

Finding Goldilocks: Exploring Teachers' Approaches to Create Customized Materials for Use-Modify Scratch Activities

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Abstract

With the growth of CS instruction in K-8, it is essential to equip teachers to be able to create instructional materials that resonate with students in their classroom. This study investigates teachers' customizations of instructional materials of an existing Scratch curriculum to identify patterns in the specific decisions and approaches teachers take during the process. We collected teachers' customized Scratch projects, brainstorming documents, and video transcripts over multiple phases of a research project.

Our analysis of teacher-authored artifacts revealed that teachers made consequential decisions at three crucial stages of the process. First, they combined a variety of students' resources (e.g., family traditions, kids' interests, identity) with teachers' perspectives to ideate a project. Second, they went to different degrees in tailoring a project idea to their local students (e.g., soccer vs Sporting Kansas City). Finally, they took different approaches to implement their idea in Scratch, resulting in projects with different levels of code complexity and customization effort. Our findings provide insights for developing scaffolds and integrating guidance into future professional development to support CS teachers in effectively and efficiently customizing instructional materials.

CCS Concepts

• **Social and professional topics** → **Computing education**.

Keywords

K-8, curriculum customization, culturally relevant pedagogy

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1 Introduction

Recent scholarship on CS teacher development has largely focused on three topics: (1) understanding the experiences of pre-service CS teachers to prepare them for their roles [25, 30], (2) accessing and supporting CS pedagogical content knowledge to identify and close gaps among teachers with various backgrounds [16, 36], and (3) examining social justice values to ensure CS materials are designed for diverse students [12, 31] (most closely aligned with this work). To ensure instructional materials integrate the knowledge and lived experiences of the learners who use them, teachers need support to create customized materials for their classroom. By defining teachers' customization processes and investigating the decisions they make, better scaffolds and strategies can be identified.

In this paper, we report on a multi-phased research project to support teachers in creating customized Scratch projects and student-facing worksheets for Use-Modify Scratch activities in an existing CS curriculum [9]. We collected 50 Scratch projects customized by 27 elementary and middle school teachers (students ages 9-13), teachers' brainstorming documents, and transcripts of teachers' reflections and group discussions. Our goals are to (1) identify, describe, and visualize the process teachers follow to customize instructional materials to reflect their students' backgrounds and experiences (2) identify patterns and approaches teachers take to ideate and implement their materials using the Scratch programming environment. Our analysis explores the following questions:

RQ1: What is the process teachers take to create customized instructional materials for their classroom?

RQ2: To what extent do teachers draw on Spheres of Influence [4] to ideate a project that would resonate with their students?

RQ3: Which approaches do teachers take to implement their customized project idea in Scratch?

2 Related Work

2.1 Instructional Design in K-8 CS Education

Many programming environments for young CS learners [1, 8, 14, 24] have been inspired by Constructionism [28]. This approach provides students the opportunity to construct personally-meaningful artifacts through self-directed activities. These artifacts enable students to share their work with peers and inform teacher-led classroom discussions. However, the open-endedness of Constructionist learning introduces a "play paradox" – tension between allowing

students free exploration (play) and ensuring they encounter specific, intended educational concepts (structure) [26].

The **Use-Modify-Create** (UMC) instructional approach [23], used widely in K-8 CS/CT instruction [2, 9, 13, 35], attempts to balance structure and play. Students are introduced to a new CS concept through a structured Use-Modify activity where they first explore the concept’s enactment in a provided project (Use), then modify the project’s code (Modify), and finally, follow open-ended prompts to create a new project (Create).

Scratch Encore, used in this work, is an intermediate Scratch-based CS curriculum using this UMC framework [9]. The participating teachers were tasked with customizing existing materials for the Use-Modify activities in Scratch Encore to be more relevant to their students. The materials for Create activities remained the same because they are already open-ended and students have the freedom to design and implement their own projects.

2.2 Customized Instructional Materials in CS

Prior research has shown that CS instructional materials grounded in students’ contexts can improve engagement and learning [6, 17–19]. There are several approaches to tailoring instructional materials to students’ contexts. When explaining technical concepts, examples can be drawn from students’ current knowledge and prior experiences [28]. Alternatively, visual elements or culturally significant contexts can be integrated [10, 22]. Instructional materials can also draw on current youth culture, such as social practices (e.g., texting), popular media, or video games.

Teachers are best positioned to customize instructional materials to better fit their own students’ contexts. However, little is known about CS teachers’ approaches to customize instructional materials. One study (US) found that K-8 CS teachers (students ages 9–13) required practical and cognitive scaffolds to navigate challenges around time, preserving learning objectives, and meeting personalization goals when customizing a Scratch curriculum to be more culturally responsive [33]. Another study (UK) showed how K-5 CS teachers (students ages 5–11) tended to draw on practical activities (e.g., football, drawing) as rather than cultural artifacts (e.g., flag, language) or geographical places (local areas, beach) [3].

3 Theoretical Orientation

This work is grounded in **Culturally Relevant Pedagogy** (CRP), centering the experiences and cultures of students from diverse backgrounds in CS education. Ladson-Billings proposed three key tenets of CRP: (1) *academic success*, viewing all students as capable (2) *cultural competence*, encouraging students to achieve academic success in ways meaningful to them by centering their diverse cultures, and (3) *sociopolitical consciousness*, leading students to develop reflective perspectives to situate their education in larger sociopolitical contexts [20, 21].

Our work operationalizes CRP in two ways. First, foundational knowledge about CRP was provided to teachers and discussed through professional development (PD) experience. By centering and sharing CRP pedagogical approaches and principles (e.g., Culturally Responsive Teaching (CRT) [11], Raspberry Pi Foundation’s guide [29]) and facilitating peer discussions around the importance of those principles to learning, teachers are encouraged to consider

their students’ contexts when customizing instructional materials. In addition, by sharing practical practices and scaffolds for applying CRP concepts to customize Scratch projects, teachers gain hands-on experience in ensuring that the resulting customization centers their students’ lived experiences and identities.

Second, we analyzed our data through **Spheres of Influence** (SoI) [4], a framework intended to guide the design of culturally relevant instructional materials by emphasizing student experiences and contexts. Coenraad et al. co-designed a culturally relevant computing curriculum with students, parents, teachers, and administrators, and identified seven spheres to inform the creation of curricular materials: Home and Family, School and Work, Hobbies and Leisure, Media, Interests, Peers, and Identity [4]. Researchers have employed SoI to analyze student decisions in open-ended Scratch projects they create [27, 34]. In our study, we used SoI to bridge student and teacher perspectives to analyze teacher decisions in customizing instructional materials for their students.

4 Methods

Our study aimed to empower teachers to customize existing instructional materials for their students while retaining the original conceptual sequence and pedagogical structure. To better design scaffolds, we analyze teachers’ customized artifacts to understand their customization approaches.

4.1 Study Context

4.1.1 Curriculum. Scratch Encore is a Scratch-based curriculum for upper-elementary and middle school classrooms with 14 UMC modules [9]. Each module begins with an example Use-Modify Scratch project. A worksheet guides students through observing the project execution and mapping observed actions to the code that performs them (Use), followed by making small modifications to the example project to learn how the blocks being introduced behave (Modify). Afterward, students work on an open-ended Scratch project, using design prompts that guide them to apply the new concept (Create).

This study explores teachers customizing materials for the Use-Modify activities, specifically the example Use-Modify Scratch projects and their accompanying student-facing worksheets. Figure 1 depicts an existing Use-Modify project in Scratch Encore (a) and customized projects created by the participating teachers (b–f).

4.1.2 Participants. This study received an IRB approval. Recruitment emails were sent to all teachers who had downloaded Scratch Encore, and teachers who had taught at least three modules were invited to participate. Data analyzed in this paper was collected from 27 elementary and middle school teachers from across the United States. Participants identified as female (18), male (8), and non-binary (1), and represented a variety of racial backgrounds: Asian (4), African American (4), Latinx (4), NHPI (1), and White (13). One participant declined to state. Most teachers (24/27) had taught CS for at least three years.

4.1.3 Professional Development. All participants attended five synchronous 90-minute PD sessions via Zoom with homework assignments in between. The PD sessions were facilitated by the authors of this paper and other members of our research team. The daily



Figure 1: One existing project from Scratch Encore (a) vs four teacher-customized projects (b-f)

homework assignments usually involved carrying out a specific aspect of the customization process (e.g., brainstorming themes that would resonate with students, customizing a Scratch project). During PD, teachers customized two modules (Scratch projects and student-facing worksheets) which were collected and analyzed.

Before attending the training, teachers were instructed to read the Raspberry Pi Foundation's practical guide to culturally relevant and responsive computing in the classroom [29]. During the PD, special attention was paid to including CRT practices [11] into synchronous activities. For example, sessions emphasized reflection, an important component in developing CRP [15]. After each project they customized, teachers completed a self-reflection survey, followed by a small-group share-out. Researchers facilitated the share-outs, which often involved teachers sharing screens, walking other group members through their projects, and explaining their reasoning behind their project ideation and creation decisions. We collected teachers share-outs during these discussions and analyzed them to make sense of teachers' decisions. Teachers also had access to a comprehensive set of supporting resources, which were iteratively revised based on teachers' feedback.

4.2 Data Analysis

The data used in this analysis included: (1) teachers' customized Scratch projects (n=50; excluding projects with a broken URL), (2) completed brainstorming worksheets (n=43; not all teachers used the worksheets), and (3) transcripts of synchronous PD sessions. The Scratch projects were used to analyze *how* teachers enacted CRP into their customized modules, while brainstorming worksheets and transcripts revealed *why* they made specific design decisions.

4.2.1 Phase 1: Spheres of Influence Analysis. We followed a hybrid inductive and deductive model [7]. Coding started with reviewing and annotating a subset of customized projects, informed by Coenraad et al.'s SoI framework [4]. These SoI codes were not mutually exclusive, meaning each project could draw on a number of spheres. During this process, teachers' brainstorming worksheets and transcripts describing the decisions and rationales related to their customizations were consulted for clarification [5]. This process resulted in a comprehensive codebook to capture both *which* students' spheres teachers drew on to decide the overall project theme and *how* teachers approached ideating a specific project resonated with the students they planned to teach. Throughout this process, we modified the original SoI framework to better represent our data corpus and generated three independent codes describing teachers' ideation approaches: **Direct**, **Inspired**, and **Individualized** (detailed in Section 5). Coding involved three researchers who coded every single project in the dataset independently and

met afterward to compare, discuss, and resolve differences through discussion until reaching 100% agreement.

4.2.2 Phase 2: Scratch Enactment Analysis. We followed an inductive analysis model [32]. First, two researchers performed open coding to extract recurring themes in teachers' implementation decisions (e.g., choice of sprites, changes made to the sprite costumes and code, significant sprite dialogues or project narrative). This process resulted in a classification scheme comprising three mutually exclusive categories: **Potpourri**, **Goldilocks**, and **Extensive**. These categories were defined using a decision logic based on three questions/criteria: (Q1) *the presence of a unifying theme*, (Q2) *the extent of code modification*, and (Q3) *the extent of costume editing*. Researchers also developed vignettes exemplifying each category to ensure coding consistency. Coding was divided between four researchers based on domain expertise, and pairs were assigned to specific criteria across the full dataset. For example, two researchers with extensive Scratch knowledge analyzed the technical criteria (Q2 and Q3). Each pair independently coded their assigned criteria for every project before convening to resolve all discrepancies.

5 Results

We start by describing the overarching customization process teachers underwent (RQ1), continue to explore patterns in the spheres of influence teachers drew from in the ideation phase (RQ2), and end with how teachers implemented their ideas in Scratch (RQ3).

5.1 Overarching Customization Process

During PD, teachers were taught a process that started with drawing on spheres of influence (e.g., Home/Family) to choose a topic that their students would connect to (e.g., Holidays - Lunar New Year), then narrowing it down to a specific Scratch project idea (e.g., zodiac animal races). Our analysis revealed that teachers took a more nuanced approach (See Figure 2). Orange highlights two emergent decision points: (1) connecting teachers' perspective with students' spheres of influence and (2) tailoring a project idea to local students.

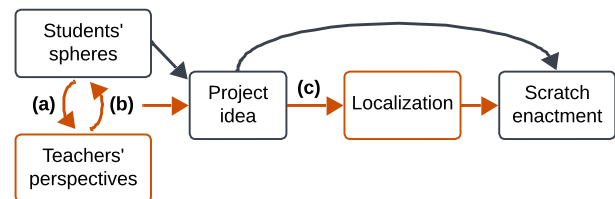


Figure 2: The emergent teachers' customization process.

5.1.1 Applying teachers’ perspective to brainstorm project ideas. The most straightforward and common approach, **Direct**, was to **choose a topic from something teachers knew their students liked or cared about and directly depict it through the customized project**. Teachers who took this approach sought projects that would grasp students’ attention and keep them engaged. For example, Alex¹ reflected on his project titled “Race for Taki’s”:

It can be something very simple that students can make connection with... All the kids know Taki’s... So everybody in my neighborhood and I live in the same neighborhood I teach, any store you go in, you’ll see Taki’s... Kids, they bring large bags and they share it.”

The second approach, **Inspired**, involved teachers **applying their teaching goals with pieces of their students’ identities, cultures, and experiences to ideate projects that raise awareness of a societal or civic issue** (e.g., people with disabilities, LGBTQ community, political parties). For instance, Yara connected her students’ interest in soccer and the experiences of her former student with a mobility disability. She created “Soccer for All”, featuring a soccer player with a power wheelchair, and shared that she hoped this project would give her students “a view that there are different sports that people with disabilities can play”.

Finally, the third approach, **Individualized**, involved teachers **choosing a broad topic (e.g., food, sport) and leaving a comment for students to personalize it before exploring the code**. For example, Hannah created “Cultural Food Presentation”. Rather than choosing specific food to feature in the project, she included an empty food tray sprite and planned to ask students to change the sprite costume to show a cultural/favorite food of their choosing, and added an empty text bubbles for students to fill out with their names and tell a family story through the food they chose.

Interestingly, we found that **the timing of when teachers inserted their perspectives and when they drew from students’ contexts varied**. As shown in Figure 2, arrow (a) indicates *students’ contexts* → *teachers’ perspectives* → *project idea*. For example, Kelsey first drew on a student activism effort at her school – fighting for access to feminine products – and leveraged it to ideate a project about women empowerment, featuring a walkathon to celebrate famous female figures. Kelsey explicitly noted that her students’ dedication during their activism inspired her ideation:

Young girls in our school fought for access to feminine products. They inspired me with their dedication and thoughtfulness during the project. (Kelsey)

Others followed the process shown in arrow (b): *teachers’ perspectives* → *students’ contexts* → *project idea*. Vince started out with his goal as an educator: “making sure we give kids a pathway to success”, then drew on his students’ racial identity, creating a project about Historically Black Colleges and Universities (HBCUs)². His final project features the mascot of two HBCUs to use as a springboard for student research as future college options.

5.1.2 Tailoring a project idea to local students. Once teachers identified a specific project idea, they could enact it in Scratch. Some projects used general visual assets and narratives. Bella’s project,

for example, depicted a soccer game using existing sprites and backdrop from the Scratch library, which could have been used in any school. Other teachers, like Rachel, **took an extra step (arrow (c)) to align their project to their unique local context, which we call Localization**. Rachel’s soccer project, drawn from pickup soccer games her students enjoyed during outdoor recess, used an actual photograph of her school’s front as the backdrop. Similarly, Ashley’s soccer project (Figure 1) featured three famous soccer players she believed her students would connect with: Messi (“everyone loves Messi”), Kellyn Acosta (“a role model for my Black students”), and Marta Vieira da Silva (“a role model for my female sports enthusiasts who is also part of the LGBTQ community”).

5.2 Use of Spheres of Influence

We now explore from which spheres of influence teachers inclined to draw from and why. The results can be found in Figure 3).

Half of the projects (25/50) drew from **Interests and Hobbies**³: favorite foods (e.g., ice cream, boba tea), sports (e.g., soccer, skating), and pop culture (e.g., Disney princess, Mr. Beast). Teachers’ stated reason was to keep students engaged. For example:

I think about how I can incorporate... what students like with their culture and youth... That’ll be Mr. Beast. I can actually hear them screaming... as long as he’s there, that already catches their attention and makes it relevant for them. (Yara)

Teachers drew from **School and Work** in 21/50 projects (42%), hoping to create projects that would resonate with *all* students in their classroom. These projects focused on school-wide events and activities (e.g., field day race, color run) or school spirit/mascot.

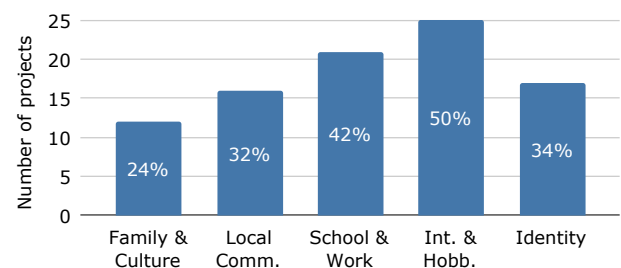


Figure 3: Students’ spheres of influence teachers drew from

Identity was used fairly often (17/50 projects or 34%), primarily represented through visual elements to highlight students’ characteristics and appearance and add depth (12 projects), rather than influencing the main project theme (5 projects). For example, Paul reflected: “I wanted to look for kids [sprites] who students can identify with and I was really happy thinking about being culturally sensitive in the characters I picked.”

Teachers also drew on **Local Community** (16/50 projects or 32%) to feature something that *all* students in their classroom would recognize it. These projects focused on landmarks (e.g., The Bean), people (e.g., Indigenous people of Lenni Lenape), and activities (e.g.,

¹All teacher names are pseudonym.

²The teacher also identified as Black and had attended an HBCU.

³Merging three of Coenraad et al’s spheres (‘Interests’, ‘Hobbies and Leisure’, and ‘Media’ [4]) because teachers referred to them interchangeably.

Fiesta River Parade) that happened within communities local to students (neighborhood, town, state).

The least common sphere used was **Family and Culture** (12/50 projects or 24%), relying on teachers' knowledge of students' demographics and cultural backgrounds (e.g., country of origin, language). We expanded "Home and Family" [4], to capture what teachers focused on, which was students' *cultural* family traditions, like holidays (e.g., Holi) and cultural food (e.g., Mohinga, Pho).

5.3 Scratch Enactment Approaches

In this section, we examine teachers' approaches to integrating all their ideated elements into a single Scratch project. By analyzing specific elements in teacher-authored projects (e.g., narrative, sprite costumes, code), we identified three emerging approaches: **Potpourri**, **Goldilocks**, and **Extensive**. Figure 4 depicts the decision process for categorizing a single project.

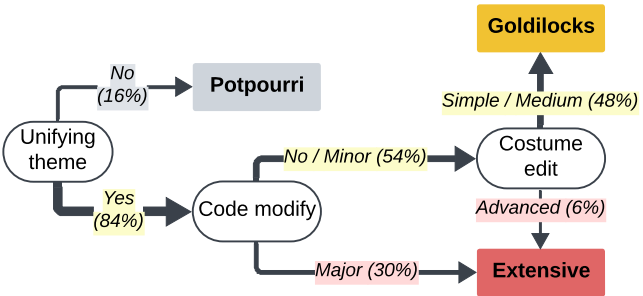


Figure 4: Distribution of Scratch enactment approaches

Potpourri: 8/50 (16%). Multiple visual elements that connect to students but **lacking a single unifying theme**. For example, Ben's "Having Fun Downtown" project (Figure 1d), had several disjointed elements. The teacher explained: "The Ballerina would remind students of our dance classes and represent them... The Bee [school mascot] is for all of our students; we call them Bees." While the reasoning for his choice of elements was clear, there was no clear, cohesive project narrative. The other elements (unicorn and apple) and dialogue (unicorn moves to yield sign and says, "Uber!?!") did not seem to have a unifying theme.

Extensive: 18/50 (36%). A student-centered, unifying theme with either **major code modification** or **advanced costume editing**. Particularly, 9 projects were created with *major code modification*, 3 projects with *advanced costume editing*, and 6 projects with *both*. Teachers who took this approach often put in a significant effort.

For example, Joy customized an animation project (Module 3), which teaches animation using sets of blocks that alternate switching costumes or moving to the next costume along with a repeated step movement. Her customized "Olympic Race" project included two athletes whose countries she coded to let students select (Figure 5). While the project appears similar to the original, Joy made several major code changes. The project included 10 extra scripts, 65 extra blocks, 19 extra unique blocks (e.g., set variable, broadcast, change x by random), among them blocks that are not introduced in the curriculum until Modules 6, 10, and 11. In addition, two critical



Figure 5: Comparing the code of an "Extensive" project vs a "Goldilocks" project

blocks (wait and move __ steps), which provide key prior knowledge for both the current and subsequent modules, were omitted. The overall result is a significantly more complex project that does not meet Module 3's animation learning goals.

In contrast, Ashley's "International Soccer" project (Figure 1b) had almost identical code compared to the original "Basketball" project (Figure 1a). With that, she spent extensive time and effort on a multitude of costume edits. The teacher attempted to depict three actual soccer players by making significant changes to the Scratch library's provided costumes (e.g., adjusting skin tones and hairstyles, drawing realistic uniforms and poses):

I spent a lot of time trying to make the characters look really nice, to get the character to bounce the ball on their knees... So I didn't spend as much time on the [second customized project] 'cause I spent all my energy on that first one. (Ashley)

Goldilocks: 24/50 (48%). A student-centered, unifying theme with **minimal code modification** and **moderate costume editing**. Teachers who took this approach found a relatively efficient way to make their projects resonate with students without putting too much time into implementation.

Jenny's project depicts a local event, "Fiesta River Parade" (Figure 5) with almost identical code to the original. She only added one extra script with two say blocks, "Welcome to Fiesta" and "Hola! Bienvenidos!" and edited the say blocks to tell the history of the event. Her goal was integrate a mini-lesson about the Fiesta because students get the week off from school, but a lot of them do not know why because they do not have the chance to attend the parade. For the backdrop, she used a photograph of the San Antonio River Walk. For sprites, she uploaded photographs of actual parade floats, a cavalier, and a papel picado, using the eraser tool in Scratch to quickly remove the background. To keep a manageable workload, Jenny set a strict 45-minute limit for costume editing and shared that without this time management strategy, she could have spent hours perfecting the graphics.

Another “Goldilocks” example was Yara’s “Soccer for All” project (Figure 1f). To ensure authentic inclusion before enacting her project idea in Scratch, the teacher researched and watched a video about power wheelchair soccer. She customized the original “Basketball” project, reusing the entire code without any change and adding only one sprite for a very thoughtful reason: “*The kid in the wheelchair was very lonely over there, so I added another character so he would not be by himself... he’s actually playing with another student.*” This extra sprite has identical code to the sprite in the wheelchair, keeping the effort level at a minimum and retaining the overall complexity of the project. For sprite costumes, Yara reused all three sprites from the original project and made simple vector edits (e.g., rotating arms, replacing basketball with soccer ball). She sourced the extra sprite from the Scratch library and did not edit the costume.

6 Discussion

This work contributes to understanding how teachers conceptualize students’ cultural backgrounds and lived experiences and apply CRP principles to create customized instructional materials for their classrooms. Our findings show that applying CRP principles requires methodical planning, deep reflection on students contexts, and strategic approaches to ensure CS learning objectives are not affected. Many participating teachers referred to this process as a “rabbit hole”, emphasizing the tension described by Gay [11] between the aspiration to draw on a variety of student contexts and maintaining that the materials are still approachable for students with different CS experiences and cultural backgrounds.

6.1 Centering Students’ Contexts

By identifying approaches teachers take to ideate their customized projects, we show evidence on how teachers integrate CRP principles into instructional design. “Inspired” approaches promoted *sociopolitical consciousness*, where teachers connected students’ cultures and experiences to a larger societal issue to spark conversation and raise awareness. “*Individualized*” approaches centered students’ voice about their culture or identity and promoted *cultural competence* [20, 21]. Explaining and showing these approaches provide insights into teachers’ decision-making and reasoning, and highlight student contexts teachers actively consider and those they should consider more. Future research can build on these approaches to support teachers’ integration of CRP principles, offer more nuanced guidelines tailored to how they apply their knowledge, and measure the perspectives of students who used such materials.

Our modifications to the SoI framework [4], considering teacher heuristics, can serve as guidelines for curriculum designers, teachers, and researchers designing for children. We contribute to the understanding of teachers’ heuristics that included student-centered traditions and place-based context related to students’ school, city, or neighborhood, which allowed teachers to meet localized CRP goals. Localizing allowed teachers to innovate and extended the customization process they were taught during the PD to consider *community-specific ideas* that are unique to their own classrooms. Our findings emphasize the importance of involving teachers in material customizations, as their attempt to localize projects, showed their nuanced familiarity and perspectives of students’ lives, which are essential to ensuring materials connect with students.

6.2 The “Goldilocks” Enactment

This study identified three approaches (Potpourri, Extensive, and Goldilocks) teachers take to implement their culturally relevant project ideas in Scratch, contributing to an understanding of teachers’ CRP implementation practices. We demonstrated that a balanced “Goldilocks” approach could effectively promote CRP principles while optimizing teacher effort. Teachers in our study were able to represent and celebrate students’ unique cultures and experiences *and* preserve CS learning objectives, highlighting a crucial tenet of CRP – *academic achievement* [11].

We also found that taking on the role of instructional designer introduces an “instructional design paradox”, demonstrated in the “Extensive” enactment approach. Teachers must navigate two tensions: (1) balancing their own advanced Scratch expertise with the need to keep technical materials (i.e., code) approachable for students, and (2) weighing the desire for visually perfect materials against their limited preparation time. Future work should explore scaffolds to help teachers navigate these paradoxes and evaluate the trade-offs of different enactment approaches.

6.3 Limitations and Future Work

While our hybrid coding process and data triangulation [5] ensured a rigorous analysis, a sample of 50 projects remains a limitation; a larger dataset could provide more examples of the emergent approaches we identified. Building on this terminology, future work should investigate how teachers apply these approaches to customize Scratch and other CS instructional materials, refining the concepts for broader clarity. In addition, because the PD was conducted in the the summer, our scope was limited to teacher perspectives. Subsequent studies must incorporate student data through classroom implementation of teachers’ customized materials to evaluate their impacts on students’ engagement and learning.

7 Conclusion

This work explores the process teachers follow when customizing Scratch materials to connect with students’ contexts. By using the Spheres of Influence framework [4] to bridge student and teacher perspectives on what considers culturally relevant, we identified and documented unique approaches teachers used to ideate projects that would represent and resonate with their own students. We demonstrated how these different ideation approaches resulted in projects that promote *cultural competence* and *sociopolitical consciousness* [20, 21]. Further, we characterized how teachers enact these ideas in Scratch, highlighting that technical complexity and design effort is essential for supporting students’ *academic achievement* in CS learning [11] and encouraging teachers to continue such customizations. Further, this work provides actionable insights for researchers and PD providers to develop scaffolds and strategies to empower teachers to customize materials that reflect the plurality of cultures, identities, and communities of K-8 CS students.

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