New RRB Submission

Data Entry

- Submitted 07/10/2024 9:33 PM ET by Mesiner, Jennifer MS

Submission Type

RRB Number	2024-1961
Study Title	Harmonizing scratch encore: Empowering educators to create customized culturally responsive computing materials
Event Type	New Submission defined 07/10/2024
Schools Participating	*No answer provided.*

SUBMISSSION TYPE INSTRUCTIONS AND OPTIONS

"New Submission" - if this is a brand new RRB proposal OR you need to make requested revisions to an RRB submission that is NOT yet approved.

"Entry of RRB project that was previously-approved outside of IRBManager" - if you would like to enter a project into IRBManager that was reviewed and approved outside of IRBManager (i.e. before IRBManager was implemented at CPS). For this selection, there must be no changes in your study protocol from when your study was previously approved.

"Modification/Continuing Review of RRB Project Previously approved outside of IRBManager" - if you would like submit a modification for a study that was **approved outside of IRBManager (i.e. before IRBManager was implemented at CPS).**

Type of Submission
New Submission

Pertinent CPS Documentation

Submitter

Mesiner, Jennifer MS

Email: jmesiner@umd.edu   **Phone:**

Overview of Pertinent CPS Documentation

The RRB is composed of members representing various Central Office academic departments as well as the Law Department. The RRB meets quarterly to evaluate new
proposals to conduct research. The RRB calendar and deadlines for submissions can be
found on the CPS Research Website here. Decisions resulting from the research review
process will be communicated to the applicant of the request as well as appropriate CPS
staff in accordance with the estimated timelines outlined in the respective RRB calendar.
External researchers may not begin any research activities or obtain data for research
purposes without first following the procedures outlined in this policy and securing the
necessary approvals.

We expect all researchers to be familiar with the guidelines and policies guiding research within the district. Please verify that you have read and acknowledged the following:

External Research Study and Data Policy
✔ I have read and understood the External Research Study and Data Policy

CPS RRB Guidelines
✔ I have read and understood the CPS RRB Guidelines

CPS Equity Framework
✔ I have read and understood the CPS Equity Framework

CPS Vision
✔ I have read and understood the CPS Vision

CPS Volunteer Policy
✔ I have read and understood the CPS Volunteer Policy, including background check requirements

Study Personnel Details

Study Title

Harmonizing scratch encore: Empowering educators to create customized culturally responsive computing materials

Does your organization participate in a Research Practice Partnership (RPP) with Chicago Public Schools?

> We have an RPP with Kris Beck and the computer science leadership in the Office of Teaching and Learning. We have been collaborating with them for seven years.
>
> 06/05/2024 • Mesiner, Jennifer MS • *Not* Internal

No

Primary Study Organization/University

University of Chicago

Principal Investigator

Franklin, Diana

Expirations:		**Background Check Level:**

PI Organization
University of Chicago

If the form indicates "not found" when you add the Principal Investigator, please use the link below to add the contact to the IRBManager system.
User had the option to start a different form here.

Are there any other study contacts?

Yes

If the person completing this form is not the Principal Investigator, it is suggested that the submitter be entered as a contact.

Study Contact Information

Contact Email Address	Contact Organization	Role	Study Responsibility
Mesiner, Jennifer MS **Email:** jmesiner@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Project Team Member	Will have access to individual-level student/staff data
Weintrop, David PhD **Email:** weintrop@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Primary Contact	Will have access to individual-level student/staff data
Palmer, Jen **Email:** jenpalmer@uchicago.edu **Expirations:** **Background Check Level:**	University of Chicago	Project Team Member	Will engage in primary data collection Will have access to individual-level student/staff data
Tran, Minh **Email:** ngminhtran@uchicago.edu **Expirations:** **Background Check Level:**	University of Chicago	Project Team Member	Will engage in primary data collection Will have access to individual-level student/staff data
Alkhateeb, Rasha **Email:** rasha@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Project Team Member	Will have access to individual-level student/staff data
Houchins, Jennifer **Email:** jhouchi@wested.org **Expirations:** **Background Check Level:**	WestEd	Project Team Member	Will have access to individual-level student/staff data

Please click save after each contact is added.

If the form indicates "not found" when you add the Principal Investigator, please use the link below to add the contact to the IRBManager system.
User had the option to start a different form here.

Is the Principal Investigator a Student?

No

Is the researcher a CPS Staff Member?

No

Funding and Intervention Information

Is this project contracted by the CPS Board of Education?

No

Is a funding source associated with the proposed research?

Yes

Who is the primary funding source?
National Science Foundation

What is the amount of funding awarded?
$662,386.00

Please list primary contact information of funder.
Michael Ford
miford@nsf.gov (703)292-5153
DRL Division Of Research On Learning
EDU Directorate for STEM Education

Select the option that applies to your study

My study will be occurring District-wide

Will this research require any in-person interaction or intervention activities?

Yes

Will this research require any virtual interaction or intervention activities (Google Meets, Zoom, etc.)?

Yes

Please note that Zoom is not approved for use with CPS Students. Any virtual activities will need to be conducted via Google Meets and safe@cps.edu must be invited to Google Meet. Please adjust virtual methods accordingly. For more information on permitted interactions with students and staff, please visit https://www.cps.edu/about/policies/acceptable-use-policy/external-volunteers/.

Please review CPS's Acceptable Use of Technology Guidance (AUP)

✔

Questions about eligibility or appropriate use of communication channels should be directed to the school principal or CPS External Research department. Only CPS-approved communication channels may be used.

Please be aware that virtual interviews involving students may only be conducted via Google Meets. A CPS Staff member must be present for the entire duration of the interview. For more information on CPS' Acceptable Use of Technology policies, please visit https://www.cps.edu/about/policies/acceptable-use-policy/external-volunteers/

Please check all of the following that apply to your research protocol:

Classroom Artifacts
Focus Groups
Interviews
Observations
Questionnaire

Please describe your classroom artifact collection protocol, detailing when, where, duration, frequency, and with whom?

As part of the Scratch Encore curriculum, we will collect student-produced classroom artifacts, specifically, students will complete digital worksheets (either in Google Docs, Google Forms, or Google Slides). The URLs for these digital artifacts will be collected for students who have consented to participate in the study at the end of the Scratch Encore unit (i.e., when the teacher has finished teaching the Scratch Encore curriculum, we will work with them to share the URLs for student work from consented students). Also, we will only be collecting student data in classrooms where the teacher has also consented to participate in the research study, so we will have a close working relationship with the teacher and the teacher will have already completed a summer PD with us related to the project. No student PII will be collected, we will work with teachers to create unique identifiers to associate with students and their work.

This artifact data collection will occur once for each class that the teacher teaches Scratch Encore. As some teachers teach Scratch Encore multiple times in a year (Scratch Encore is often not taught as a full-year curriculum but instead is taught during students' computer science course which sometimes lasts only a few weeks or one semester), the data collection may happen more than once per teacher. As the data is digital, researchers will not need to enter the class or interact with students directly to collect this data, it will be coordinated with the teacher.

The full set of curricular materials that teachers use (and thus, students complete) can be found here: https://www.canonlab.org/scratchencorematerials

Please describe how data will be captured and stored securely
All data collected during this study will be stored on password-protected computers, in locked cabinets, or in a University of Maryland Box account (Box is a cloud storage system that encrypts all of its data and is approved for IRB-covered research studies).

Artifacts will only be accessible to researchers who are associated with this study and have been approved to work on this project by the University of Maryland's IRB board.

Please attach all relevant documents here.
 Scratch Encore Materials.docx   Classroom Artifacts

Please outline your protocol for focus group activities, describing when, where, duration, frequency, and with whom.

We will conduct focus group interviews with teachers who have taught Harmonized Scratch Encore lessons during the school year. We plan to conduct these teacher focus group interviews after the end of the school year but might also run a mid-year focus group if there are enough (3 or more) teachers who have completed teaching Harmonized Scratch Encore lessons by mid-December. This focus group will last up to 90 minutes and be conducted virtually (via Zoom) and scheduled outside of regular school hours. No students will be present at these focus groups. If a teacher teaches the Scratch Encore curriculum more than once a school year, they may be invited to participate in more than 1 focus group. The exact date/timing of the interview will be coordinated on the availability of participating teachers and the timing of when they complete teaching the curriculum. Students will not participate in focus groups.

Does this involve video, audio, or photograph recording?
Yes

Please describe the protocol for audio/video recording
The focus groups will take place on Zoom and be video and audio recorded. The semi-structured focus group interview protocol will ask questions that invite teachers to share their experience teaching the provided Scratch Encore materials as well as the 'harmonized' materials they create. First, questions will be asked about their overall experience teaching Scratch Encore. Then, teachers will be asked to talk about their harmonized lessons (e.g., the module they harmonized, the theme they chose, and why that theme was chosen), finally, teachers will be asked to compare the experience teaching their harmonized lessons relative to teaching the provided lessons, both from their perspective and the perspective of their students. Attached is the focal interview protocol.

Please describe how data will be captured and stored securely
All participants will have consented to this protocol at the outset of the study. The focus groups will be recorded onto the computer of the researcher hosting the focus group (so not onto Zoom's cloud service) and then will be moved to Box, a secure, encrypted cloud storage service.

All videos will be stored on the University of Maryland's Box account (Box is a cloud storage system that encrypts all of its data and is approved for storing PII information).

Only researchers approved to work on this study will have access to these materials.

Please attach all study materials corresponding to focus group procedures (i.e., consent forms, protocol, recruitment and incentive plans)

HSE Teacher Consent Form.docx   Consent Forms
Year 3 Teacher Focus Group Protocol.docx   Focus Group Protocols

Please outline your protocol for individual interview activities, describing when, where, duration, frequency, and with whom.

As part of the Scratch Encore curriculum, students are given time in class to design and implement Scratch computer programs. Students are encouraged to be creative during this time and come up with projects based on topics they are interested in. During this independent work time during class, researchers in the classroom will conduct brief, informal interviews with students to learn about the projects students are creating, the challenges they are facing, and their overall thoughts about the assignment and course overall. These brief, informal interviews will take place during class time but not interfere with instruction and be recorded using hand-held cameras. Only fully consented students will be interviewed. The video will record the students' screens while they explain their projects. No student faces will be captured. We plan to collect this data during the Harmonized modules, which will mean two or three class periods (when students are doing independent work) during the entirety of the Scratch Encore curriculum.

Does this involve video, audio, or photograph recording?
Yes

Please describe the protocol for audio/video recording
The brief interviews will be recorded using a handheld camera and will only record the student's screen (as they will be describing their projects). While the camera is trained on the screen, students will explain their program, pointing at the screen. The videos will capture students' voices but not their faces. Before being interviewed, the researcher will ask the students if it is OK to ask them a few questions about their projects and if they can record it. We expect these interviews to be brief, lasting only 3 or 4 minutes.

The videos will record the students screens and student audio. As such, for the parent consent/student assent forms, we only mention audio record and not video recording (as the students themselves won't be video recorded, only their audio will be recorded).

Note: we intend on creating Spanish language translations of parent consent and teacher assent forms.

Please describe how data will be captured and stored securely
Data will be recorded with hand-held cameras. At the end of each class where student interviews were collected, the videos will be uploaded to the University of Maryland's Box account.

Please attach all study materials corresponding to interview procedures (i.e., consent forms, protocol, recruitment and incentive plans)

Parental Consent Form(2).docx	Consent Forms
Student Assent Form(1).docx	Consent Forms
Year 3 Student classroom interview Protocol(1).docx	Interview Protocols

Deleted Attachments: 4 (Most Recent: Student Assent Form(1).docx on 07/10/2024 11:05 AM ET)

Please outline your protocol for survey activities, describing when, where, duration, frequency, and with whom.

At the beginning and end of the Scratch Encore curriculum, students in participating classrooms will complete a survey asking questions about their interests, attitudes, and confidence in computer science. The survey is a validated instrument created by researchers to measure elementary students coding attitudes. The pre-administration of the survey will also include questions about their prior experience with computer science and their family background in education and computer science. The surveys will be administered through google forms and the teacher will share a link to the forms. All students will complete the survey but only students who are fully consented to participate in the study will have their responses shared with the research team. This will happen at the end of the curriculum along with other student-created artifacts (see above). The survey will be administered during class and we expect will take around 15 minutes.

Please describe how data will be captured and stored securely
Like other materials from this course, the surveys will be stored on University of Maryland's encrypted Box servers and only be accessible by researchers associated with this project.

Please attach all study materials corresponding to interview procedures (i.e., consent forms, protocol, recruitment and incentive plans)
 Elementary Student Coding Attitudes Survey.pdf   Surveys

Deleted Attachments: 2 (Most Recent: CS and Equity Attitude Assessment.docx on 06/24/2024 10:47 AM ET)

Detail the method of Survey Administration (e.g. paper, online, etc.)
The survey will be administered via google forms and the results will be downloaded into a .csv file and stored on encrypted servers.

Please outline your protocol for observation activities, describing when, where, duration, frequency, and with whom.

Observations will take place during Harmonized lessons as well as during one non-harmonized lesson. The goal of this portion of the study is to understand how Harmonized lessons are taught in the class, how students respond, and how harmonized lessons are different from standard lessons and ways in which they are the same. Classroom visits will be coordinated with teachers based on their teaching schedule and when harmonized lessons are taught. The number of observations per class will vary based on course structure (i.e., how long classes are and how many sessions it takes to teach the use and modify portions of the module) but we expect it to be around 3 observations per Harmonized module and another 1 or 2 observations for the standard Scratch Encore Module.

Prior to class, the researcher will set up a stationary video camera in the back of the room. During the lesson, the researcher will use observation protocol (attached) to track what is happening during the lesson.

Does this involve video, audio, or photograph recording?
Yes

Please note: Video/Audio classroom observations where students are present is not permitted unless every student present for the observation has active assent and parental consent.

Please describe the protocol for audio/video recording
We will set up a stationary camera in the back of the room focused on the teacher. The record will start at the beginning of class and end when formal instruction during the lesson ends.

Please describe how data will be captured and stored securely
Video will be recorded with hand-held cameras affixed to tripods. At the end of each class where observations were conducted and video recorded, the videos and observation checklists will be uploaded to the University of Maryland's Box account (Box is a cloud storage system that encrypts all of its data and is approved for storing personally identifiable information).

How will you protect individuals who did not consent to participate in the observation, and what will non-consented students be doing during the observation(s)?
The camera will be set up to focus only on the teacher at the front of the classroom. The researcher will work with the teacher to find a suitable location for the camera. The camera will be positioned in a way that does not record student faces. The researcher present in the classroom will do their best to ensure the camera only records the teacher and no students are captured on video. Should any student's faces be captured accidentally (such as if a student walks in front of the camera), we will not use that portion of the video in any publicly facing materials.

Please attach all study materials corresponding to observation procedures (i.e., consent forms, protocol, recruitment and incentive plans)
 Observation Protocol:Checklist.docx   Observation Protocol

Will this research require the use or access of existing CPS data?

No

Will this research require the use or access of existing non-CPS data?

No

Study Details

Please select all of the following that will be participating in the study?

Students
Teachers

Will any of these students be under the age of 18?
Yes

Please be aware that the inclusion of study subjects younger than 18 requires active, written consent from the parent(s) or guardian(s). The consent form needs to explicitly inform parents of their rights to review all materials used with their children as provided for in the Protection of Pupils Rights Act. Please ensure you have added the following statement to your consent form(s) verbatim, with the appropriate personalization for your study:

"Parents please be aware that under the Protection of Pupils Right Act 20 U.S.C. Section 1232 (c)(1)(A), you have the right to review a copy of the questions asked of or materials that will be used with your students. If you would like to do so, you should contact [INSERT APPROPRIATE CONTACT] at XXX-XXXX to obtain a copy of the questions or materials."

Has this project been reviewed by an Institutional Review Board (IRB)?

Yes, and it was approved

IRB of Record Name
University of Maryland

IRB Protocol Number
1889204

Please attach all of your IRB documentation here (include approval/exemptions letters, IRB study protocol, etc.).

University of Maryland - IRB Approval Letter	IRB Letters
Note on IRB approved materials.docx	Misc/Other

IRB of Record Primary Contact Email Address
irb@umd.edu

Please select your primary area of research from the following:

Computer Science

Secondary Study Subject(s)

Equity
General Curriculum and Instruction
STEM Education
Teachers
Teaching and Learning
Technology

Study Overview

Executive Summary or Abstract

Please provide a high-level overview of your study, including a summary of the motivation, design, and implications of the project.

This multi-year project seeks to provide actionable and empirically grounded insight into the following questions: "*How can we support and empower teachers to customize instructional computing materials that meet both academic standards and the needs of diverse student populations? What are the classroom outcomes of using such materials?*" This proposal is designed to respond to a number of realities about the current state of computer science (CS) instruction in K-12.

1. *Computer science is an essential topic for all students across K-12 education*.
2. *Instructional materials that advance equity must support diverse teacher and student populations.*
3. *The only constant is change*.
4. *Creating effective, custom, culturally responsive materials is challenging.*
5. *Empowering teacher customization*.

Towards responding to these challenges, we have created a curriculum in collaboration with CPS called Scratch Encore that teaches computer science in a culturally responsive way. Building on this curriculum, we have designed a teacher PD that prepares teachers to create unique, localized instructional materials that fit within the Scratch Encore curriculum and align with the voices, values, and priorities of their students and local community. We call this process "harmonizing".

The proposed study seeks to understand the impact of teaching Harmonized Scratch Encore lessons. This includes understanding the experience of teachers who are doing the Harmonizing and students who are learning with materials uniquely designed from them and their class.

Research Questions and Hypothesis

Please list all research questions and hypotheses associated with this project.

Teacher Supports: What knowledge, supports, and scaffolds are needed to empower teachers to customize instructional materials to be culturally responsive to the unique characteristics of their students/classrooms?

Teacher Impact: How do teaching practices shift when teachers are teaching culturally responsive curricular materials they have created?

Student Impact: How do students respond to culturally responsive curricular modules created by their teachers? How do these lessons impact students from historically excluded populations in computing? Enactments of Cultural Responsiveness: How do customizations of instructional materials differ by geographical region, teacher prior experience, and focal disciplinary content?

Purpose and Literature Review

Please provide an overview of the existing research and literature on this subject. What is the contextual history of this subject area and how does this research build upon the body of extant knowledge?

This work draws on three complementary literatures:

1. Computer science in Upper Elementary Grades

Early work on programming as a means for learning conducted by Papert and colleagues with the Logo language found that programming was accessible to younger learners and could serve as a powerful pedagogical strategy (Harel & Papert, 1991; Papert, 1980; Papert et al., 1979). As such, instruction for younger students on computing is often based on a Constructionist design and learning approach (Papert, 1980). This approach emphasizes student-driven learning, constructing artifacts, and creating a low-threshold, high-ceiling, wide-walls learning environment (Resnick et al., 2009). Constructionism's focus on student-driven learning, rather than mastery of specific technical content, has resulted in the adoption in informal spaces (Maloney et al., 2008) that place an emphasis on self-directed learning and online collaboration (Fields et al., 2014; Roque et al., 2012) and the practices of computing (Brennan, 2013). As the Scratch and Scratch-inspired learning environments move into formal classrooms, many schools have shifted the focus to specific content learning goals where such open-ended curricula are not as well-suited given the differing goals (Salac et al., 2019).

While traditionally a subject for high school and beyond, there is growing demand for bringing CS into K-8 classrooms. In response to this push, there is a growing library of introductory curricula designed for elementary learners, like code.org's CS Discoveries curriculum, the Foundations for Advancing Computational Thinking (FACT) curriculum (Grover et al., 2015), and the KELP-CS curriculum (Hill et al., 2015). Yet, there is no widely used curriculum the moves beyond introductory activities to provide deeper investigations of CS concepts and practices for elementary learners. Instead, teachers search online for resources from venues like the CS for All curriculum directory and then adapt them to their needs, schools purchase closed packages, or teachers create their own. All three of these strategies are ill-suited for teachers with little experience in computing or teaching in under-resourced schools.

The last decade has seen significant advances in our understanding of how to introduce younger learners to the powerful ideas of computing. One example of this can be seen in the development of learning trajectories of computer science concepts for younger learners (Rich et al., 2017, 2018, 2019). Pedagogy has also been an active area of research in this space. For example, the Use-Modify-Create instructional sequencing (Franklin, et al., 2020a; I. Lee et al., 2011) provides scaffolds in the form of providing example code and smaller tasks (via the Use and Modify activities) to build conceptual understanding and skills before loosening constraints to allow for learner-direct, open-ended projects (via the Create activity), which align more closely with Constructionist goals (Harel & Papert, 1991). A second example is TIPP&SEE (Salac et al., 2020), a learning strategy that effectively scaffolds students in how to learn from example code in Scratch projects. To do so, learners first record observations of the example code, then inspect the code and make changes to see what happens. This approach showed significant positive performance outcomes for young learners (Salac et al., 2020). Finally, an area of significant growth in the K-12 computing education space is in the development of culturally relevant computing curricula, which we discuss in greater detail in the following section.

2. Culturally Responsive Computer Science Education

The conceptualization of culturally responsive computing instruction we employ in this research builds on the work of Scott and colleagues (2015), itself grounded in culturally responsive pedagogy (Gay, 2010; Ladson-Billings, 2014). Culturally responsive computing diminishes the separation between CS and students' other cultural worlds while empowering learners to draw on both vernacular and heritage culture resources to

create and learn in computing contexts (Eglash et al., 2013).

Culturally responsive computing instruction can be accomplished in several ways (Scott et al., 2015). For example, when explaining concepts, examples can be drawn from students' current knowledge and existing prior experiences, what Papert called "cultural syntonicity" (Papert, 1980). A second strategy draws upon the cultural heritage of students as a means to help increase their sense of belonging. This can take the form of including visual elements drawn from their culture or situating programming activities within culturally significant contexts (Gay, 2010; Ladson-Billings, 2009). Yet another approach to developing a culturally responsive curriculum draws upon current youth culture, such as social practices (e.g. texting), media, or video games (e.g. Fortnite). Code.org uses this approach by partnering with Disney, Minecraft, and famous athletes and celebrities. Finally, creative opportunities that empower learners to tailor projects to their own interests allow them to choose how to connect it to their personal culture (Ryoo et al., 2013). Examples of this type of work can be found in formal computing curricula such as Exploring Computer Science, which allows students to embed their own culture and ways of knowing into the work that they do and provides teachers with professional development to include community relevant and critical examples within the computing classroom encouraging culturally responsive computing opportunities for students (Goode & Margolis, 2011; Ryoo et al., 2013). The integration of cultural resources, equity, and social justice can also be found in educational opportunities beyond the classroom. This work draws directly from foundational research on the structural inequalities and differing opportunities that exist in computer science (Margolis, 2008; Margolis & Fisher, 2003).

In the informal space, many computing summer camp programs have been designed to attend to issues of equity, opportunity and draw on learners' prior resources. For example, Lee's work promoting critical computational literacy (Lee & Garcia, 2014) through Youth Radio empowers teens to critique and present current and relevant injustices within their lives through digital and computational means and share them with broad audiences (Lee & Soep, 2016, 2018). Other summer camps focus on specific technologies, like e-textiles (Holbert, 2016; Kafai et al., 2019), or are designed to draw on specific heritage cultures like Mayan culture (Franklin et al., 2011) or Indigenous weaving practices (Searle & Kafai, 2015).

Tool design is another avenue pursued to attend to issues of equity and social justice in computing. This can be seen in work around Culturally Situated Design Tools, which integrate computing, design, and mathematical concepts based on authentic connection to those concepts in non-dominant cultures (Eglash et al., 2006) and built through deep collaboration with the communities being represented (Lachney, 2017). The computational action framework (Tissenbaum et al., 2019) views computing as a means to amplify student voice through the creation of mobile apps using AppInventor.

3 Computer science Teacher Professional Development

A significant body of research exists on the design of effective and sustainable teacher PD (for a review of this literature, see Borko, 2004; Darling-Hammond et al., 2017). According to Desimone and colleagues (2011; 2015), effective PD includes the following factors: (a) *Content focus* - Emphasizing content and how students learn content; (b) *Active learning* - Providing opportunities for teachers to be involved in activities during PD rather than listening passively; (c) *Coherence* - Aligning PD content to other PD opportunities, teachers' knowledge and beliefs, and school, district, and state policies; (d) *Duration* - PD should include 20 hours or more of contact and last over at least a semester of time; and (e) *Collective participation* - Teachers should work together in a learning community with other teachers from the same grade, subject, or school (Desimone, 2011; Desimone & Garet, 2015). This framework has been shown to be successful across multiple subjects and age groups (Gersten et al., 2010; Penuel et al., 2011). Through a systematic literature review, Menekse concluded that effective PD for CS educators also requires similar factors: duration, active learning, pedagogical content knowledge focus, collaboration with local district or school administration, and support for classroom implementation (Menekse, 2015). Menekse (2015) did not include any factors that map to Desimone's *collective participation*. Additionally, *support for classroom*

implementation, which is not a factor in Desimone's framework, is important for having teachers try new teaching practices (Menekse, 2015).

The last decade has seen a growth in research on CS teacher preparation, although the consensus from the field is that significant open questions remain (Basu et al., 2021; Menekse, 2015; Mouza et al., 2021). The recent scholarship on CS teacher preparation has largely focused on three topics: (1) qualitative work on the experiences of those learning to become CS teachers (Mouza et al., 2018; Reding & Dorn, 2017), (2) the development and refinement of CS pedagogical content knowledge (Hubbard, 2018; Yadav & Berges, 2019), and (3) efforts focused on equity, diversity, and social justice (Goode et al., 2021; Ryoo, 2019), which are the most closely aligned with this project. Research on culturally responsive CS PD has identified a number of strategies for supporting teachers, including developing professional learning communities to support dialog (Ryoo et al., 2016), online learning professional development (Goode et al., 2020), and through efforts to help teachers draw on the existing knowledge and cultural resources of students through culturally responsive pedagogy (Madkins et al., 2019).

Research Activities and Student/Staff Involvement

Please provide an overview of all primary and secondary research activities associated with this study. Please use this space to describe, as thoroughly as possible, all that will be asked of your research subjects (e.g. surveys, focus groups, observations, etc.)

The study being proposed here is the third year of a 4 year project. Year 3 of the project will serve as the primary classroom study for the Harmonizing Scratch Encore project. Year 3 will begin by running the HSE PD for a cohort of CPS Teachers. We have run this PD in the past for both CPS and national teachers. The primary research activity in year three is to collect data related to what happens when you bring Harmonized Scratch Encore materials into the classroom. To do so, we will conduct classroom observations and focus groups with CPS teachers. Along with collecting teacher data, we will collect data from students in CPS classrooms, including student-completed course materials, surveys, and brief in-class interviews (but not collect any PII). At the end of year 3, we will also collect the instructional materials designed by the teachers as well as the student-authored projects that resulted from teaching those lessons. Participating CPS teachers will complete the summer Harmonizing Scratch Encore PD, the teachers will Harmonize a Scratch Encore lesson, and then teach Scratch Encore, including the Harmonized lesson, in their classes. Teachers will share the materials the create and the materials students produce (from consented students only) with researchers as well as participate in short focal group interviews. Teachers will be compensated $500 for participating in this study due to the out-of-class work we are requiring (including creating the Harmonized instructional materials during the summer and participating in interviews during the school year).

Research Methodology and Analytical Technique

Please provide an overview of your research methodology and specific analytical techniques that will be utilized as part of this study.

In this section, we detail our methodological and analytic approaches. This project will employ a mixed-methods study design to collect quantitative, qualitative, and computational data. This includes quantitative data in the form of surveys, qualitative data through observations, semi-structured interviews, and student-created artifacts, and computational data through student-authored programs. Our analytic approach for this project uses a multi-method triangulation approach to create valid analytic methods to measure teacher and student-level outcomes (Meijer et al., 2002). Below we organize our research methodology/analytic technique by research question.

Answering our Teacher Impact Research Question

Having designed and run the HSE PD, our Teacher Impact research question asks: *How do teaching practices shift when teachers are teaching culturally responsive curricular materials they have created?* This question shifts focus towards how these unique-to-their-classroom materials impact the teacher, considering both how their instructional practices shift when teaching these materials as well as the ways the teachers incorporate the prior knowledge and cultural resources drawn upon in the materials into the enactment of the lesson.

Data Sources. To understand the various ways that teaching practices change when teachers are using the materials they developed during the HSE PD, we will triangulate data from a number of sources. We will conduct ***classroom observations*** for both traditional Encore and customized HSE lessons, focusing on differences between instruction. Observers will take detailed field notes on implementation fidelity as well as complete an observation rubric (developed during the prior research study) after each observation session. We will also conduct ***focus group sessions*** to serve as a context to identify shared experiences across the participants and provide an opportunity for group reflection on the experience of designing and teaching HSE-created modules.

Analytic Approach. Our analytic approach for answering the Teacher Impacts research question will draw on several qualitative methodologies. Classroom observations and field notes will be open-coded to identify emergent patterns and trends in the data. Comparative coding strategies (Saldaña, 2015) will be used to identify differences between existing Encore modules and teacher-created HSE modules. The results of this analysis will be used to inform the questions asked in the focus group sessions as well as the coding approach for resulting transcripts. Transcripts will be thematically analyzed to identify patterns in responses for questions related to their experiences teaching both Encore Modules and HSE modules.

Answering our Student Impact Research Question

Our Student Impact research questions ask: *How do students respond to culturally responsive curricular modules created by their teachers? How do these lessons impact students from historically excluded populations in computing?* These questions shift focus from teachers to students to better understand how culturally responsive materials designed for their specific classroom impacts the experience of students. In asking this question, we consider both conceptual learning outcomes as well as affective outcomes, including self-efficacy, confidence, and sense of belonging.

Data Sources. To evaluate the impact on students, we will rely on surveys and analysis of student-created artifacts. ***Surveys***, taken at the beginning and end of each school year, will serve as an initial measure of student interest, confidence, and sense of belonging in CS and be one measure for if and how those dimensions change over the school year. ***Student-created artifacts***, including worksheets and student-authored Scratch projects, will be collected for future analysis. Brief **in-class interviews** about studnet-author Scratch projects will be collected for future analysis.

Analytic Approach. We will use standard statistical methods to analyze the pre and post-surveys and scores on content assessments within the curriculum. Pairwise t-tests will measure changes in student performance on the course assessments in aggregate. We will conduct a Wilcoxon Signed Rank test on the attitudinal survey's Likert-scale questions, given the ordinal nature of the Likert responses and because it is a nonparametric test used to compare paired samples. The student-produced artifacts and interviews will be qualitatively coded for CS content present as well as topics and themes incorporated into the project. To conduct this analysis, we will use the Spheres of Influence framework (Coenraad et al., In Press) developed through participatory design sessions with learners in our target population during the Scratch Encore Project. This framework identifies sources of inspiration from learners' lives that can be drawn upon when creating personalized programming projects. Importantly, all of the analyses will look at the student population as a whole as well as specific analyses on students who have self-identified as being a member of a population historically excluded in computing.

Benefits and Commitment to Equity

Benefit to CPS

Which (if any) CPS vision goals does your research support?
No answer provided.

Click here to access more information on the CPS Vision Goals.

Which (if any) of the CPS core values does your research support?
Academic Excellence
Equity
Student Centered

Please describe how your project supports each of the core values selected above.
Academic excellence - Computer science is an essential topic for all students across K-12 education. Most parents (90%) want CS instruction for their children (Google & Gallup Inc., 2015), requiring sustained efforts across K-12 education. The last decade has seen a rapid expansion in CS in K-8 classrooms, where CS instruction was rare until relatively recently. Prominent organizations (e.g. code.org, Google) and research groups (e.g., CANON Lab, MIT Media Lab) have created fully-featured introductory teaching materials and training for elementary teachers new to the discipline, allowing students to be exposed at younger ages. The project is student-centered in its focus on supporting teachers in creating customized instructional materials that draw on the voices, values and ideas of students and their local communities.

Equity - Instructional materials that advance equity must support diverse teacher and student populations. School districts and teachers face a myriad of challenges in trying to realize the vision of CS for All, including a relative lack of prior teaching experience with CS and variation in students' technical experiences, prior knowledge, and cultural resources. Instructional materials that seek to address longstanding issues of inequity in computing must make equity a central design objective in order to succeed at scale (Chingos & Whitehurst, 2012). This includes the use of culturally responsive materials for students and the supports necessary for teachers to teach with confidence and efficacy. The only constant is change. Culturally responsive instructional materials must resonate with the interests, values, and identities of students. This means the materials must evolve to stay relevant; a static set of culturally responsive materials will not remain relevant across time, geography, and populations. Empowering teachers to create culturally responsive materials can keep such materials relevant and also allow activities and lessons to respond to and draw upon local issues, community movements, school-wide initiatives, or features of the local geography/ecology.

Student-centered - Instructional materials aim to make the learning process more meaningful to students by engaging them in the learning process and personalizing it to their interests, needs, and strengths. Instructional materials aim for students to be active participants in their learning and have opportunities to direct their own learning in meaningful ways

How does this project support the district broadly?
We broadly aim to support teachers to customize existing Scratch Encore curricula to be more culturally relevant and better meet the needs of students. Given CPS' focus on computer science education across the district, this work supports this overarching goal.

Commitment to Equity

In what ways does this project reflect/challenge/progress the district's commitment to equity?
The overarching goal of the research questions this project pursues is to place equity at the forefront and acknowledge the central role teachers can play in creating culturally responsive learning experiences for students. In doing so, this work advances our understanding of how to empower teachers as change agents to address the systematic exclusion of Black, Indigenous, and Latinx people in computing fields.
Further, this work seeks to provide a more comprehensive understanding of how to create and sustain equitable, accessible, effective, positive, and lasting learning experiences for students who have historically not had equal opportunities to fully participate in computing. To this end, our research questions attend to various aspects of the central goal of empowering and supporting teachers to customize instructional materials for their students and classrooms.

Reflect on the district's equity framework as well as the following: As a researcher, what is my privilege / bias when it comes to this question? Am I assuming that Black and brown students will inherently perform poorly? Have I consulted those whose communities I want to research? Is the research designed with the holistic humanity of the people I am researching in mind? Do I perceive the communities I want to research as allies, or as research subjects? Am I interrogating / challenging policies and systems that may be contributing to inequities? Will this project create an undue burden on the communities I am seeking to research?

How are your research activities accessible to individuals with disabilities?
Materials can be adapted as necessary and include additional activities and customizations for learners with varying levels of prior experience and abilities. We have published academic articles about the process we followed to ensure this was the case and the results of doing so:

Weintrop, D., Coenraad, M., Palmer, J., & Franklin, D. (2019). The Teacher Accessibility, Equity, and Content (TEC) Rubric for Evaluating Computing Curricula. ACM Transactions on Computing Education (TOCE), 20(1), 1–30.

Coenraad, M., Beck, K., Palmer, J., Franklin, D., & Weintrop, D. (2021) The TEC Rubric to Evaluate and Improve Computing Curricula. Session to be presented at the Computer Science Teachers Association 2021 Annual Meeting. Virtual Conference.

Are your research activities translated into languages other than English as appropriate for the community?
The entirety of the curriculum is not currently available in any language other than English. The consent/assent materials will be translated into Spanish. We also have a Spanish/English translation guide to support Spanish-speaking students/teachers. Further translation can/will be completed as needed.

Please use the table below to list all District CPS Supporters and the role they will have in your study. Use the details box to describe your supporters' title and role in the district. List your primary supporter first.
Please click "save" after each line.

CPS Supporter Email Address			CPS Supporter Details
Beck, Kristan			Kris has been a close collaborator and supporter of this project for over 5 years. We meet bi-weekly with Kris and her team to make sure the project is meeting the
Email: klbeck1@cps.edu	**Business:**	(773) 553-3213	

CPS Supporter Email Address	CPS Supporter Details
	needs and goals of CPS and its computer science team.

Link to New Contact Form
User had the option to start a different form here.

How will you share your research findings with the population(s) you are studying?
All of our published materials are freely available on the reseacher's websites (https://www.canonlab.org and https://go.umd.edu/weintrop). The curriculum itself, which we consider a core contribution is also freely available online https://go.umd.edu/ScratchEncore). Finally, the teacher PD is available for anyone to take on the EdX platform (https://learning.edx.org/course/course-v1:UChicagoX+CSPD10000+2T2023/home).

Research Activities

Start Date of Recruitment

09/02/2024

End Date of Recruitment
02/28/2025

Please provide the date that you will begin primary data collection

09/16/2024

Please provide the end date of primary data collection
07/31/2025

Please provide the date that you will begin analysis

09/23/2024

Please provide the end date of analysis
12/31/2027

Please provide the approximate date that you will finalize your research report.

12/31/2027

Description of Deliverable/Final Product (i.e., academic/journal article, white paper, memo, report)

The research project will produce numerous academic journal articles to be published in venues related to K-12 computer science education (e.g., ACM SIGCSE, CSTA, TOCE) and education-related venues (e.g., AERA, Computers & Education).

Will any portion of this research, including recruitment or consent, take place during or in any way interfere with standard activities?

No   *With very few exceptions, research procedures cannot be carried out during or in any way interfere with standard activities, including instruction time or professional development sessions.*

Will this study involve study subject randomization or a control group?

No

Will your research employ study-subject deception or non-disclosure?

No

Will this research involve Product Testing?

No

Will this research involve collection of biological samples or biometric data?

No

Does this research involve other research procedures not described previously?

No

Is this research tied to a standard or novel curriculum, teaching or other program, staff professional development training or program, or other non-research activity or activities?

Yes

Please describe
This project is studying the Scratch Encore curriculum. This curriculum was designed with the help of CPS teachers and administrators and we have been running CPS-specific PD for this project for the last several years. Scratch Encore has been taught in CPS schools for over 5 years. The curriculum is focused on culturally responsive middle school computer science instruction. You can learn more about the curriculum here: https://go.umd.edu/ScratchEncore

Has the curriculum, program, PD, etc. already been approved by the district?
Yes

Please list the contact information for internal CPS supporter.
Kristan Beck - klbeck1@cps.edu

Does this study involve the use of educational technology (including survey tools, video conference platforms, and third party websites. See note for add'l details)?

Yes

Please be aware that under The Student Online Personal Protection Act, SOPPA (105 ILCS 85/), any platform students interact with must be compliant with current data security and student privacy regulations. Please note that this definition includes online survey tools such as Qualtrics. Please use the following website to check if your proposed platform is complaint with SOPPA: https://cps.app.learnplatform.com/new/public/tools

Please describe the use of educational technology as part of this study
This project uses the Scratch platform. Scratch is not SOPPA compliant, however, we have worked closely with CPS to develop an instructional approach that allows teachers and students to use the platform in ways that comply with SOPPA, including using Google docs/forms to upload/download copies of Scratch projects so students do not have to create Scratch accounts. Along with Scratch (in a SOPPA-compliant way), we also use the Google suite. We will use Zoom for teacher-only activities but not for any student-facing activities. Materials will be stored on the Box platform, an encrypted cloud storage solution preferred by institutions of higher education, including the University of Maryland.

Is the described educational technology a CPS SOPPA operator?
Unknown

Please use the following website to check if your proposed platform is complaint with SOPPA: https://cps.app.learnplatform.com/new/public/tools

Study Population

Will you be submitting a secondary Data Request?

No

RRB Protocol Number
2024-1961

This is your assigned RRB Number. Please reference this in any data request associated with this study.

Study Subject Inclusion Criteria

Teachers - Must have previously completed the Harmonizing Scratch Encore professional development and used Scratch Encore curricula in their classroom.

Students - All students in participating teachers' classrooms will be invited to participate in the study.

If the research involves more than one study subject population (e.g. students, parents, teachers, staff), please individually detail the inclusion criteria for each.

Study Subject Exclusion Criteria

Teachers - Did not participate in the Harmonizing Scratch Encore professional development and/or does not use Scratch Encore curricula in their classroom

Students - Student in classes where teachers did not complete the Harmonizing Scratch Encore PD will not be invited to participate.

If the research involves more than one study subject population, please individually detail the inclusion criteria for each

Please select all special populations that may be targeted for your study

No answer provided.

Describe the potential direct and/or indirect benefits for all detailed research procedures and populations

There are no direct benefits from participating in this research. However, we hope that by participate in this study, students will increase their knowledge of computer science have have increased confidence in participating in future computer science learning opportunities.

Describe the anticipated potential risks, however minimal, associated with the detailed research procedures and subject populations

There are no known physical or emotional risks for participating in this study. If a participant is uncomfortable, they are welcome to stop participating at any time. There is a potential risk of a breach of confidentially on data collected on this project but that risk will be mitigated by efforts discussed in the confidentiality section.

How will the identified risks for all research procedures and subject populations be minimized and/or mitigated to the greatest extent possible?

Any potential loss of confidentiality will be minimized by storing data in a secure location such as locked cabinets and password-protected computers and encrypted cloud storage platforms (e.g., Box). Only researchers approved to participate in the study will have access to the data. The data will be deleted 3 years after the project concludes as per requirements of the project funder.

If we write a report or article about this research project, identities will be protected to the maximum extent possible. Information may be shared with representatives of the University of Maryland, College Park or governmental authorities if someone is in danger or if we are required to do so by law.

What procedures will you use in the event that research questions/processes produce observable stress/distress in subjects?

In this case where a teacher or student becomes visibly destressed, we will pause data collection (including stopping recordings) and ask them if they would like to pause data collection or withdraw from the study. They will be reminded that there are no negative consequences to choosing to end their participation in the study.

Will you compensate study subjects?

Yes

Detail the proposed compensation (monetary and/or non-monetary) for each research procedure and population
Teachers - Teachers will receive $500 stipend upon completion of the weeklong Summer PD and completing the study requirements (creating and teaching a Harmonized Scratch Encore lesson, sharing class materials from fully consented students, participating in year-end focus groups)

Student incentives must be appropriate, equitable, and reasonable in amount. All staff incentives are limited to $50 or less in a given year. Any amount in excess will require the secondary employment form to be completed by staff participants, or otherwise have the amount allocated to the school.

Students - No compensation.

Describe when and where study subjects will be compensated and detail the mechanisms that will be in place to ensure study subject privacy when distributing compensation.
Compensation is only available to teachers and will be completed through email correspondence with the lead researcher at the University of Maryland (David Weintrop). The University of Maryland is managing the budget for this project, so compensation procedures are carried out by university staff following all state and national regulations regarding privacy and participant compensation.

Describe the compensation schedule for participants that withdraw from the research or that are withdrawn from the research by the study team.
If a teacher withdraws from the study prior to completing all of the required data collection activities, they will not be compensated. If teachers request their data is destroyed after receiving compensation, they will not be required to repay the compensation.

Study Recruitment

Outline every aspect of the recruitment process for students.

Students enrolled in the classes of participating teachers will be invited to participate in this study. Recruitment of students will take place by having a research member visit each participating class and introduce themselves, the project, and the study, and then pass out consent/assent forms. Students will not receive compensation. Further, all students in the class will have the same classroom experience, there will be no difference in instruction or classroom activities for consented versus non-consented students with the exception that non-consented students will not be videotaped or invited to participate in the brief in-class interviews.

Outline every aspect of the recruitment process for teacher participants.

CPS teachers who have previously completed the Scratch Encore summer professional development will be invited to participate in the Harmonizing Scratch Encore PD. All CPS teachers who complete the Harmonizing Scratch Encore PD will be invited to participate in the year-long classroom study.

The text of the the recruitment flyer for the summer Harmonizing Scratch Encore PD are attached. Note: participation in the summer PD is a distinct activity from the classroom study (which is the focus of this RRB submission). Teachers will be compensated $350 for participating in the summer PD which is different from the $500 compensation for the yearlong classroom study.

Please attach all recruitment materials not attached elsewhere (Optional).

HSE 2024 Summer PD Teacher Recruitment Flyer(2)(2).pdf   Recruitment Materials
HSE Classroom Recruitment Script.docx(1).pdf   Recruitment Materials
Year 3 Pilot Study Recruitment email(2).docx   Recruitment Materials

Deleted Attachments: 2 (Most Recent: Student Recruitment Script on 07/10/2024 11:16 AM ET)

Please attach all consent/assent forms associated with this study not already attached elsewhere (Optional).

> This study includes 3 consent forms (Teacher consnet, Parent consent, Student assent). All three are attached in the Funding and Intervention Information page.
>
>   07/10/2024 • Weintrop, David PhD • *Not* Internal

No answer provided.

Identify study team members who will recruit subjects.

David Weintrop
Diana Franklin
Jen Palmer
Minh Tran
Jennifer Elisabeth Mesiner

Will this research involve screening procedures

Yes

Please provide a description of your screening procedure.
Teachers must have previously completed the Scratch Encore professional development and have used Scratch Encore curricula in their classroom.
Students will not be screened. All students in a participating teacher's classroom will be invited to participate.

Attach all instruments, including, but not limited to, questionnaires, surveys, assessments, etc, that will be used for screening procedures.
 Screening   Misc/Other

Compliance

FERPA

> I confess I'm not 100% certain about this answer. I think it is not subject to FERPA as we are not collecting any student PII and not collecting any responses/data that would be shared with a parent (e.g., no tests/final grades). That being said, if my interpretation of this rule is incorrect, please let me/us know and we can revisit this. Thanks!
>
> 07/10/2024 • Weintrop, David PhD • *Not* Internal

For more information on FERPA, click here.

Is any aspect of this research subject to FERPA?
No

ISSRA

> I confess I'm not 100% certain about this answer. I think it is not subject to ISSRA for the reasons cited about for the FERPA question. That being said, if my interpretation of this rule is incorrect, please let me/us know and we can revisit this. Thanks!
>
> 07/10/2024 • Weintrop, David PhD • *Not* Internal

For more information on ISSRA, click here.

Is any aspect of this research subject to ISSRA?
No

PPRA

> Again, I'm not 100% certain about this answer. I think it is not subject to PPRA for the reasons cited about for the FERPA question. That being said, if my interpretation of this rule is incorrect, please let me/us know and we can revisit this. Thanks!
>
> 07/10/2024 • Weintrop, David PhD • *Not* Internal

For more information on PPRA, click here.

Is any aspect of this research subject to PPRA?
No

Permission, Confidentiality, and Security

Attach a draft of the permission letter that will be sent to school Principals

HSE_Principal_Letter.docx	Support Letters	*Please note that Principals have final authority over what happens in their schools.*

How will you protect the privacy of prospective research subjects? Please detail how study subject privacy will be protected during recruitment, screening, consent, and all research procedures. Provide an accounting for all applicable research procedures and study populations.

Any potential loss of confidentiality will be minimized by storing data in a secure location such as locked cabinets and password-protected computers and encrypted cloud storage areas. Only researchers approved to participate in the study will have access to the data.

All correspondence with teacher candidates and participants will take place through direct email, no publicly facing recruitment will take place (i.e., no posting to social media). Likewise, lists of participating teachers will never be posted in a public location. All recruitment correspondence, data collection activities, and data analysis will be restricted to researchers who have completed human subject research training (CITI training) and have been added to the IRB at the host institution (UMD). All University and federal privacy and confidentiality rules will be followed.

For students, collection and storage of consent forms will be completed by researchers with collected materials being stored in secure ways.

Describe the data confidentiality or security provisions that will be in place for all research data.

Any potential loss of confidentiality will be minimized by storing data in a secure location such as locked cabinets, password-protected computers and encrypted cloud storage areas. Only researchers approved to participate in the study will have access to the data. Once data is collected, unique identifiers will be used to track and identify study participants. A mapping file that links participant names to unique identifiers will be stored in a password protected excel file and saved in an encrypted folder.

If we write a report or article about this research project, identities will be protected to the maximum extent possible. Information may be shared with representatives of the University of Maryland, College Park or governmental authorities someone is in danger or if we are required to do so by law.

How will you store participant data?

With direct identifiers
With codes

These details must be included in all applicable consent forms

List the identifiers that will be stored and explain if identifiers will be deleted at a later date
For teacher data, names will be used to organize/store the data. This data will stored securely and deleted with project data at the end of the study.

Describe the coding mechanism, indicate where links to codes will be stored, identify the individuals who will have access to coding keys or links, and clarify if codes will be deleted at a later date.
Student data will be stored using unique identifiers that are not directly linked with any student PII. These student codes will be collaboratively designed with participating teachers using methods the teacher prefers (e.g., student1, student2, student3... or Period4_student1, Period4_student2). These identifiers will be used to connect different data sources to a single student (i.e., connect student-created artifacts with pre and post-survey responses). In the past, this approach of using the strategies preferred by the teacher has been effective. Also note, we will not be collecting any PII from students, so this is an exercise is tracking students across data sources within the study.

Will you keep participants' contact information on file after the data have been collected?

Yes

How long will you store participant contact information?
3 years

Explain the purpose for which participant contact information will be retained, such as recruitment for future studies or other follow-up study completion
Student contact information will not be stored.
Teacher contact information will be retained to inform them about future opportunities related to this project as it is under active development.

These details must be included in all applicable consent forms

Will you share individual-level data with other researchers or practitioners beyond the designated key research personnel?

No

What will you do with the data once the research has been completed (choose all that apply)?

Retain data for three years or longer post-completion, then destroy it

Please note that the district discourages storing study data for longer than three years after study completion.

Please describe the purpose for which you will be storing data after the conclusion of the study. Also, explain the planned duration (i.e. how long) you will retain data
The data will be deleted 3 years after the project concludes as per the requirements of the project funder.
The data will be kept for further analysis and (participant-anonymized) publication.

Attachments

Please attach all miscellaneous attachments

No answer provided.

If you are resubmitting your protocol following initial review, please attach your response letter here.

Are there any additional finalized contracts or agreements associated with this research that have not been attached elsewhere as part of this application (e.g. CPS Data Authorization Agreements)?

No

Are there any pending (i.e. not yet signed by both parties) contracts or agreements associated with this research that have not been attached elsewhere as part of this application?

No

Acknowledgements

Acknowledgements

Please acknowledge the following:

✔ All parts of this submission are accurate, complete, consistent, and clear.

✔ I have accurately and completely described all intended human subjects research procedures and the populations with whom they will be carried out.

✔ I have attached all study materials, including, but not limited to, all materials that will be given to, sent to, read to, or otherwise used with all prospective study subject populations.

✔ This submission adhere to all CPS policies and guidance as outlined in the link below
 https://www.cps.edu/about/district-data/conduct-primary-research/

✔ I have accurately identified all personnel who will be involved in this study.

✔ I acknowledge that any/all changes required by the CPS RRB in the course of its review of this submission will be reported to my IRB of record during the entire lifetime of this study.

✔ I attest that I will work with my IRB of record to address any concerns raised in the review of this submission.

✔ I attest that all of the research procedures detailed in this submission have been carried out with prospective IRB review and approval.

✔ I agree to comply with all background check and volunteer procedures required of my study, per the official CPS Volunteer Policy (link provided below):
 https://policy.cps.edu/download.aspx?ID=272

Submission Date

05/28/2024

All RRB new submissions, modifications, continuing reviews require a $50 processing fee. Please click on the following link to access our payment system. You will need to reference your assigned RRB number listed below:

CPS RRB/Data Request ePay System

Once you navigate to the Illinois E-Pay Site, please click on the blue text "RRB / Data Request Payment Option " to display the appropriate payment options. Once selected, your total will be displayed. Do not attempt to type in your total manually.

RRB Protocol #
2024-1961

Payment Confirmation Number
20000329

RRB Number

2024-1961

Ready for Review

Ready for Review

Type of Review

Full Board

Primary Reviewer
Disabatino, Lydia

Review Due Date
08/01/2024

Comments for Reviewer
n/a

Supplementary Site Output
No answer provided.

School Contacts
No answer provided.

Administrative Processor
Corson, Adam

Email: ACorson1@cps.edu   **Phone:**

RRB Meeting Date

08/01/2024

Payment Received

Yes

Current associated projects

N/A

Associated Projects
No answer provided.

Please enter the record number of any data request or projects associated with this project. Each record number will need to be provided with a link to the project screen using the Hyperlink Manager icon.

Primary Reviewer Recommendation

Primary Reviewer Recommendation

Type	Reviewer	Outcome	Assigned	Due	Complete
Primary Initial Review	Disabatino, Lydia		07/19/2024	08/01/2024	

Reviewer Notes

Post Board Meeting Processing

Do not process this stage until after the board meeting

Post Board Determination

Approve

Approval Actions
Approval with Recommendations

Post Board Summary for Researcher
Please be aware that per CPS policy, universal consent is required to audio or video record a classroom. In the absence of universal consent, observation notes only can be taken.

If this submission has been rejected, approved with recommendations, or conditionally approved, the above information will be included in the generated letter.

If this submission requires re-submission with changes, the information above will be included in an email.

Follow Up Required

No Follow-up required

Background Check Determination

Reviewer recommendation for Background Checks
N/A

Display Proposed Study Participants
Students
Teachers

Display Study Interventions
Classroom Artifacts
Focus Groups
Interviews
Observations
Questionnaire

Display Study Contacts

Contact Email Address	Contact Organization	Role	Study Responsibility
Mesiner, Jennifer MS **Email:** jmesiner@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Project Team Member	Will have access to individual-level student/staff data
Weintrop, David PhD **Email:** weintrop@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Primary Contact	Will have access to individual-level student/staff data
Palmer, Jen **Email:** jenpalmer@uchicago.edu **Expirations:** **Background Check Level:**	University of Chicago	Project Team Member	Will engage in primary data collection Will have access to individual-level student/staff data
Tran, Minh **Email:** ngminhtran@uchicago.edu **Expirations:** **Background Check Level:**	University of Chicago	Project Team Member	Will engage in primary data collection Will have access to individual-level student/staff data
Alkhateeb, Rasha **Email:** rasha@umd.edu **Expirations:** **Background Check Level:**	University of Maryland	Project Team Member	Will have access to individual-level student/staff data

Contact Email Address	Contact Organization	Role	Study Responsibility
Houchins, Jennifer **Email:** jhouchi@wested.org **Expirations:** **Background Check Level:**	WestEd	Project Team Member	Will have access to individual-level student/staff data

Office determination of background check level required for this study?
Level I

Please select the level of background check required for researchers involved with primary data collection?

Justification for Background Check
Interactions with students requires Level 1 background check.

This will appear in the "Other Notes" section of the letter received by the researcher. Please start this statement by identifying the level of background check required.

Approval Date

09/30/2024

Approval Period in number of months.
12

Notes for Letter
No answer provided.

Please add "N/A" if no other notes are needed and no background check is required.

After you click "Next" and "Submit", this form will automatically generate an approval letter and will allow you to proof read it in a separate stage.

RRB

2024-1961

Study Title
Harmonizing scratch encore: Empowering educators to create customized culturally responsive computing materials

Principal Investigator
Franklin, Diana

Email:	dmfranklin@uchicago.edu	**Phone:**

Redisplayed Board Determination

Approve

Determination Letter

In some cases you may see other determination letters attached by the submitter. However, only the generated determination letter will be sent in the decision email.

Name	Type	Date
RRB#2024-1961- Diana Franklin 2024-09-30.docx	Determination Letter	09/30/2024

This determination letter will be automatically attached to an email being sent to the principal investigator.

Please use the link below, click on the Attachments link on the left side of the page if you need to upload an edited version of the above letter.
New Submission defined 07/10/2024

Output Background Check Level

N/A

Additional Attachments to Decision Email

No answer provided.

Notes for Determination Email

No answer provided.

Study Site Contact Background Check Expirations

Name	Role	Background Check Expiration
Alkhateeb, Rasha	Project Team Member	Missing
Franklin, Diana	Principal Investigator	Missing
Houchins, Jennifer	Project Team Member	Missing
Mesiner, Jennifer MS	Project Team Member	Missing
Palmer, Jen	Project Team Member	Missing
Tran, Minh	Project Team Member	Missing
Weintrop, David PhD	Primary Contact	Missing

Please use the text box above to indicate the background check level required or any other pertinent information.
Level I

Background Check Level Justification
Interactions with students requires Level 1 background check.

Other Notes in Letter
N/A

RRB Meeting Date for Acknowledgment of Final Determination

12/06/2024	*Please select the next meeting date of the RRB.*

Please enter the date by which the coordinator should submit the Data Use Agreement. Automatic notifications will be sent out based upon this date.

11/01/2024

Initials: _____ Date: _____

Institutional Review Board
1204 Marie Mount Hall ● 7814 Regents Drive ● College Park, MD 20742 ● 301-405-4212 ● irb@umd.edu

CONSENT TO PARTICIPATE

Project Title	*Harmonizing Scratch Encore: Empowering Educators to Create Customized Culturally Responsive Computing Materials*
Purpose of the Study	*This research is being conducted by **Dr. David Weintrop** of the University of Maryland, College Park, and **Dr. Diana Franklin** of the University of Chicago. We are inviting you to participate in this research project because you have previous experience teaching the Scratch Encore curriculum. The purpose of this research project is to design and study teacher support materials. The goal of these materials is to help teachers create customized instructional materials that align with the Scratch Encore computer science curriculum.*
Procedures	*The procedures involve: (1) Harmonizing one or more Scratch Encore lesson using the resources introduced in the Summer Teacher PD you attended, (2) Sharing any associated Harmonized lesson materials you create with our research team, (3) Teaching one or more Harmonized lessons in your classes during the school year, and (4) Participating in focal group interviews with members of our research team and other Harmonizing Scratch Encore teachers about your goals and experiences using Harmonized Scratch Encore lessons with your students. The focus groups will take place after each time you teach the Scratch Encore curriculum, up to twice a year (once mid-year, once at the end of the year). Interview will take place on Zoom and will be video recorded. You will also be asked to share links to any publicly accessible projects on the Scratch platform that your students created during your Harmonized Scratch Encore lessons.*
Potential Risks and Discomforts	*There are no known physical or emotional risks to you for participating in this study. If you are uncomfortable, you are welcome to stop participating at any time. There is a potential risk of a breach of confidentially on data collected on this project but that risk will be mitigated by efforts discussed in the confidentiality section below.*
Potential Benefits	*There are no direct benefits from participating in this research. However, we hope that, in the future, other people might benefit from this study through an improved understanding of how to design culturally responsive middle school computer curricula.*

Confidentiality	*Any potential loss of confidentiality will be minimized by storing data in a secure location such as locked cabinets and password-protected computers and cloud storage areas. Only researchers approved to participate in the study will have access to the data. The data will be deleted 3 years after the project concludes as per requirements of the project funder.* *If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.*
Compensation	*You will receive a participant stipend for $500. You will be responsible for any taxes assessed on the compensation. Since you will earn more than $100 as a research participant in this study, you must provide your name, address, and SSN to receive compensation.*
Right to Withdraw and Questions	*Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.* *If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:* ***David Weintrop*** ***2226H Benjamin Building*** ***University of Maryland, College Park*** ***weintrop@umd.edu*** ***(734) 417-1704*** ***Diana Franklin*** ***325 Crerar Library*** ***University of Chicago*** ***(773) 702-4029***
Participant Rights	*If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:* University of Maryland College Park Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678

	For more information regarding participant rights, please visit: https://research.umd.edu/research-resources/research-compliance/institutional-review-board-irb/research-participants *This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.*
Statement of Consent	*Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.* *If you agree to participate, please sign your name below.*
Signature and Date	**NAME OF PARTICIPANT** [Please Print]
	SIGNATURE OF PARTICIPANT
	DATE

<u>**Year 3 Teacher Focus Group Protocol**</u>

This interview will be conducted using a semi-structured interview approach. This means the questions listed below are intended to start a conversation but the research has the flexibility to modify the questions or pursue avenues of discussion that emerge during the course of the interview. This is a common qualitative methodological approach for this type of design-focused work as teachers' lessons and experiences will vary and we, as researchers, are interested in learning about these variations that can't be planned for ahead of time.

Each teacher participating in the focus group will have a chance to answer each question but we also expect (and hope for) teachers commenting on each other's responses, resulting in a shared discussion.

1.   Introduction

Thanks for taking the time to join us to talk to us about your experiences teaching Scratch Encore and your own Harmonized lessons. My name is _____ and assisting me is _____. We're researchers at the [University of Maryland/Chicago] and we're conducting this research to understand the experience of teaching Harmonized Scratch Encore lessons but in terms of your experience as teachers and your students' experiences.

This focus group will last for approximately 75 minutes but no longer than 90. We really appreciate your willingness to speak with us, but we do want to remind you that you do not need to respond to any questions you'd prefer to skip and that you are free to withdraw from the study at any time.

We'll be video recording and transcribing this session because we don't want to miss any of your comments. This recording is for note-taking purposes only and will not be shared with anybody outside of our research team. We won't use your real name or any other potentially identifying information in any related publications.

Thank you for completing the consent form to participate. Before I begin recording, do you have any questions about the consent information or about the interview or anything else I've just shared?

[Begin Recording]

2.   Background Information

    a. Could you please begin by introducing yourself, including your name, school, the grades you currently teach, and the schedule you followed to teach Scratch Encore this year (e.g., every day for 90 minutes, once a week for two hours).

4.   **Harmonizing Scratch Encore Plans**

   a. Can you please share a bit about your Harmonized lesson, specifically, which module you harmonized, how you chose to harmonize it (e.g., what theme you chose or what sprite and background assets you added), and why you chose that topic for harmonizing?

4.   **Teaching a Harmonized Scratch Encore Lesson**

   a. Can you please share a bit about your experience teaching your Harmonized lesson? Did everything go according to plan? Did you have to make any changes mid-lesson?
   b. How did teaching a harmonized module compare to teaching a standard module? What was different about it? Was it easier or harder?
   c. From a student perspective, what do you think was the difference between the harmonized lessons and the standard lessons?
   d. Next time you teach Scratch Encore, do you plan on teaching your harmonized lesson again?
        i.   If so, why? What might you do differently?
        ii. If not, why not?

5. **Wrapping Up**

   a. Is there anything else you would like to share with us about the experience of teaching a harmonized scratch encore lesson?

Thank you again for your time today. We're excited to hear about your harmonizing experience. Please feel free to reach out to us with any additional thoughts or questions you may have between now and our next interview.

.

CONSENT TO PARTICIPATE

Project Title	*Harmonizing Scratch Encore: Empowering educators to create customized culturally responsive computing materials*
Purpose of the Study	*This research is being conducted by **Dr. David Weintrop** at the University of Maryland, College Park and **Dr. Diana Franklin** of the University of Chicago. We are inviting your child to participate in this research project because their teacher is using Harmonized Scratch Encore (HSE) units teach computer science in class, and has agreed to participate in this research study. The purpose of this research project is to help teachers create customized instructional materials that align with their students and understand the impact of materials on students.*
Procedures	*As part of this study, we will collect:* 1. *Classroom artifacts (e.g., worksheets, student-authored computer programs)* 2. *Audio recording during HSE lessons* 3. *Short surveys administered during class* *Parents please be aware that under the Protection of Pupil Rights Act. 20 U.S.C. Section 1232(c)(1)(A), you have the right to review a copy of the questions asked of or materials that will be used with your students. If you would like to do so, you should contact Diana Franklin at (773) 702-4029 to obtain a copy of the questions or materials.*
Potential Risks and Discomforts	*There are no known physical or emotional risks to your child for participating in this study. If you or your child is uncomfortable, you are welcome to stop participating at any time. There is a potential risk of a breach of confidentially on data collected on this project but that risk will be mitigated by efforts discussed in the confidentiality section below.*
Potential Benefits	*There are no direct benefits from participating in this research. However, we hope that, in the future, other people might benefit from this study through improved understanding of how to design culturally responsive middle school computer curricula.*
Confidentiality	*Any potential loss of confidentiality will be minimized by storing data in a secure location such as locked cabinets and password-protected computers and cloud storage areas. Only researchers approved to participate in the study will have access to the data. The data will be deleted 3 years after the project concludes as per requirements of the project funder.* *If we write a report or article about this research project, your child's identity will be protected to the maximum extent possible. Your child's information may be shared with representatives of the University of Maryland, College Park or governmental authorities if*

	your child or someone else is in danger or if we are required to do so by law.
Right to Withdraw and Questions	*Your child's participation in this research is completely voluntary. Your child may choose not to take part at all. If you decide to participate in this research, your child may stop participating at any time. If your child decides not to participate in this study or if you stop participating at any time, your child will not be penalized or lose any benefits to which they otherwise qualify.* *If your child decides to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:* ***David Weintrop*** ***2226H Benjamin Building*** ***University of Maryland, College Park*** ***weintrop@umd.edu*** ***(734) 417-1704*** ***Diana Franklin*** ***325 Crerar Library*** ***University of Chicago*** ***(773) 702-4029***
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Statement of Consent	*Your signature and initials indicate that you have read this assent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.* _____ *Yes, I agree to participate in all aspects of the study* _____ *No, I do not give consent to participate in the study* _____ *I agree to participate in some aspects of the study:* *Please initial for the portions of the study you agree to:* *Classroom artifacts:* _____*Yes* _____*No* *Audio recording:* _____*Yes* _____*No* *Surveys:* _____*Yes* _____*No*
Signature and Date	**NAME OF MINOR PARTICIPANT** **[Please Print]**	
	NAME OF PARENT **[Please Print]**	
	SIGNATURE OF PARENT	
	DATE	

ASSENT TO PARTICIPATE

Project Title	*Harmonizing Scratch Encore: Empowering educators to create customized culturally responsive computing materials*
Purpose of the Study	*This research is being conducted by **Dr. David Weintrop** at the University of Maryland, College Park and **Dr. Diana Franklin** of the University of Chicago. We are inviting you to participate in this research project because your teacher is using Harmonized Scratch Encore (HSE) units to teach computer science in class, and has agreed to participate in this research study. The purpose of this research project is to help teachers create customized instructional materials that align with their students and understand the impact of materials on students.*
Procedures	*As part of this study, we will collect:* 1. *Classroom artifacts (e.g., worksheets, student-authored computer programs)* 2. *Audio recordings during HSE lessons* 3. *Short surveys administered during class* *Parents please be aware that under the Protection of Pupil Rights Act. 20 U.S.C. Section 1232(c)(1)(A), you have the right to review a copy of the questions asked of or materials that will be used with your students. If you would like to do so, you should contact Diana Franklin at (773) 702-4029 to obtain a copy of the questions or materials.*
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	If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:
	David Weintrop ***2226H Benjamin Building*** ***University of Maryland, College Park*** ***weintrop@umd.edu*** ***(734) 417-1704***
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Participant Rights	*If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:* University of Maryland College Park Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678 *For more information regarding participant rights, please visit:* https://research.umd.edu/research-resources/research-compliance/institutional-review-board-irb/research-participants *This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.*
Statement of Assent	*Your signature and initials indicate that you have read this assent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.* _____ *Yes, I agree to participate in all aspects of the study* _____ *No, I do not give consent to participate in the study* _____ *I agree to participate in some aspects of the study:* *Please initial for the portions of the study you agree to:* *Classroom artifacts:* _____*Yes* _____*No* *Audio recording:* _____*Yes* _____*No* *Surveys:* _____*Yes* _____*No*

Signature and Date	**NAME OF PARTICIPANT** [Please Print]	
	SIGNATURE OF PARTICIPANT	
	DATE	

<u>**Year 3 Student In-class Interview Protocol**</u>

These interviews will be short discussions with students during independent work time during class. They will follow a semi-structured interview approach. This means the questions listed below are intended to start a conversation but the research has the flexibility to modify the questions or pursue avenues of discussion that emerge during the course of the interview. This is a common qualitative methodological approach for this type of design-focused work as students' ideas, projects, and experiences will vary and we, as researchers, are interested in learning about these variations that can't be planned for ahead of time.

1.   Introduction

Hello, I see you are working on your Scratch project, would it be OK if I asked you a few questions about what you are working on? [If yes] Would it be OK if I recorded it? We can stop recording at any time and you don't have to answer any questions if you don't want to.

<mark>[Begin Recording]</mark>

2.   Project Questions

    a. Can you tell me about the project you are working on?

    b. Why did you choose this topic?

    c. Are you having any difficulties with the project? Or were there any challenges you faced that you figured out on your own?

    d. Does this lesson seem different from other Scratch Encore lessons? If so, why?

    e. What do you think of this lesson overall?

5. **Wrapping Up**

    a. Do you have any questions for me?

Thanks for sharing your thoughts and your project!

Elementary Student Coding Attitudes Survey

Instructions: For each of the following statements, choose the ONE answer that shows how much you agree.

Item		Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
C1	I can learn to code.	☐	☐	☐	☐	☐	☐
C2	I am good at coding.	☐	☐	☐	☐	☐	☐
C3	I am good at problem solving.	☐	☐	☐	☐	☐	☐
C4	I can write clear instructions for a robot or computer to follow.	☐	☐	☐	☐	☐	☐
C5	If my code doesn't work, I can find my mistake and fix it.	☐	☐	☐	☐	☐	☐
C6	I've been told I would be good at coding.	☐	☐	☐	☐	☐	☐
I1	I like coding, or I think I would like coding.	☐	☐	☐	☐	☐	☐
I2	I would like to learn more about coding.	☐	☐	☐	☐	☐	☐
I3	Solving coding problems seems fun.	☐	☐	☐	☐	☐	☐
I4	Coding is interesting.	☐	☐	☐	☐	☐	☐
I5	I would like to study coding in the future.	☐	☐	☐	☐	☐	☐
U2	I can use coding skills in other school subjects.	☐	☐	☐	☐	☐	☐
U3	Knowing how to code will help me to create useful things.	☐	☐	☐	☐	☐	☐
U4	Knowing how to code will help me solve problems.	☐	☐	☐	☐	☐	☐
U5	I think I will need to understand coding for my future job.	☐	☐	☐	☐	☐	☐
S3	My friends think coding is cool.	☐	☐	☐	☐	☐	☐
S4	My parents think coding is important.	☐	☐	☐	☐	☐	☐
S7	I am friends with kids who code.	☐	☐	☐	☐	☐	☐
St2	Kids who code are smarter than average.	☐	☐	☐	☐	☐	☐
St5	Kids who code enjoy doing sports.	☐	☐	☐	☐	☐	☐
St7	Coders are good at math.	☐	☐	☐	☐	☐	☐
St8	Coders are good at science.	☐	☐	☐	☐	☐	☐
St9	Coders are good at language arts.	☐	☐	☐	☐	☐	☐

Mason, S. L. ,& Rich, P. J. (2020). Development and analysis of the Elementary Student Coding Attitudes Survey. *Computers & Education*. https://doi.org/10.1016/j.compedu.2020.103898.

Instructions: In this next section, please tell us a little about yourself.

Grade: What grade are you in? (mark ONE)

3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Gender: What is your gender? (mark ONE)

Boy	**Girl**	**Other**
☐	☐	☐

Race+Ethnicity: How would you describe yourself? (mark ALL that apply)

☐ Asian
☐ Black or African American
☐ Hispanic
☐ Native American or Alaska Native
☐ Native Hawaiian or Pacific Islander
☐ White
☐ Other (Please explain): _____

Experience1: How long have you been coding? (For example, Tynker, Scratch, Code.org)? (mark ONE)
☐ Less than 1 year (or, I started this year)
☐ 1-2 years
☐ 2-3 years
☐ More than 3 years

Experience2: How often do you code? (mark ONE)
☐ Almost every day
☐ About 3 times a week
☐ About once a week
☐ About once a month
☐ Less than once a month
☐ Never

Mason, S. L. ,& Rich, P. J. (2020). Development and analysis of the Elementary Student Coding Attitudes Survey. *Computers & Education*. https://doi.org/10.1016/j.compedu.2020.103898.

Post Observation Checklist

Engage

Opening discussion was:

- ❏ As written in lesson
- ❏ Shortened
- ❏ Additional real-life examples were added
- ❏ Additional Scratch examples were added
- ❏ The opening discussion took place in a previous class session.
- ❏ The opening discussion was omitted

Teacher introduces/reminds students of TIPP&SEE strategy:

- ❏ Yes, as written in lesson plan
- ❏ Yes, even though not in lesson plan.
- ❏ Not in lesson plan

Explore

Students completed the TIPP&SEE worksheet:

- ❏ On their own
- ❏ With a partner
- ❏ Whole class
- ❏ In a different class session
- ❏ The TIPP&SEE worksheet was omitted

The teacher facilitated a whole class discussion of TIPP&SEE worksheet questions:

	none	some	all	N/A (not used)
TIPP questions	○	○	○	○
SEE questions	○	○	○	○

TIPP discussion:

- ❏ The teacher stopped student work time to discuss TIPP questions.
- ❏ TIPP questions were discussed after students completed TIPP portion of the worksheet.
- ❏ TIPP questions were discussed after students completed both TIPP&SEE portions of the worksheet.
- ❏ There was no discussion of the TIPP questions.
- ❏ TIPP&SEE worksheet not used during this class session

SEE discussion:

- ❏ The teacher stopped student work time to discuss SEE questions.
- ❏ SEE questions were discussed after students completed only the TIPP portion of the worksheet.

- ❏ SEE questions were discussed after students completed both TIPP&SEE portions of the worksheet.
- ❏ There was no discussion of the TIPP questions.
- ❏ TIPP&SEE worksheet not used during this class session

As students worked on Scratch Projects:
- ❏ Teacher circulated and talked with students.
- ❏ Teacher stopped work time to reteach a CS concept.
- ❏ Teacher stopped work time to (re)teach a Scratch skill.
- ❏ Teacher demonstrated the solution to the modify task for the whole class.
- ❏ The teacher did not talk with students while they worked.

Students completed the "student sheet" worksheet:
- ❏ On their own
- ❏ With a partner
- ❏ Whole class
- ❏ In a different class session
- ❏ The "student sheet" worksheet was omitted

Reflect & Discuss

The teacher facilitated a whole class reflection discussion:
- ❏ About the CS concept
- ❏ About the Scratch project
- ❏ There was no reflection discussion during the observation

Student sharing of work:
- ❏ Students participated in a gallery walk of projects
- ❏ Students volunteered to share their projects
- ❏ Teacher selected students to share their projects
- ❏ No student work was shared during the class session.

Culturally-Relevant Computing

Teacher moves related to culturally relevant computing: (during any part of the class session)
- ❏ Included cultural connections present in the lesson.
- ❏ Added additional cultural connections to the cultures of students in the classroom
- ❏ Added connections to the city of Chicago
- ❏ Added connections to social justice issue or using computing to promote critical consciousness
- ❏ Engaged students in generative conversations regarding the students' culture

Student moves related to culturally relevant computing:
- ❏ Discussed elements of their heritage culture

❏ Discussed elements of vernacular (youth) culture
❏ Included new heritage cultural elements in their projects
❏ Included new vernacular (youth) cultural elements in their projects

Harmonized Features of Lesson

Teacher moves related to Harmonized aspects of lesson: (during any part of the class session)
❏ Discussed unique, localized (Harmonized) aspects of lesson
❏ Engaged students in discussion or opportunities to share expreience related to the Harmonized topic

Student moves related to Harmonized topics of lesson
❏ Discussed Harmonized topic
❏ Created a modify project that reflected their own ideas, experiences related to Harmonized theme

Other

Misconceptions / Misunderstandings:
❏ A student surfaced a misconception
❏ Teacher directly addressed a student's misconception
❏ Teacher did not address a student's misconception in this class session
❏ Teacher surfaced a misconception

Differentiation:
❏ Teacher modified worksheets to differentiate for **SOME** students
❏ Teacher modified worksheets to differentiate for **ALL** students
❏ Teacher modified Modify/Create project to differentiate for **SOME** students
❏ Teacher modified Modify/Create project to differentiate for **ALL** students
❏ The teacher did not modify any parts of the lesson to differentiate

Compared to the estimate in the lesson plan, the lesson took:
❏ Less time than was estimated
❏ The same amount of time
❏ More time than was estimated

Teacher reminded students of the following strategies during the lesson:
❏ TIPP&SEE
❏ RoaR & hiSS
❏ WHAT A MESS

Notes or other observations: (Use this space to document anything that occurred during the lesson that you feel is important to note, but not captured elsewhere.)

Comments on culturally relevant computing (e.g., the teacher mentions to the observer that the lesson was relevant to the culture of their students and/or students connected to the module):

Classroom artifacts include worksheets and Scratch projects related to the Scratch Encore curriculum. Worksheets are available in Google form, pdf, and Google slide forms. Scratch projects are created on the Scratch platform then downloaded and submitted through Google classroom.

All of these materials for the curriculum are available on the Scratch Encore website: https://www.canonlab.org/scratchencorematerials. Please visit this site to see the totality of student-created artifacts that may be created/collected.

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www.umresearch.umd.edu/IRB

UNIVERSITY OF MARYLAND

INSTITUTIONAL REVIEW BOARD

DATE: July 2, 2024

TO: David Weintrop
FROM: University of Maryland College Park (UMCP) IRB

PROJECT TITLE: [1889204-14] Harmonizing scratch encore: Empowering educators to create customized culturally responsive computing materials
REFERENCE #:   NSF Memo
SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED
APPROVAL DATE: July 2, 2024

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category #7; Subpart D applies, 45CFR46.404.

Thank you for your submission of Amendment/Modification materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Prior to final approval of this project scientific review was completed by the IRB Member reviewer.

This submission has received Expedited Review based on the applicable federal regulations.

This project has been determined to be a MINIMAL RISK project.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Unless a consent waiver or alteration has been approved, Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate Amendment forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Please note that all research records must be retained for a minimum of seven years after the completion of the project.

If you have any questions, please contact the IRB Office at 301-405-4212 or irb@umd.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Maryland College Park (UMCP) IRB's records.

The other IRB approved documents can be found throughout this application. We did not re-attach approved materials (e.g., protocols, consent forms, survey instruments) as they are all uploaded other places throughout this application (e.g., on the Funding and Intervention Information page).

If you would also like materials attached here. Please let us know and we can come back in and attached the materials here as well.

Thank you!

Harmonizing Scratch Encore PD

Learn to customize Scratch Encore lessons for your classroom!
Join us for our Summer 2024 Harmonizing Encore PD!

Have you taught Scratch Encore in your classroom? If so, we invite you to our new Harmonizing Scratch Encore PD opportunity to learn to customize Scratch Encore materials!

Earn a stipend for participating in our **PD/research study** (participation required).
Go home with **two customized, culturally relevant modules** (including all student-facing materials)**,** as well as the **ideas** and **knowledge** to make modules responsive to your students!

You'll learn how to:
- Gather your students' interests to create projects that will appeal to students
- Brainstorm great culturally relevant projects
- Create two culturally relevant Scratch Encore Modify projects for your students
- Create student materials that match your redesigned project

We are offering a one-week, virtual PD, including:
- 1.5 hour synchronous sessions (11am-12:30pm EDT / 8-9:30am PDT)
- 2.5 hours homework, daily
- Office hours (optional - held twice each afternoon with Scratch Encore team members)

	Virtually on Zoom
Cost	Free!
Stipend for Participation	$350.00
Modules Covered	2 - 4
Dates	July 29th - August 2nd
Total Hours	17.5 hours

Completion Certifications will be provided. Please check with your school district to see if this certificate can be submitted for PD credits.

If you are interested in participating, please register [here](#) today.

Please contact Jen Palmer at jenpalmer@uchicago.edu if you have any questions.

Hi! My name is [researcher's name] and I am a [researcher's position]. I am here to tell you about a research project that will be happening in your class over the coming weeks.

Your teacher and I have been working together to create some new computer science lessons. [Teacher's name] is going to teach the lessons to your class soon and I would like to learn more about your experiences when [he/she] teaches them. If you choose to participate, you will not any extra work that your classmates don't have to do, you will just give me permission to ask you about what you are working on and see the projects and worksheets that you produce.

I am going to pass out consent forms for your parents to sign and assent forms for you to sign. We want both your parent's permission for you to participate and for you to confirm that you are willing to participate also. If you are willing to help me learn more about what you learn in these lessons, please bring back your signed forms and give them to your teacher.

Does anyone have any questions that I can answer right now? If you or a parent/guardian has any questions later, you can contact us using the email address or phone number on the consent forms we are passing out.

Hello All,

Thank you for your participation in our recent Harmonizing Scratch Encore Summer PD and for your interest in joining our upcoming **Harmonizing Scratch Encore Teacher Pilot Study**! We are reaching out to provide you with additional information and next steps if you would still like to participate.

The goal of this pilot study is to understand what happens when teachers use their harmonized Scratch Encore lessons with students. Participation will include teaching your Harmonized lessons in your classes, sharing your Harmonized materials, sharing student-produced materials from fully consented students, and engaging in focus group interviews with our research team. You will receive a **$500 stipend** for participating in the study.
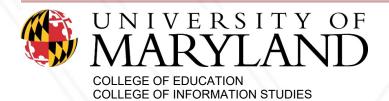
If you are interested in participating in the Harmonizing Scratch Encore Teacher Pilot Study PD, please:
   (1) **fill out this interest form** to let us know more about your plans for teaching with Scratch Encore this academic year.
   (2) **complete this online consent form**.

Please feel free to reach out to us with any questions. Thank you and we look forward to working with you this school year!

There is no questionnaire/survey/assessment that will be used to screen participants.

Teachers are eligible if they have previously completed a Scratch Encore professional development and used Scratch Encore curricula in their classroom.

UNIVERSITY OF
MARYLAND
COLLEGE OF EDUCATION
COLLEGE OF INFORMATION STUDIES

Teaching & Learning, Policy & Leadership
2311 Benjamin Bldg.
3942 Campus Dr.
College Park, MD 20742

Dr Principal ____,

My name is David Weintrop and I am an Associate Professor at the University of Maryland. My collaborator, Prof. Diana Franklin from the University of Chicago, and I are currently working with teachers on a study called Harmonizing Scratch Encore. As part of this study, teachers create computer science lessons that draw on the knowledge and cultural resources present in their classrooms and communities. We are studying this process to figure out how best to support teachers in doing this work and understand its impact on students.
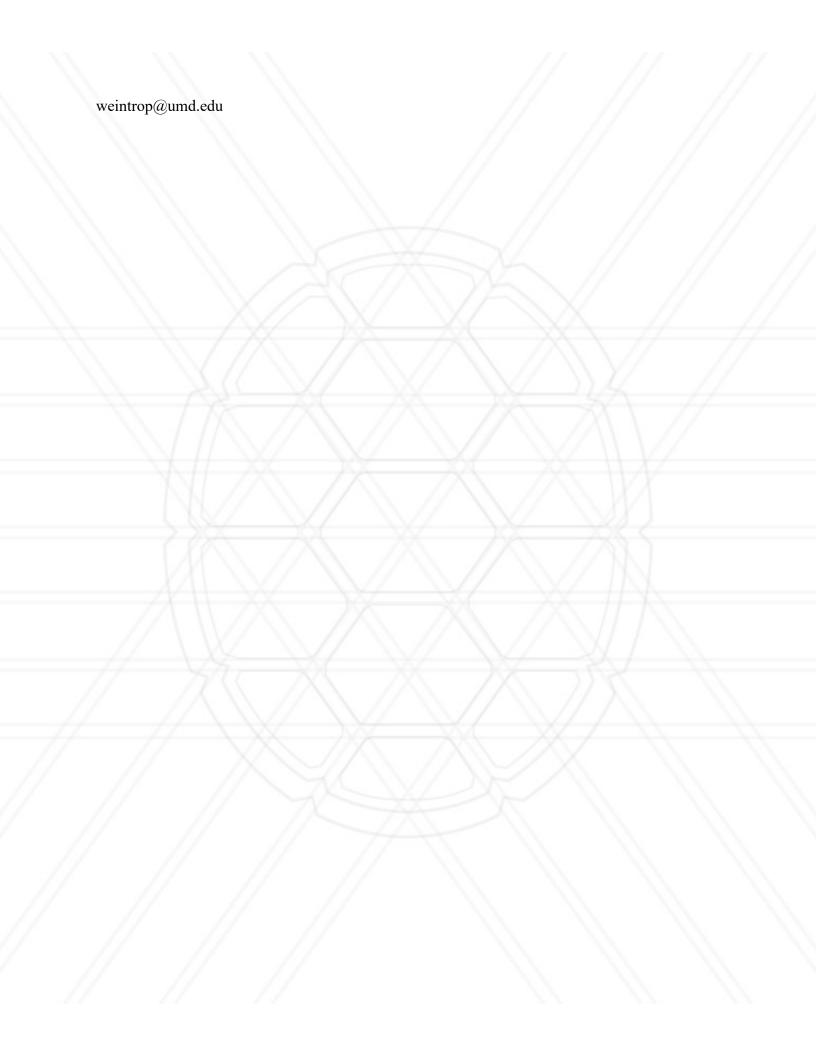
I am reaching out as a teacher in your school completed our Harmonizing Scratch Encore summer professional development workshop and volunteered to serve as a study participant this school year. As a study participant, we will work with the teacher to collect materials they create and gather data from them and their students as they teach the lessons.

This project has been reviewed and approved by the University of Maryland's Institutional Review Board (IRB study #1889204) as well as the Chicago Public Schools Research Review Board (RRB study #TBD). Data will only be collected from fully consented participants, which means signed parent/guardian consent forms and student assent forms. Students will not be compensated for participating nor will they receive any preferential treatment. All students in participating classrooms will receive the same instruction. We are happy to make all instructional and research materials available to you upon request.

While the teacher has agreed to participate in the study, as this is your school, the ultimately decision resides with you. If you do not wish for this research to take place in your school, or have any questions about the study, please do not hesitate to contact me (weintrop@umd.edu, 734-417-1704) or my collaborator Diana Franklin (dmfranklin@uchicago.edu, 773-702-4029).

Thank you in advance for your consideration,

Sincerely,

David Weintrop
Associate Professor
College of Education & College of Information
University of Maryland

weintrop@umd.edu

09/30/2024

Diana Franklin

Dear Franklin,

Thank you for your interest in conducting research in Chicago Public Schools. The Research Review Board has reviewed your proposal dated 07/10/2024 for research, titled: Harmonizing scratch encore: Empowering educators to create customized culturally responsive computing materials.

The Research Review Board has completed the review of your proposal and has decided to approve this project with some additional recommendations. The Research Review Board would recommend the following changes be made:

> Please be aware that per CPS policy, universal consent is required to audio or video record a classroom. In the absence of universal consent, observation notes only can be taken.

Please see the following notes—

Background Check Level Required: Level I

Other Notes: Interactions with students requires Level 1 background check.

While these changes are being recommended, the CPS RRB does not require any further documentation of these changes at this time. Although your study is approved, school principals have final authority over activities that are allowed to take place with their school's staff, students, or communities. If data collection continues beyond a year from this approval, please complete the Modification & Continuing Review Process Form which can be found on IRBManager.

Upon completion of the research study, a copy of the final report or summary of the results must be provided to the Research Review Board. The Board reserves the right to use the information in the research report or summary for planning, solicitation or grants, and staff development.

Please note that your study has been assigned Project #2024-1961. If you have any questions, please contact our office by email at research@cps.edu.

Sincerely,

Sarah Dickson
Co-Chair, Research Review Board