to select the right amount of wrapping paper based on the standard sizes available in the market. In this scenario, the students are all solving a similar, but different problem with different dimensions. They are applying the same knowledge and mathematical calculations, but each group of students will have a different correct answer thereby not limiting students' creativity. This also allows students to approach the challenge at their own speed, utilizing their critical thinking skills to imagine solutions to the problem. Finally, this example contributes to the overall classroom environment and networking by providing students with an arena to present, challenge, and refine their ideas for solving this question.

Inclusive Teaching

As outlined in Chapter 1, the aim of inclusive teaching is to provide all students with access to educational content regardless of their ability, race, gender, or culture. Relevant literature defines inclusion as a process of learning from differences, removing barriers, and encouraging the presence, participation, and achievement of all students.[20] Inclusive teaching strategies focus on providing opportunities for students of all abilities, cultures, and backgrounds to be successful in the classroom. The ASLM creates an inclusive environment using social networks. Social learning employs strategies that promote inclusive education. When you use social learning, you are also implementing inclusion strategies by creating a classroom culture of collaboration and communication between students and between yourself and your students. In using social networks, students share ideas and diverse opinions while learning to accept and respect the diverse abilities, cultures, and perspectives of their classmates.

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[20] Ainscow, M. (2005). Developing inclusive education systems: what are the levers for change? *Journal of Educational Change*, 6(2), 109–124.

An Example of an Inclusive Learning Environment

As a complement to authentic learning, inclusive teaching strategies work together with the former to create a space that allows *all* students to engage and participate fairly and equally in class. Take the gift box example above. Teachers attempting to foster an inclusive environment could use that question as an opportunity to incentivize inclusion. A teacher could ask the students to form small groups and instruct them to decide how best to calculate the needed wrapping paper while discussing their methodology and thought process.

In doing so, students may discuss the gift plan first before discussing the math. This will help students simultaneously with math anxiety *and* social anxiety because they have an easy, risk-free access point to social situations and to math. Students begin by discussing the stress-free and accessible topic of birthday gifts. This encourages equitable participation for all students, regardless of their mathematical ability. Students provide feedback and assistance to each other while sharing resources, ideas, and processes for completing the challenge more efficiently.

Social Exploration, Ideation, Experimentation and Validation: The ASLM Learning Processes

The previous sections of this chapter explained the "core" elements that make up the ASLM—connectivist teaching and authentic, inclusive learning environments. These elements are considered anchors for the processual elements of the ASLM. These elements are *Social Exploration, Social Ideation, Social Experimentation,* and *Social Validation*. Each of these processual stages is critical to the ASLM as they represent the stages of engagement students will undergo during authentic learning challenges and social learning interactions. The following sections define each of the student learning processes and explain their usefulness within the ASLM.

Social Exploration (Know-Where)

Social Exploration is the first step in the ASLM's educational process. To teach students "how to learn," we need to teach them first "where to start." In this stage, your goal is to task your students with exploring problems, researching information, accumulating knowledge, and using that information to inform future activities and

engagements. Beyond this focus, Social Exploration also prompts students to engage with the social aspects of learning rather than just accumulating and indexing knowledge.

As the typical starting point in most authentic learning classrooms, Social Exploration begins when teachers pose an authentic problem to the students, incorporating open-ended, "real-world" issues by creating assignments with strong context but less rigidly defined processes for completion (open-ended). Such activities might include framing an assignment around a practical project, service, or goal or otherwise providing "real-world" contextually relevant problems for students (see Chapter 1 examples).

To begin solving their authentic problem, students use Social Exploration to accumulate information through research and disperse new knowledge across their networks using online resources such as discussion forums, social media, and public repositories. As the teacher, your job is to choose the context, set initial goals, and then facilitate this process of topic exploration and knowledge acquisition. This can be achieved by providing resources, prompting questions, and engaging with relevant stories and examples. In doing so, your students increase both

their sense of personal investment in the project and their connectedness with their peers, producing authentic and novel knowledge within and among student groups. And in this way, they neither rush into premature solutions nor stress about their performance.

You can also provide meaningful and effective feedback during Social Exploration, as this will help students determine which information is significant and credibly sourced among their gathered resources and concepts. Additionally, this stage presents you with an opportunity to listen to the students' ideas and guide their learning through questioning during formative assessments, assisting students with their thought processes and research strategies. Further, the Social Exploration strategy extends learning beyond the boundaries of instructional periods, allowing for students to grapple with course concepts outside of class as much as inside.

Social Ideation (Know-What)

Social Ideation occurs after Social Exploration and refers to the process by which students openly express their ideas and perspectives, with the goal of constructing creative and functional initial solutions to authentic learning problems. It is important to note that, at any processual stage of

ASLM assignments, students can—and should—be sharing information, ideas, and discussing concepts. However, Social Ideation is designed to be a dedicated period of exchange, critique, and consideration for students. As such, it receives its own process stage to ensure that students are taking the time to stop, reflect, and reorganize their thoughts and collect information throughout an assignment cycle.

During a Social Ideation session, students brainstorm a variety of strategies to produce a set of workable solutions using the knowledge they acquired during the Social Exploration phase. Students will propose their ideas for the best solution then work collaboratively to critically analyze each and determine which ideas are the strongest. Social Ideation is the stage of the ASLM where students determine what they need to learn to solve their authentic learning problem. This type of social networking to problem-solve advances learning from text-based knowledge and promotes the sharing of learning through communicative interactions between peers. All students participate in developing a collective solution to their problem, providing feedback while simultaneously reinforcing useful, necessary concepts for solving the challenge at hand.

As an ASLM process, Social Ideation is also a primary way of establishing long-term learning networks for students to utilize when solving authentic learning challenges. First, Social Ideation enables students to connect different subjects and collaboratively address both existing and emergent problems relayed through the lens of authentic learning. In doing so, students are forced to critically analyze their own thinking, increasing their autonomy in the process. Further, Social Ideation focuses on collaboration and the sharing of ideas and perspectives through digital tools. Thus, this strategy further increases opinion diversity, as students are exposed to a diversity of ideas from others and critically analyzing those ideas as well as their own. If students share their ideas through social technologies to get feedback during Social Ideation, students can collaborate across classrooms, subjects, and even schools, increasing both openness and connectedness. The goal of this phase is for students to gain the necessary confidence and knowledge to propose preliminary solutions to their proposed problem. At the same time, Social Ideation allows them to remain open-minded regarding learning about other practical solutions or viewpoints.

Social Experimentation (Know-How)

Following Social Exploration and Social Ideation, students will engage in the third major process of the ASLM: Social Experimentation. During the Social Experimentation phase, students apply the knowledge gained during Social Exploration—along with the critical analysis and idea production from Social Ideation—to evaluate their own findings and develop a workable solution. Beyond this, you can help students determine the validity of their solutions through formative assessment and collaborative discussions. In this stage, your goal is to help students discuss, evaluate, and refine their favored solutions. This provides you with an opportunity to implement peer-to-peer opinion sharing and debate, increasing autonomy and diversity even further. Finally, once the students have arrived at a suitable solution, you should ask students to think about and document how they arrived at their solutions, focusing on the process of solution development rather than the outcome of said solutions.

Social Experimentation allows students to make predictions and elaborate upon various aspects of their solutions by collaboratively testing and evaluating their hypotheses in a familiar yet structured setting. Students

learn how to self-evaluate or peer-evaluate their works rather than solely relying on their teacher. This can help students to be more open to criticism because they are active participants in the evaluation of their work and critique is not just coming from others. The strategies used in Social Experimentation have been shown to be effective because students are making decisions about the world they live in rather than a decontextualized and abstract intellectual space.[21] Social Experimentation presents an opportunity to promote an inclusive, authentic environment, as students can evaluate their ideas and apply them in various social and cultural contexts.

Social Validation (Know-Why)

Social Validation is the fourth and final stage of the ASLM assignment cycle. This is an opportunity for students to present their findings and receive feedback to improve their learning. While it might be tempting to truncate or entirely skip this portion of the ASLM process, as instruction and feedback have already been given at this point, we consider Social Validation a keystone for a strong

[21] Gillies, Robyn M, & Rafter, Mary. (2020). Using visual, embodied, and language representations to teach the 5E instructional model of inquiry science. *Teaching and Teacher Education*, 87, 102951.

ASLM-based curriculum. Specifically, we believe that Social Validation provides both closure and potential opportunity, as students' feedback and discussion regarding assignments are invaluable in selecting future assignments, tweaking expectations, and extending assignments/topics across weeks and months.

During the Social Validation process, students first present their refined solutions (i.e., solutions kept after Social Experimentation feedback and refinement) for feedback from peers, comparing solutions and efficacy and offering areas of success and improvement. While you can guide discussion during this period, Social Validation is not geared toward instructor commentary or intervention. Instead, the Social Validation segment is intended to provide students with a platform to articulate their ideas and incorporate a variety of potential approaches, as presented by peers as well as an opportunity to reflect on their learning experience and learning outcomes.

Beyond this initial presentation, you may also choose to support students in publicly presenting their refined solutions and solicit feedback from other classes, instructors, community members, or experts in the field. While it is not always feasible, public presentations to

community members can organically enhance students' confidence, persistence, and motivation while maintaining a good balance between collaborative problem-solving and competitive ideation. Students see more value in their unique solutions to their authentic problems when they can present their ideas to experts or stakeholders in that field where it might help to solve an authentic real-world problem. As a result, after this phase, students are more prepared to repeat the ASLM cycle with higher self-efficacy.

Authentic Assessment: The ASLM Outcomes Evaluation

As an ongoing process of improvement, the ASLM requires consistent, honest reflection and feedback, both for you and your students. Given this need for observation and correction, the ASLM utilizes formative assessments as a core component of its implementation process. Formative assessments employ both formal and informal measures to track students' progress and help them achieve proficiency with course concepts through constructive feedback and personalized support.

Within the ASLM, formative assessments are particularly important, as the shift to student-centered social models of teaching provides opportunities for more direct and continual intervention than some other teaching models. As such, formative assessments are crucial to addressing, reinforcing, and correcting students' progress throughout ASLM lesson plans. Your students can then use the feedback provided to reflect upon their learning process, adjust their learning strategies, and correct mistakes before they take their final summative assessment or present their final authentic learning solutions. The process of continual assessment and improvement creates a cyclical process of learning and refinement in motion, which is ideal for reaching proficiency through inclusive and authentic engagements. Chapter 3 will further discuss the logic underlying and the process guiding formative assessment during the implementation of the ASLM.

An Example of Formative Assessment

Let us revisit the cake problem once again. As a reminder, the students were asked "If Samir has 1/2 of the cake, and Isabel has 1/3 of what Samir has, how much cake does the rest of the class have?" Imagine that your students are

working together to figure out how much cake is left for the rest of the class. As the students are working, you can walk around, look at their work, and listen in on their discussions. You can collect data and grades as the students are solving their problems. Imagine you have a group that reasoned that 1- (1/2 + 1/2 X1/3) is 7/8 of the cake. You can hint that, preferably to the entire class, that math always follows the order of operations. In this way, instead of questioning the group directly, you indirectly encourage them to reevaluate their assumption, find their error, and correct it. Asking them to visualize their solution in the next step also helps students to evaluate their answers. By assessing the students in real-time as they are working, you can correct misconceptions to help students master concepts.

Summary

In this chapter, you were introduced to the key components of the ASLM. You were given some background on the history and creation of the ASLM that informs its form and function, as well as an understanding of its necessity in the modern classroom. This chapter also introduced the concept of connectivist teaching, the

theoretical "glue" that bridges the disparate elements of the ASLM into a cohesive pedagogical model. Moreover, this chapter explained the placement and function of authentic and inclusive learning, which describes the necessary context and environment for the ASLM's implementation. Finally, connectivist teaching provides a "hub" for learning processes like Social Exploration (Know-Where), Social Ideation (Know-What), Social Experimentation (Know-How), and Social Validation (Know-Why). Importantly, these sections directly correspond to many of the content strategies provided in Chapter 3, so be sure to keep them in mind!

End of Chapter Reflection Questions

Connectivism: The ASLM Guiding Principles

This section discussed the four principles of connectivism: *agency*, *openness*, *diversity*, and *connectedness*. Reflect upon your current classroom environment.

(1) Would your students say that they have learning autonomy in your classroom? Why or why not?

(2) Is your environment conducive to promoting openness, diversity, and connectedness? Is there anything you can do to increase these factors in your classroom?

Inclusivity & Authenticity: The ASLM Learning Environment

Reflect upon a project or assignment that you enjoyed using in your classroom or would like to use.

(1) How can you ensure that this project or assignment is authentic?

(2) What strategies can you use to ensure that the project or assignment is inclusive such that all students are challenged and can be successful?

(3) How can you create a culture of collaboration through this project or assignment?

Social Exploration, Ideation, Experimentation and Validation: The ASLM Learning Processes

Take a moment to think about the ASLM processes (Social Exploration, Social Ideation, Social Exploration, Social Validation). Think about your current practices for collaborative learning.

(1) How could using the ASLM processes improve collaboration in your classroom?

(2) Is there a project or assignment that you will be completing in your class that you could modify to incorporate the ASLM processes? How would you modify this project or assignment?

CHAPTER THREE

The ASLM Implementation Strategies

Much education today is monumentally ineffective. All too often we are giving young people cut flowers when we should be teaching them to grow their own plants.

John W. Gardner

Chapters 1 and 2, respectively, helped you to understand the ASLM's pedagogical perspective and provided descriptions of each of the major components contributing to its form and function. Now, it is time to put this knowledge to real-world use.

In Chapter 3, you will be given practical strategies for implementing everything you have learned thus far. The first section offers suggestions for you to implement before students even set foot in your classroom. This section details strategies that will enable a smooth transition to new teaching and student roles, lesson plans, and classroom culture. It also provides commentary on how to

conceptualize your lesson plans in an attempt to preempt some difficulties you may face by prompting you to consider future roadblocks.

The next section, *Leading Authentic Social Learning,* will offer examples of specific activity designs you may use to meet the major criteria of the ASLM teaching method. This section is your primary launchpad to functional ASLM lesson plans, as it offers implementation strategies for each of the processual ASLM elements, including Social Exploration, Ideation, Experimentation, and Validation. This portion of Chapter 3 also provides some of the most direct strategic and implementation advice available for ASLM lesson planning and gives real-world context to examples of potential activities beyond what has already been discussed.

Finally, Chapter 3 closes with notes on evaluating and improving the ASLM. The last two sections detail how to effectively utilize multiple assessment types to maximize your students' learning outcomes, make the most of the ASLM strategies provided, and improve your future implementation of the ASLM.

Preparing for Authentic Social Learning

Creating the ASLM Classroom Environment

By now, you have been introduced to the ASLM and are likely excited to get started on implementing its concepts and strategies in order to transform your classroom. To do so effectively, both you and your students will probably need time to transition to this new style of teaching and learning before diving in. To refresh your memory as you prepare for this pedagogical transition, the list below summarizes the strategies you learned in Chapters 1 and 2. While this book recommends using the following strategies to implement the ASLM at the beginning of the year, you can implement this model and transition your classroom at any time..

- Be deliberate about spending time to build relationships with students before anything else.
- Prepare your students for social learning by building relationships with one another.
- Arrange your furniture to accommodate social learning and provide seating options to maximize interactivity.
- Plan to accommodate your students who have

special needs to better arrange your lessons.

- Encourage your students to select their initial learning group based on the background of their classmates, not their academic performance.
- Establish in-class and online social learning networks to encourage struggling students to seek help and foster better understanding.
- Use social learning networks and collaboration tools to ensure equity in participation for all students.
- Develop non-graded and open-ended mini-projects ahead of major assignments to introduce ASLM-based lessons.
- Find experts or community members who are willing to connect with or mentor your students.
- Prepare your students to receive feedback from your formative assessments as well as community members.

As always, the above strategies are suggestions that you can modify to fit the needs of your classroom and your students.

Lesson Planning for Success with the ASLM

There is an old saying that rings especially true for teachers: if you fail to plan, you should plan to fail. As a teacher, you already know that this wisdom is invaluable, as lesson planning is vital to the success of any classroom engagement. As such, the following sections are intended to help you devise ASLM lesson plans that you can use, experiment with, and adapt to the needs of your classes and students.

To those who have an established method of prepping for classes, do not worry: you will not have to change your lesson planning method to implement the ASLM. If you have found a system that works for you, continue to use that system. These guidelines are suggestions focused on the design of assignments, not necessarily on content. Always remember that you have the freedom to change and adapt your lessons to fit this program and vice versa. *You* set the goalposts for students, and the ASLM will help you reach them!

First, start by addressing the standard and expectations of each assignment. Before you plan any lesson, you must answer the following questions: what do you want your students to know, and what should your students be able to

do? It is a good idea to have answers to these two questions before you move on to the planning phase, without limiting yourself to just the curriculum standards. This means choosing the most important, secondary, and tertiary goals your students should be pursuing, making sure they are adaptable to changes as needs arise. Decide what standards you expect your students to master. Authentic lessons are intended to be multidisciplinary lessons that can incorporate several traditional standards. These standards can be from other content areas as well as core life skills—including soft skills.

Take time to think about the standards your lessons will address but do not lose sight of the main competencies you want your students to master in their real life, beyond the unrealistic framework of textbooks. Then, think about how you want your students to present their understanding and how you want to assess it. The ASLM focuses on formative assessment to monitor students' learning process and improve their learning skills. Summative assessment is more helpful for evaluating teachers' performance than students' performance. Hence, it is of little value for students. Nevertheless, you will still need to give summative assessments at the end of your unit or whenever your school or district mandates it. Therefore, plan how and

when you will give your summative assessment *before* you plan the lesson. You may use your summative assessment goals to help you choose the standards and lesson topics throughout each unit. These are less inclusive but are nonetheless necessary to prepare students for the district or state summative assessments they will take.

Remember that large, summative tests can be changed to interim diagnostic performance assessments for multi-day authentic learning tasks. Performance assessments are more inclusive as you can provide a list of options for your students to show their understanding through their learning style and comfort level. Your goals for each assessment should be openly communicated and clarified for your students—that is, for improving teaching and learning processes, not merely judging the students' performance. Try to use a variety of diagnostic assessments as part of your lesson plan to increase inclusion as well as your control over the students' progress.

Think about the needs of diverse learners.

Your classroom is made up of an array of diverse learners. Remind yourself that no two students learn alike. You will have some students that struggle and some that are advanced. Take the time to plan the proper scaffolding

which you will use to meet the needs of *all* your students. You may want to list some online resources for different groups. Remember to consider your high-needs students as well as your advanced students when you are thinking of resources. In each of your daily lessons, think of ways that you can help struggling students, such as assigning them a research partner or providing extra resources such as video lessons. What is more, think of the ways in which you could extend the lesson to challenge your more advanced students. At the end of the day, high-achievers and gifted students should feel challenged, while high-needs students should feel more confident in their potential. If you plan to address the diverse needs of your students in advance, it will help you to avoid a sense of panic when you have a group that finishes early and you do not have anything for them to do.

Plan differentiated instruction for high-needs students.

Your high-needs learners rely on your support on the road to proficiency; fortunately, you can efficiently differentiate instruction for them using social learning networks and social technologies. Allow your high-needs students to learn from their peers using social networks. Often, peers

can explain information in a unique way that increases student success. When your students are comfortable with their peers, they will interact more and learn from one another. Allow high-needs students to use technology resources to access information in a different format than was originally taught. This will encourage your students to utilize their personal library to find resources that work for their learning style. If you or your student lacks access to technology, provide your students with alternative resources and manipulatives, or hands-on learning tools, which are suited to their learning styles. These materials can be assembled for a low cost by using real-world examples like newspapers or advertisements.

Plan differentiated instruction for advanced students.

Advanced learners are also frequently forgotten in mixed-ability classrooms. Advanced students need to be challenged and allowed to extend their knowledge. However, teachers often assume that since these students do not need help, they should only focus on the struggling learners. You can differentiate instruction for your gifted learners using the following strategies.

Challenge your students to be able to use evidence and

reasoning to support their statements. Advanced students may not be accustomed to having to justify their thinking, so this will provide a new and exciting challenge for them. Use technology or other available resources like books and textbooks to advance their understanding of a concept through research. Challenge them to find different applications for that concept. Encourage all students, especially your advanced students, to expand their thinking outside of the classroom. Advanced students can often solve problems, but applying that knowledge is a different skill altogether. Challenge your advanced students to produce multiple applications for a concept or multiple ways to solve a problem. This provides them with the freedom to explore their talents and apply their knowledge in new ways. Lastly, gifted students can advance their learning and internalize their understanding by tutoring high-needs students.

Plan rigorous assignments that require critical thinking and problem-solving using authentic learning.

The ASLM encourages you to use authentic, place-based and real-world learning problems to address your curriculum standards and learning goals. However, the

problems themselves should be meaningful to the students and their lives. Select problems that do not necessarily have concrete solutions or correct answers. As most of our world's modern challenges fall under this category, is it not true that we ought to prepare our students properly for addressing these challenges?

Think about how you can help your students make connections with course content, local challenges/events/examples, and real-world applications, without being nervous about finding the right answer. Plan how you can involve community members or experts in the process. Ponder how you can use technology to bring the outside world into your classrooms. Technology use is not limited to online resources such as TED-Ed or Khan Academy but can include interactive platforms such as Q&A programs, online simulation tools, virtual field trips, and communication/collaborative applications. Lastly, you may want to share with your students the logic behind the selection of authentic problems and ask for their feedback. This significantly enhances their motivation and engagement and, as a result, deepens their understanding and problem-solving skills.

Plan ways for you to facilitate group learning through individual participation.

The primary goal of the ASLM is to create inclusive environments and encourage equity in participation and instruction by motivating students with lesson plans that incorporate personally and communally meaningful learning activities.

To begin, think about the different roles that students may assume to ensure the successful completion of these activities in a group setting. Remember: the goal is equity in participation, so you do not want one student responsible for all areas of the activities. How can you ensure that all students can find a role such that they can contribute to the overall success of the group? Consider involving them in the activity design—both problem selection and goal settings. How will you support your students as they form groups with diverse students? Assigning them a role and distinct responsibilities is one option. Think about the ways in which you can encourage your students to select group members based on their strengths and fitness for each role rather than just choosing their friends. For example, you may define the roles first, ask students to select the roles next, and then choose teams

while accounting for the roles they wish to play.

Plan for whole-group direct instruction but focus on how you can provide small group intervention.

Direct, whole-class instruction should rarely take up an entire class period. Instead, endeavor to use direct instruction to explain the complex concepts that students will need to grasp for their projects and assignments. This means that you are spending more time on helping small groups understand core concepts and guiding connected learning rather than repetitively drilling concepts to the whole class. If your entire class period is spent with whole class instruction, you will not have time to address your students' individual needs or misconceptions.

Remember to limit your instruction to connecting concepts to real-world applications through stories or examples and conceptual understanding, not procedural steps. A great advantage of the ASLM is that you can use it to teach concepts to small groups or individuals; this means more flexibility in aiding and providing feedback during assignment cycles. Take the time to plan how you will meet the needs of each group or individual, and draft two or

three possible strategies so that you can alternate and experiment with them.

Providing small group intervention can be facilitated and monitored through online learning resources and tools. Many online resources have a differentiated component that allows you to address individual student needs. Therefore, it is ideal to plan your online resources ahead of time and examine a few options. Plan ways to monitor and guide students' learning in their social learning groups as well. What tools, measures, or documents do you need to prepare? Do different student groups require different material resources? Think about some quick questions you might ask to check for understanding and ensure students are progressing through their learning activities collaboratively; this will cut down on time spent conducting knowledge checks down the line. Think about a few indirect interventions you can implement quickly if you notice students are not progressing toward the goals laid out. For example, student groups may face similar roadblocks but require different intervention methods or materials to overcome them.

Further, you can work with small groups of students who need direct intervention such as reteaching and

clarification. A common error that teachers make is expecting students to still complete the work that was assigned to the rest of the class while they are receiving differentiated small-group instruction from the teacher. This puts those students further behind, and they are less likely to be willing to receive help. Give those students an alternative assignment from their classmates so they are t not required to do extra work. This strategy is especially effective when focused on high-needs students.

Plan for embedded formative assessments based on your daily objectives.

Plan to integrate formative assessments into your daily lessons. Even in multi-day authentic learning tasks, try to assess your students' daily understanding, whether you do so formally or informally. Remember to include daily checkpoints in your planning and decide how you will assess the students at those checkpoints. Using technology can help you monitor students' progress using interactive progress checks embedded into your lessons. Try to use a variety of formative assessments, including diagnostic interim performance assessments. Ask yourself if there is a way you can offer a choice of assessments to promote autonomy. Likewise, consider how you might be able to

incorporate these assessments throughout your lessons or projects to meet the needs of diverse learners.

Progression is more important than performance, and you should compare your students to nobody but themselves. Remind yourself of the negative effects of comparing a student to their peers. Plan how you will assess each student's progress toward proficiency in various concepts. You can also choose to record these assessments as a self-evaluation of your own performance. If most of your students are not progressing, it signifies that you should reteach the concept using a different approach.

Plan how you will use feedback to improve your students' learning experience.

Keep in mind that the goal of feedback should not be only to improve achievement. The most important part of the ASLM is the process of assisting students in developing learning skills before finding a possible answer. In other words, ensuring they enjoy the learning process before achieving good grades. Plan how you will give specific and immediate feedback to your students to help them learn how to learn effectively and enjoyably. Feedback on learning processes can be given to the whole class, though this should only be in certain instances. Usually, your

feedback should be given to small groups or individual students. The more specific and individualized the feedback, the more effective it will be. Take some time to consider how you will use feedback to guide and differentiate learning activities. Think of ways to provide individual suggestions or instruction without making students feel like they are being singled out. For example, you use your data to form ability groups or groups based on students' needs to provide further support based on your formative assessment data. All students should be placed in a group; some groups will receive instruction or assistance while others will receive enrichment. These groups are different from the ASLM project team because they are short-term and only for the purpose of focused support. These groups can help students discover "how to learn" when they are working both individually and collaboratively.

Leading Authentic Social Learning

In the previous sections, you learned about how to set up your classroom and plan your lessons and assessment strategies before you even begin the process of transforming your teaching style with the ASLM. Now, you

will learn more about implementation strategies, starting with designing learning activities and group projects. In training for authentic learning, the most common concern expressed by teachers is that they do not know where to start when designing authentic lessons or projects. However, beginning the implementation process should not be daunting but thrilling, as this is where you get to let your creativity shine. Throughout this process, you should feel free to exercise your skill and autonomy. As stated previously, a major advantage of the ASLM is that it was designed with flexibility in mind.

Be open-minded about incorporating alternative and nonconventional instructional practices (e.g., inquiry-based learning and service-learning), connecting your classroom instruction to real life, and above all, celebrating a diversity of backgrounds, opinions, and learning styles in your daily instruction.

Let us review the key differences between traditional teaching and the ASLM before moving to the implementation strategies. Table 1 provides a simple checklist for a straightforward comparison between traditional teaching and the ASLM.

Table 1. Traditional Teaching vs. the ASLM

	Traditional	ASLM
Teacher Role	Teaching	Facilitating
Instructor	Teacher	All members
Teaching Orientation	Output orientation	Process orientation
Teaching Method	Lecture-based direct instruction	Experiential, active learning
Learning Structure	Organized learning	Open learning
Curriculum	Pre-designed and disciplinary	Emergent and multidisciplinary
Recourse Management	Administration	Integration
Lesson Planning Approach	Structuralism	Eclecticism
Lessons	Subject-centered	Real-world issue-centered
Lesson Focus	Skill development	Creativity development
Learning Process	Learning by repetition/practice	Learning by discovery/innovation
Learning Place	School community	Community networks
Group size	Large group	Small group
Inter-group behavior	Competition	Collaboration

	Traditional	ASLM
Class Management	Centralized	Decentralized
Motivation Systems	Grades	Social impact
Assessment Strategies	Summative assessment	Formative assessment
Goals	Proficiency	Progress
Gauge	Correct answer	New knowledge
Key Output	Knowledgeable individual	Competent group

Review the key differences in Table 1 in terms of instruction, curriculum, lesson planning and assessment. The following strategies are designed to help you create and implement ASLM lessons and revitalize your classroom environment.

Design or select open-ended and challenging real-world problems.

As stated previously, authentic learning should be based upon a real-world and contextually relevant problem for which the students can develop a solution. The problem can be anything you wish or imagine insofar as it has real

value and meaning outside of the classroom. If you have no concrete ideas, ask the students what problems they would like to address in their own community. Remember, the more meaningful the problem is to them, the more inclusive and engaging the lessons will be. Additionally, the task should be an open-ended one that requires sustained inquiry, and your students should be given the freedom to use their imagination when formulating potential solutions.

Present learning activities or group projects in the frame of a community problem. For example, you could take a controversial infrastructure project in the neighborhood, a local sporting event, or a recent cultural project in the community as possible learning contexts. Make sure your students understand first the *relevance* and *importance* of the learning activity to their day-to-day lives. When you introduce a project, do it in a way that excites the students and engages their curiosity. You can outline how their solutions can positively affect their community. Moreover, the use of TED talks or other prescreened high-quality YouTube videos about a problem can be an effective way for students to engage with the issue and will make it *real* for them. You can also bring in experts to talk about a particular issue. Seeing videos or listening to experts brings the problems to life and makes it "real" for the students.

Simply relying on the teacher's explanation of the problem can lead the students to view it as an "assignment" rather than a "real-world problem". Your students should be able to articulate the importance of the problem before any attempts are made to solve that problem.

The biggest difficulty teachers face in creating authentic social learning activities is how to manage them seamlessly and dynamically. For best results, break your project down into a series of problems or objectives that students can solve step-by-step. Create daily lesson plans with specific goals for tasks of the day to help both you and your students stay focused and engaged. This approach also allows you to provide feedback through formative assessment at regular intervals that your students can anticipate.

Example: Invasive plants in Hawai'i

Invasive plants are a serious issue in Hawai'i because they vigorously spread into areas with native plants and deplete resources. To create a placed-based authentic learning task, you can focus your mathematics content on this very real and pressing problem.

Tell your students about a child who came back from the park with scratches on their leg and complained about thorny weeds in the playground. The parents go to the park and take pictures of the plant. Show pictures of the plant and ask your students to research and identify the plant. They can then learn the life cycle of the plant, its natural habitat, and how this plant is highly invasive in Hawai'i. Ask your students to research the area of the island that is occupied by this plant and other invasive species. Your students can reach out to local experts to learn about the problem and its significance. Students can then research the size of their island and the location of invasive species. From there the math connections are endless. For example, your students could calculate the percentage of the island that is occupied by invasive species. You can extend this into unit conversions. You can ask your students to report their answers in acres, square yards, and square feet. You can also ask them to write the area as ratios of invasive species to native species.

Students should further explore the problem through Social Exploration.

To start an assignment like the invasive plants one presented above, your students should begin with Social

Exploration to research the problem and clarify their understanding. The goal of their Social Exploration is to understand the underlying concepts and theories behind invasive species. Your students will need to research the size of the island and the area that is covered by invasive species. You may lead a discussion about the use of local terminology and define the key terms needed for an effective online search. Afterward, you can ask your students to review some online resources including news articles and then analyze the various aspects of the problem based on their prior knowledge and personal experience. Keep in mind that Social Exploration is more than just an internet search. For example, your students could interview community stakeholders or local biologists. After the students have gained more background knowledge through Social Exploration, they should explain their understanding of the problem first to one another and eventually to the class. The core part of the assessment at this stage is a focus on the students' understanding of the problem's context, significance, and relevance to their personal experience and community at large.

Social Exploration can seem somewhat ill-defined to some students and teachers. To provide structure for your students and promote equitable participation during Social

Exploration, you can ask students to turn in, for example, five resources they used to research the problem of invasive plants with a summary of what they learned from each resource. You can ask them to provide an explanation showing that their resources are credible and that their research is focused in the right direction. Assessing the credibility of resources is critical to the overall success of the Social Exploration phase. To provide structure and direction, give your students specific objectives to achieve during their research. Creating objectives gives your students guidelines and helps them to manage their time and workload. For example, one day, they can tell you the area of their island that is covered by invasive species. The next day, they can research the effects of invasive species on native species. Following this, the next objective could be for students to take turns evaluating their findings and providing feedback. This helps students develop the necessary knowledge for the next phase, Social Ideation, where they will need to develop viable solutions to limit invasive species and present them to their group.

Students use Social Ideation to develop various hypotheses or viable solutions to solve the problem.

Your students should use Social Ideation to create a list of practical solutions that are either research-based or evidence-based. Your students should list as many solutions as they can. The goal is to generate as many ideas as possible, as some ideas may inspire new and better solutions.

Encourage creative solutions and open dialogue. The goal of this phase is mainly to nurture students' creativity and collaborative ideation rather than find "the" solution. Therefore, granting students the freedom to take risks in their ideation, celebrating their mistakes, and embracing unorthodox problem-solving styles (e.g., proof by contradiction) are all recommended. The more ideas the students generate, the higher the creative engagement.

To provide structure and goals for your students, ask each student to generate a list of viable solutions for limiting invasive species and have them present their ideas to their team. The teams should then analyze each proposed solution and assess whether it is realistic and assessable.

The team can create a shared document, blog site, or use online collaborative programs where members can list their proposed ideas. For example, you could suggest that students use a shared document to catalogue their ideas. To promote equitable participation, ask each student to begin by listing their ideas in their own document. You may even provide a minimum number of ideas that they should aim for. Then, ask students to create a shared document where each student can paste in their own list. Ask each student to share and explain their ideas to the group and then instruct them to synthesize the final list collectively.

Then, the team can go through all the suggestions and write their critiques of each solution. For example, they could discuss if the solution is scientifically sound or financially feasible. Social Ideation is a suitable time to help your students learn how to properly function as a team by teaching them how to provide respectful but critical feedback. This is also an opportunity for formative assessment, as you help your students critically evaluate their solutions. Formative assessment here should focus on how well the students communicate their ideas and develop creative solutions. As the students critique each suggested solution, they will begin to narrow them down and prepare for the next step of Social Experimentation.

Hence, we move from emphasizing the "quantity" of ideas to the "quality" of ideas in the next phase.

Students test, evaluate, refine, and elaborate on their chosen solution through Social Experimentation.

After your students have listed their solutions in Social Ideation, they will use Social Experimentation to test their hypotheses and develop their top solution scenarios by applying their new-found knowledge. Students will need to apply more critical thinking skills to develop and refine their solutions.

To help your students evaluate their solutions, you could ask them to build on their shared document from Social Ideation or create a new collaborative document in which they list the advantages and tradeoffs of each solution. The students could also consider using shared spreadsheets or graphic organizers to evaluate possible solutions. For example, one solution may be easier to implement, but might be less cost-effective than another. Your students can also develop some experiments to test their ideas, when it is possible. They could also approach community members or experts to collect more information on the

variability, desirability, and feasibility of their solutions. Analytical reasoning and supporting their solutions with factual data should be encouraged whenever it is possible.

Social Experimentation is a good time for you to conduct another formative assessment as you ask students how they could refine their solutions to address and minimize tradeoffs. Keep in mind that this process is recursive: as students refine their solutions, they will need to re-evaluate and document the advantages and tradeoffs of those revisions. After much discussion and refining, students should come to their final solution. Students should also be able to explain *how* they arrived at their proposed solution and *why* it is the best one.

Students present their solution through Social Validation.

While this is listed as the last step, it is an essential part of the problem-solving process. Your students should work in a continuous cycle of Social Validation, sharing their ideas and solutions with classmates and their community for feedback and then making revisions based on that feedback. You should be using formative assessment continuously during this phase to help students as they finalize their solutions, and your assessments should be

based on the session's learning objectives.

If possible, have your students present their solutions to the community in a unique manner. If they interviewed community members or biologists during Social Exploration, invite those individuals to come and listen to the students' solutions. You need to ask your invitees or judges to be as specific as possible in providing feedback. Guests should be coached on ways to be sensitive to students' emotional reactions and be aware of how their comments may be interpreted (e.g., taking them personally rather than professionally).

To increase inclusion, allow your students to present their unique solutions in a way that is both motivating and comfortable. Allow students to use their imaginations and remind them that there are multiple ways to solve a problem. Give your students options for their final presentations. Imagine, as part of Social Validation, that students have decided to develop a public awareness campaign to limit invasive species. Your students could perhaps create posters for the public campaign, or they could give a formal presentation to the community. Some groups might want to create a Google site with embedded videos, whereby the students involved in the project can

talk about their role and contribution and explain their findings. You can provide your students with options, but leave it open for them to follow their own unique ideas.

All students should be involved in the presentations during Social Validation, but students can take on different roles according to their comfort and expertise. For example, some students may present the visual aids while another explains them.

Whatever method or role student play remind them that the goal is to develop a professional identity through their presentation. For example, students can mention their role in the project, present their contribution to the project, and discuss their aspirations for the future. Remember that a goal of Social Validation is to expand upon the social relationships and connections forged between students and their immediate community. In the process of presenting and having their solutions validated, students can experience the value of knowledge creation firsthand. Thus, Social Validation, more than any other phase, helps students to develop a passion for a specific subject or future career path, a result of utilizing authentic real-world problems. Lastly, note that Social Validation is more than just presentation. Students should also be able to refine

their work after receiving critical feedback from community members or experts. This refinement and revision cycle is crucial to the success of this phase, enhancing both learning outcomes and social intelligence skills such as listening with an open mind. You can ask your students to write a reflection on the learning process to conclude this phase. These reflections can help you refine and implement another cycle of ASLM on the same problem or for a new problem.

Evaluating Authentic Social Learning

Unfortunately, despite the great value of the ASLM, there is not much you can do to make state and district-mandated testing more inclusive other than to provide testing accommodations for each student. However, you do have much more freedom to create inclusive assessment practices in *your* classroom. Assessment is a crucial part of the education process that drives learning when it is appropriately aligned with educational objectives. Planning assessments should occur concurrently when you are planning your lessons and assignments. In fact, it is believed by educational researchers that in order for each component of a lesson or project to be optimally effective,

you should consider how your students will demonstrate their understanding.[22] However, no matter what type of assessment you choose to use, to be effective, assessments should be embedded, ongoing, diverse, and used to guide instruction. As you plan your assessment, consider whether all students will have the opportunity to be successful in that assessment. You can even use different assessments for different students in the same lesson to ensure that all learners can achieve success. The goal of assessment is to determine whether your students learned what they were meant to through your instruction and guidance. Below you will find some of the most effective assessment strategies devised with the ASLM in mind.

Embed inclusive assessments in the ASLM cycle.

Teachers often feel that they do not have the time to assess their students while trying to teach concepts. Some teachers think that they must cover the curriculum and taking time for assessment stalls their progress; thus, they must move on quickly. Yet in the rush to cover more curriculum,

[22] Lock, J., & Johnson, C. (2015). Triangulating assessment of online collaborative learning. *Quarterly Review of Distance Education*, 16(4), 61–72.

students are learning less. Without time to reflect upon and interact meaningfully with new information, your students are unlikely to retain much of what is taught to them.

Assessments should not be an addition to your curriculum but rather something that is embedded within it. You can use formative assessments to gather data each day. Try to check in with your students daily to monitor their progress and ensure that they are on the path to mastery. Think of formative assessment as a part of your lessons, not as something extra that must be done. The improved understanding, engagement, and relationship-building created by formative assessments are well worth your time.

When you are walking around the classroom helping students in their social networks, you are using formative assessment. For example, you could give your students an authentic problem that requires them to use a specific formula, such as the volume of a cylinder. As you walk around to each of the groups, you can assess their ability to use and understand the formula simply by asking questions of the group members. You could ask one group member to explain *why* that formula gives you the volume of a cylinder and *how* it relates to the area of a circle. You could ask another group member about the process they used to

find the volume of their cylinder, and another, how they know that their answer makes sense. This is a great way for you to use inclusive practices by allowing students to answer questions at their particular level of understanding. If a student is not progressing as they should, provide guidance or instruction to help that student get back on track. You can allow students to help one another if that meets your assessment goals. By asking these questions, you are assessing their understanding of the formula, how to use the formula, and probing for reasonable answers, all without having to find the time to give a quiz.

Provide assessment options to promote inclusion.

Every student has a different set of strengths and weaknesses. Some students are strong writers and prefer to explain their work in writing rather than aloud. Other students are verbal and would prefer to explain their work to you in a discussion. Still others are visual and may prefer to explain their work in graphic organizers. To ensure that all of your students have the same opportunities for success, deliberately design your assessments to be diverse and individualized. Providing students with options in their lessons creates a sense of autonomy that will increase

engagement, motivation, and the likelihood of success. Of course, while you will occasionally want your students to work outside their comfort zones to promote growth, assessments should be a time for straightforward, comfortable dialogue with your students. Below are some examples of assessment types that you can mix and match to meet various needs.

Example

If you are assessing your students' ability to use sample data in order to make predictions about a population, you can give them a list of options so they can choose how to show their understanding. In picking the method they are most comfortable with, both confidence and motivation will increase. Some feasible options for your assessments are listed below.

(a) Ask 15 classmates about their favorite colors and record your data. Use that data to predict how many people in a school of 400 students would prefer each color.

(b) Find an article online that reported data from a sample of the population. Use that data to predict how many people out of 5000 would give the same information. Be

sure to cite your source.

(c) Roll a number cube and spin a colored spinner. Record your number and color. Repeat this 15 times and record your data. Use your data to determine how many times you would expect to get each combination if you repeated the experiment 250 times.

Improving Authentic Social Learning

Educators and administrators spend a lot of time thinking about and planning for student assessment. A forgotten component to student achievement is the effectiveness of the teacher in creating inclusive and authentic classroom environments. As a result, less thought and planning are given to assessing teachers' effectiveness and most school district rely heavily on formal observations. During formal observations, the principal or other administrator observes the teacher during a lesson. These formal observations usually occur once or twice a year, depending on the teacher's years of service. These evaluations are somewhat like summative assessments; they are only a snapshot of your teaching and often occur too late to make changes that would result in a meaningful improvement to student

achievement. Just like summative assessments, these evaluations are valuable and important, but they should not be the only feedback a teacher receives. In fact, recent research found no direct evidence that feedback from observations alone improves students learning outcomes.[23]

Because the purpose of the ASLM is to improve student achievement, it includes a variety of feedback mechanisms that do not rely purely on outside observations. Teachers are encouraged to analyze and reflect on student assessment data as an important evaluation of their lessons. Any classroom data can be used to analyze and assess your own effectiveness in creating effectively learning environments. The ASLM feedback mechanisms are a collection of data sources designed to be used to assess and set goals for improving student learning. Much like for students, no single data source is effective for evaluating the performance of a teacher.[24] Therefore, the ASLM also includes feedback mechanisms designed to help you strengthen your teaching skills and improve your students'

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[23] Kane, T. J., Gehlbach, H., Greenberg, M., Quinn, D., & Thal, D. (2016). The best foot forward project: Substituting teacher-collected video. Cambridge, MA: Harvard University

[24] Akram, M., & Zepeda, S. J. (2015). Development and validation of a teacher self-assessment instrument. *Journal of Research & Reflections in Education*, 9(2), 134–148.

learning by considering multiple sources of data to provide triangulated improvement strategies. Ideally, this data can be evaluated over several iterations of your curriculum for the purpose of comparison. If you are required to submit a year-end portfolio, these data points can be included in your portfolio as evidence of your teaching and continued improvement. The ASLM feedback mechanisms include:

- Student self-assessment and reflection
- Collaborative peer assessment
- Formative Assessment
- Self-observation and reflection
- Student feedback
- Parent feedback
- Community feedback

Above all, you must be open and willing to hear and learn from this feedback. This can be difficult to do. However, it is important to be honest, both with your students and yourself, about how any given project or implementation succeeds or misses. Do not be afraid to have some hiccups as you develop a stronger curriculum. Your students will benefit far more from your perseverance to be inclusive rather than your accordance with a one-size-fits-all education plan.

Student self-assessment is the first step toward continuous improvement.

Students need the opportunity to self-assess and reflect upon their learning and thinking after each phase. Reflection is an important part of developing self-regulated learners. However, it is not a skill that most middle school students practice regularly. Provide opportunities for your students to practice reflection and self-assessment such that it will eventually become second nature and part of their learning process. The following suggestions will help make your self-assessments more useful to you and more meaningful to your students. First, start by giving your students a rubric or checklist of skills or concepts and ask them to reflect upon their learning progress. Alternatively, students can be asked to draft a reflective essay on the topic of their learning experience. At the same time, share with them the value of reflection. You may collect their reflections, but taking grades is not recommended. Afterward, you can initiate discussions with your students regarding their progress. Reflection is usually implemented at the end of each phase of the ASLM. However, it should be ongoing and used to guide instruction just like any other formative assessment. You can ask students to keep a journal of their reflections and reward those who share it

with you after each project completion. These reflections are a great data source for you to use in self-assessment.

Collaborative peer assessment helps you recognize your blind spots.

Peer assessments are student assessments of their collaboration and shared learning. Essentially, the students are assessing how well their group collaborated and communicated. Peer assessment strengthens the collaborative nature of your classroom as your students learn to assess their shared knowledge. Peer assessment can be used to help students with their collaboration skills and to guide their progress at the same time.

Start with class discussions on how to assess group progress fairly and accurately. Communicate the value of peer assessment to your students and explain that peer assessments help them grow and become better learners, just like teacher assessments. Liken peer assessment to their self-assessments and note that they are assessing their entire group. Peer assessment should not be used to "secretly" grade each other so your students feel they are being judged by others. In the ASLM implementation, peer assessment should be about group progress, not individual progress. Lead an open discussion with the

group regarding their teamwork, progress, and learning, and how they can improve in these areas. The group should then work collaboratively to assess their group function and achievement. Formative assessment is imperative for planning continuous improvement.

Self-assessment and peer assessment are important and valuable, but you are ultimately responsible for using that information to assess learning and guide instruction, so you need to be a part of the assessment process. You can do this by incorporating a wide variety of formative assessments in your ongoing assessment of students. Your formative assessments should occur daily but should not be the same every day. Based on their learning styles and academic strengths, different students will prefer different assessment types. While it is good to provide a menu of options when you can, you also want to expose your students to different assessments. The following is a small sample of formative assessments you can use for continuous improvement. This list is not exhaustive, and you are free to be creative and find assessments that fit your needs and the needs of your students.

- Summaries and reflections
- Lists, charts, and graphic organizers

- Visual representations of information
- Creating models
- Exit cards
- Checkpoints for lengthy assignments or projects
- Guided questioning

Self-observation and reflection: challenging but fruitful.

Teaching is an individualized profession, and teachers are the best evaluators of their skills and their students' needs. Therefore, the ASLM feedback mechanisms are based on teacher self-assessment and reflection. Self-observation gives you control over your growth and recognizes that you are a professional who can judge your own performance and set goals. Self-observation is a personal, formative evaluation of your performance that you will use to set goals and improve your practice. After all, research indicates that individuals are the best judge of their own performance, and you can use that knowledge to set your own goals.[25]

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[25] Akram, M., & Zepeda, S. J. (2015). Development and validation of a teacher self-assessment instrument. *Journal of Research & Reflections in Education*, 9(2), 134–148.

Self-Observation Using Video. We encourage you to use a self-recorded video of your lessons for self-observation. The only way to observe yourself teaching is to record yourself. This strategy is supported by a study at Harvard where teachers used self-recorded video lessons in place of in-personal observations by an administration.[26] The study found that 42% of teachers often noticed student behaviors that they had not seen before. The study found that teachers were more critical of their teaching skills after watching themselves and were more likely to report that their teaching had improved during the year than teachers who used standard evaluations.

Before you begin filming yourself, there are a couple of things to keep in mind. First, the purpose of this video is to evaluate your teaching, not your student's behaviors. Thus, focus the lens on yourself and not on the students. Second, let your administrator know that you plan to use video recording in your class. Be sure to state that the video is recording you and not the students and that it will not be seen by anyone but you. Student safety and security need to be your top priority. The administration may ask you to

[26] Kane, T. J., Gehlbach, H., Greenberg, M., Quinn, D., & Thal, D. (2016). The best foot forward project: Substituting teacher-collected video. Cambridge, MA: Harvard University.

get parents' permission.

Questionnaire for Reflection. There are many self-assessment tools available for teachers to assess different aspects of their teaching. This book provides a self-assessment tool that is specific to the strategies and components of the ASLM. The ASLM Self-Assessment Questionnaire (Appendix A) was designed based on the Self-Assessment Instrument for Teacher Evaluation[27] and the Self-Efficacy for Student-oriented Teaching (SE-SOT) questionnaire. [28] The SE-SOT was used to capture instructional strategies that focus on students rather than on direct instruction. The ASLM Self-Assessment Questionnaire (Appendix A) was created to evaluate the teaching skills needed to improve student achievement in a student-centered classroom environment and is based on the ASLM guidelines for inclusive coursework and the ASLM strategies.

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[27] Akram, M., & Zepeda, S. J. (2015). Development and validation of a teacher self-assessment instrument. *Journal of Research & Reflections in Education*, 9(2), 134–148.

[28] Kilday, J. E., Lenser, M. L., & Miller, A. D. (2016). Considering students in teachers' self-efficacy: Examination of a scale for student-oriented teaching. *Teaching and Teacher Education*, 56, 61–71.

Student feedback is vital to improving your teaching and your students' learning.

Using student feedback is a common practice in post-secondary education, but it is not widely used in K-12 education. According to a recent study, 94% of four-year liberal arts colleges use student evaluations as a major source for teacher evaluation.[29] It is believed that K-12 students may not have the maturity to accurately evaluate teacher effectiveness, but many studies have shown that students as young as primary school can provide reliable evaluations of teaching practices.[30] While student feedback should not be used as the sole indicator of a teacher's effectiveness, it should be considered an important and reliable source of data regarding a teacher's performance.

Your students are the direct benefactors of your teaching skills and practices. They are the only people who observe your teaching practices each and every day. Hence, they can provide you with valuable information, if you are willing to listen to them. Researchers found that when

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[29] Ogbonnaya, U. I. (2019). The reliability of students' evaluation of teaching at secondary school level. *Problems of Education in the 21st century,* 77(1), 97–109.

[30] ibid

teachers used student survey data, half made a specific change in their instructional practice based on the students' feedback. Further studies suggest that you use student evaluations to improve your teaching practices, learning content, and classroom structure, as student evaluations provide specific diagnostic feedback which can help you improve your practice.[31]

Informal Student Feedback. If you allow your students to provide feedback on the learning content, learning environment, learning processes, and learning outcomes, they will know that they are an important part of the planning process, and you will have the opportunity to improve your teaching skills. Students provide teachers with informal feedback all the time, but it is often in the form of complaints or misbehaviors, which is not the type of feedback that is useful for improvement. Be deliberate about asking for positive but critical feedback. In the beginning, it may be helpful to hold an official class meeting where you explain to the students how to provide useful feedback. Let them know you are open to feedback only if it is positive and if they can provide a suggested

[31] Mart, C.T. (2017). Student Evaluations of Teaching Effectiveness in Higher Education. *International Journal of Academic Research in Business and Social Sciences*, 7(10).

alternative. As a bonus, this will also contribute to their social learning skills.

Be clear about the areas of the classroom that are within your control to change and those that are not such that they can focus their feedback accordingly. After your students make their suggestions, write down their feedback and thank them for their input so they know that you have been listening. After you have had several formal meetings for feedback and your students know how to give feedback properly, you can move to more informal settings. For instance, you can ask for feedback on specific topics or lessons while you are monitoring their progress and giving formative assessments. If your students know that you will listen to and value their opinions, they will be more willing to provide feedback regularly.

Formal Student Surveys. You can collect student evaluation data both formally and informally. Formal student evaluations can be given once or twice a year in the form of a questionnaire. Your district may use student evaluations as part of your evaluation, but these are usually given at the end of the year, limiting their ability to help you adjust your classroom. As you are implementing the ASLM, it is recommended that you give a formal

questionnaire after the first quarter and again after the second quarter to gather data on your progress and your students' progress. This book provides a student survey that is specific to the ASLM in Appendix A.

Before you collect data from the student evaluations, it is important to discuss the evaluations with your students. You want to empower your students and let them know that you value their opinion. Additionally, this will help ensure that the students take the evaluations seriously so your data can be as reliable as possible. It is wise to read the statements to the students ahead of time to make sure they understand them, but be careful not to sway them toward a specific answer. You can use the student survey provided in Appendix A to collect data. This survey is a modification of the teacher self-assessment questionnaire. As always, you can modify it to meet your needs.

Encourage parent feedback for an alternative perspective.

Research has found that contact with families is an important indicator of teacher quality.[32] The most effective

[32] Akram, M., & Zepeda, S. J. (2015). Development and validation of a teacher self-assessment instrument. *Journal of Research & Reflections in Education*, 9(2), 134–148.

teachers view their classroom as a partnership between themselves, the students, their families, and the community. It is common knowledge shared by many teachers that parent involvement is a key indicator of a student's academic success. Researchers confirmed that parent involvement is related to the level of student engagement at school and academic success.[33] Parent involvement is especially important for motivating students with special needs, both identified and unidentified in your classroom.[34] Inviting parent feedback can be a stepping stone to increasing parent involvement and thus increasing student achievement.

The more you can open your classroom up to families and the community, the more they will become involved. Just like with your students, you want to empower them by letting them know that you are open to their feedback. If parents know that you value their opinion, they will be more likely to partner with you in their child's education. Of course, not all families will become involved, but you

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[33] Oswald, D.P., Zaidi, H.B., Cheatham, D.S., & Brody, K.G.D. (2018). Correlates of Parent Involvement in Students' Learning: Examination of a National Data Set. *Journal of Child and Family* Studies, 27(1), 316–323.

[34] Bariroh, S. (2018). The Influence of Parents' Involvement on Children with Special Needs' Motivation and Learning Achievement. *International Education Studies*, 11(4), 96–114.

must make it known that they are welcome and encouraged to. You can use the parent survey that is specific to the ASLM provided in Appendix A to collect feedback. This survey is a modification of the student survey. As always, you can modify it to meet your needs.

Invite community members' feedback.

In the ASLM, you are encouraged to reach out to experts and community members and invite them to be a part of the classroom, especially during the first and last phases, Social Exploration and Social Validation. You will want to make sure that community members have spent time in your classroom in order to provide valid feedback. They will have a different perspective on teaching than you, your students, or other people in education. Therefore, community feedback can be extremely valuable as you prepare your students for work outside of the classroom. If you want to collect formal feedback from community members, you can use the Social Validation phase and their feedback on the students' work. However, you need to consult with your school administrators to ensure you will have the right mechanisms to protect students' privacy—for example, when you invite a community member or their parents to your classroom for observation

or student presentations.

Summary

In this chapter, we discussed how to design authentic social learning opportunities in order to implement our four interrelated ASLM strategies for building authentic and inclusive classrooms. Social Exploration gives students the opportunity to understand the importance of a problem and to develop motivation for solving it. It is the first step of authentic learning, where students are tasked by teachers to explore problems, research information, accumulate knowledge, and use that information to inform future activities. In Social Ideation, students openly express their ideas and perspectives, with the goal of constructing a creative set of solutions to the learning problem. Next, Social Experimentation allows students to make predictions and elaborate upon various aspects of their solutions by testing and evaluating their hypotheses in a social setting. Lastly, through Social Validation, students understand how to improve their work when they present their solutions. Students present their solutions and solicit feedback from the teacher, other students, community members, or experts in the field. While these strategies can

be used as a guide for implementing the ASLM, they are flexible enough to be adjusted for different classroom environments and subjects. Lastly, we discussed assessment strategies for continuous teacher improvement after each implementation cycle of the ASLM.

End of Chapter Reflection Questions

Lesson Planning for Success with ASLM Implementation Strategies

Consider a standard that you will be teaching soon. Think about how you can teach this standard using the ASLM.

(1) How can you teach the standard using authentic learning challenges?

(2) Are there any experts/community members you can ask to mentor your students?

(3) How can you incorporate the ASLM processes to facilitate collaboration? How will they use Social Exploration, Social Ideation, Social Experimentation, and Social Validation?

(4) What strategies can you use to ensure that you are

meeting the needs of your diverse learners? Will you use whole group instruction? Small group instruction? Individual Intervention?

(5) How can you embed performance and other formative assessments as you teach this standard? How will you provide timely feedback? Will you schedule a group meeting for feedback and guidance?

(6) How will your students present their findings/results? Are there parents, experts, or community members that you can invite to the presentations?

Appendix A

ASLM Self-Assessment Questionnaire.

I. Creating Inclusive Learning Content

I demonstrate accurate knowledge of my subject matter.

I plan daily objectives related to the required standards.

I use authentic learning to create challenging and relevant learning content.

I use culturally relevant strategies to communicate concepts.

I demonstrate the relevance of the content to student background knowledge.

II. Creating Inclusive Learning Environments

I use social learning to ensure all students' participation in the learning process.

I promote student autonomy (provide options to learn in different ways).

I empower students to seek help from their peers.

I allow students to use appropriate online materials and technology resources.

I build trusting relationships to create a supportive classroom environment.

III. Creating Inclusive Learning Processes

I create opportunities for students to find resources to support their learning.

I monitor and guide students to use various resources to solve complex problems.

I minimize whole-group and direct one-way instruction.

I teach and reteach individual students through small group intervention.

I help diverse students collaborate and contribute to the learning outcomes.

IV: Creating Inclusive Learning Outcomes
I embed a variety of inclusive formative assessments in my instruction daily.
I embed feedback mechanisms to improve student achievement.
I keep an official record of students' learning progress for future planning.
I encourage students to monitor their progress based on their own learning goals.
I use formative assessment to guide/differentiate instruction and intervention.

Suggested scale: 1(Never) 2(Rarely) 3(Sometimes) 4(Often) 5(Always)

ASLM Student Survey

I. Subject Matter

My teacher is an expert on the subject he/she teaches.

I know what I am expected to learn and do every day.

My teacher shows me how our topics are used in the real world.

My teacher explains topics in words or examples I can understand.

My teacher checks to see if I understand what he/she is teaching.

II. Classroom Environment

My teacher lets me work with my classmates.

My teacher makes sure everyone in my group participates and contributes.

My teacher gives us options for our assignments.

My teacher encourages us to get help from our classmates.

My teacher encourages us to get extra help from online resources.

Our classroom is a friendly place where the teacher and students encourage each other.

My teacher explains how we should behave in the class.

III. Classroom Learning

My teacher lets us make choices about our assignments and projects.

My teacher gives us difficult problems.

My teacher will explain things to me again if I am confused after the lesson.

My teacher explains things to my group if we need help.

My teacher makes sure that everyone in the group is working.

IV: Improving My Learning

My teacher checks to see if I understand the topic every day.

My teacher tells me how I am doing.

My teacher tells me how I can improve.

My teacher asks us to set goals for learning.

My teacher gives us options on our tests, quizzes, or presentations.

Suggested scale: 1(Never) 2(Rarely) 3(Sometimes) 4(Often) 5(Always)

ASLM Parent Survey

I. Subject Matter

My child knows what he/she is expected to learn or accomplish every day.

My child's teacher relates schoolwork to the real world.

My child understands the topics that are taught and can explain them to me.

II. Classroom Environment

My child seems engaged in learning the subject matter for the entire class period.

My child is given options on the assignments.

My child knows where to look for help to better understand a subject.

My child enjoys being in this class.

My child's teacher has high behavior expectations for the students.

III. Classroom Learning

My child is working on positively challenging assignments.

My child feels successful in this class.

My child understands the teacher's expectations.

My child likes working in groups with his or her classmates.

IV: Learning Progress

My child's teacher communicates his or her progress to me.

My child's teacher knows if my child understands what is being taught.

My child is making progress in this subject.

My child's teacher makes me feel like a valuable part of his/her learning.

Suggested scale: 1(Never) 2(Rarely) 3(Sometimes) 4(Often) 5(Always)