

Facilitating Teacher Thinking on Cultivating Third Spaces in STEM Classrooms

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Rationale

This brief presents a resource (Appendix A) to help teachers consider the relevant funds of knowledge that they and their students bring to learning the content (Moll et al., 2006). This resource can also serve as a guide for coaching conversations in which teachers reflect on their practice and effectiveness through a culturally-responsive lens (Gay, 2018; Ladson-Billings, 2023). We hope readers will use the resource presented here to guide their teaching and/or coaching to leverage students' funds of knowledge and to cultivate third spaces in the classroom where teachers bring together and extend students' home, community, and school experiences (Gutiérrez, 2008).

One of the focuses of this brief is to move away from prescriptive instructional support to rely on teacher expertise. Dozier et al. (2006) identify responsive coaching relationships as those in which coaches guide teachers through self-reflection. This develops a foundation of collaboration between coach and teacher. The anticipated effect of this process is that it will strengthen the positive working relationship between teachers and instructional supervisors by leveraging educator experience and instilling a sense of trust in the practitioner's qualifications. Additionally, it will help teachers develop self-reflective practices, which will lead to sustained inquiry in the absence of available support.

Background

One of the many external factors affecting student engagement is the quality and quantity of connections to student experiences made available to them in the classroom. Content taught in a school setting can often seem disconnected from real life. This can prevent students from engaging with material in class as they cannot envision a clear purpose in learning (Llopart & Esteban-Guitart, 2017). Similarly, teachers' personal connection to the material can seem unrelatable to students or disconnected from students' lived-experience.

We observed two computer science teachers, noting student engagement throughout the class period. The first teacher directed the students to complete an individual project on various technological developments, and the second teacher taught code through an online platform: Kira. While the first

teacher assigned a project about content relevant beyond the classroom, the students lacked agency within the project without a chance to choose the presentation topic or create a personal connection to the material. Student engagement was sporadic, with students talking to peers while also completing slides. The content in the second class was esoteric, focusing on coding vocabulary and outputs of while loops. Students were not given any opportunity to relate the content beyond the classroom, but the majority of students completed the work.

A variety of external factors could influence student engagement, including, but not limited to, school culture, expectations around elective courses, and norms surrounding classroom engagement. Helping teachers connect students' lived experiences across different domains of their life could empower teachers to disrupt the social script (Goffman, 1959) that positions school as separate from other aspects of students' lives. Such disruption and the cultivating of a third space can also empower students to take interest and ownership of the content.

Resource Description

The five parts (I-V) of the resource are each described below. The purpose of the resource is to lead teachers through a reflection on how they might be able to identify and leverage students' funds of knowledge while teaching their subject content. Part V directly addresses this purpose while Parts I-IV scaffold teachers' thinking so that they can better engage with the prompts in the final part.

Part I: Lesson Overview

The first part of this resource asks teachers to summarize their lesson as a basis for considering connections to the content. The objective is intended to be an actionable, measurable goal for students to meet by the end of the lesson. In order to achieve the objective, students must master specific terminology (Vocabulary), content knowledge (Knows), and actionable skills (Shows), which are necessary to complete the objective. Part I is intended to be optional, as teachers may already have completed this work in a lesson plan document.

Part I: Lesson Overview

Objective (Students will be able to...):		
Vocabulary (Topic-specific terminology)	Know - What do students need to know by the end of the lesson?	Show - What do students need to be able to do to meet the objective?
• • •	• • •	• • •

Part II: Reflecting on Personal Experience with the Content

The second part asks teachers to explore their own history with the content. Teachers are asked what they remember about learning the content to identify what made it memorable and begin thinking about their own experience as a learner. Then, teachers will recall their personal challenges and successes with the content to begin identifying possible misconceptions or mental blocks. Lastly, teachers will pinpoint their own lived experiences beyond the classroom to begin to consider possible points of connection for their students. Part II is presented as a list as it is intended to provoke thought without asking teachers for formal written responses.

Part II: Reflecting on Personal Experience with the Content

1. What are your first memories of learning this concept?
2. What were your challenges or success when learning it?
3. What lived experiences (especially out-of-school or at home) helped you better learn this concept?

Part III: Understanding Your Students

This part scaffolds teachers' thinking on who they are teaching, why their students might be interested in learning the content, and their articulation of the purpose/impact of this learning. The intent here is to also prime the teachers to consider the various characteristics of their students, along with Part II's focus on the teacher's personal history with the content, as they plan for their learning experiences inside and outside the classroom.

Part III: Understand Your Students

What part of your students' lives may be important to consider when engaging with this content?
Why would your students want or need to learn this content?
Who/what would be impacted because of your students learning this content?

Part IV: Reflecting on Student Readiness

This part directs the teachers to reflect on the readiness with which students arrive at the learning of the content. Consideration of this may allow the teachers to explicitly identify the assets that students

already possess and to plan for bridging any gaps in their understanding, either in their classroom teaching or by scaffolding students' learning opportunities outside the classroom.

Part IV: Reflecting on Student Readiness

How does this lesson connect to the lessons that come before and after it?		
(Refer to your Lesson Overview) What academic prerequisite skills do students need to meet the objective?	Which academic prerequisite skills do you anticipate students may possess or lack?	How can you begin to bridge the gaps in students' academic prerequisite skills?

Part V: Facilitating Connection-Building for Effective Learning

Finally, this part prompts the teachers to do two things. First, it asks them to explicitly articulate the funds of knowledge that students may possess that would be assets in their learning. These funds of knowledge could be directly related to the content itself, indirectly related through different but similar content that is part of their family or community lives, or unrelated to the content but instead reflect an orientation toward life or learning—such as curiosity— that has been fostered through their lived experiences. Second, the resource prompts the teachers to think about how they might design experiences and activities that effectively bridge the students' funds of knowledge in service of the learning that the teachers are trying to facilitate.

Part V: Facilitating Connection-Building for Effective Learning

Which relevant funds of knowledge do students have?
Throughout the lesson, how will students have the opportunity to make effective connections between their funds of knowledge and their desired academic skills?

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Appendix A

Connection Resource

Part I: Lesson Overview

Objective (Students will be able to...):		
Vocabulary (Topic-specific terminology)	Know - What do students need to know by the end of the lesson?	Show - What do students need to be able to do to meet the objective?
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Part II: Reflecting on Personal Experience with the Content

1. What are your first memories of learning this concept?
2. What were your challenges or successes when learning it?
3. What lived experiences (especially out-of-school or at home) helped you better learn this concept?

Part III: Understanding Your Students

What part of your students' lives may be important to consider when engaging with this content?
Why would your students want or need to learn this content?
Who/what would be impacted because of your students' learning this content?

Part IV: Reflecting on Student Readiness

How does this lesson connect to the lessons that come before and after it?		
(Refer to your Lesson Overview) What academic prerequisite skills do students need to meet the objective?	Which academic prerequisite skills do you anticipate students may possess or lack?	How can you begin to bridge the gaps in students' academic prerequisite skills?

Part V: Facilitating Connection-Building for Effective Learning

Which relevant funds of knowledge do students have?
Throughout the lesson, how will students have the opportunity to make effective connections between their funds of knowledge and their desired academic skills?



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