| RESEARCH ARTICLE

A Pedagogical Approach to Fostering Culturally Diverse Learners' Engagement in Self-Regulated Learning

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| **ABSTRACT**

Self-regulated learning (SRL) and culturally responsive teaching (CRT) research identify practices that foster engagement, albeit from different perspectives. Little research exists on how a combined SRL and CRT practices could support students' engagement. This study, using a case study design, examined how an elementary classroom teacher in Canada integrated SRL and CRT practices to support culturally diverse students. Six culturally diverse students in a combined grade 5, 6, & 7 classrooms participated in this study. Data collected included observations, records of classroom practices, students' work samples, survey, and interviews. Findings indicated the potential of integrating SRL and CRT practices in supporting students' engagement in SRL. Implications for theory, teaching practice and research are discussed.

1. Introduction

Classrooms in Canada are increasingly including students from diverse cultural and linguistic backgrounds. For example, the report of the recent census shows that 12.7% of Canadians speak a different language at home other than English or French (Statistics Canada, 2022). This ethnic, cultural, and linguistic diversity in Canada is also evident in today's multicultural classrooms. In these classrooms, each student brings (e.g. unique cultural backgrounds, languages, lived experiences, expectations, interest, individual differences and learning expectations) that interact with classroom contexts (e.g., learning activity) in shaping their learning engagement and achievement (Anyichie, 2018; Bang, 2015; Butler & Cartier, 2018, Gray et al., 2020; Gay, 2018; Okoye & Anyichie, 2008).

However, the presence of such a wide range of cultural histories and languages in a culturally and linguistically diverse classroom context poses challenges to both students and their teachers. On the one hand, minority students or those from non-dominant cultures are often faced with the challenges of navigating unfamiliar learning environments that can undermine their engagement and success (Butler et al., 2017). For example, culturally diverse learners experience lack of engagement in classrooms that do not recognize and include ideas from their cultural backgrounds and lived experiences. At the same time, some teachers, especially those from cultural backgrounds that are different from their students, do not feel adequately prepared to support culturally diverse learners' engagement due to lack of knowledge of, and experiences with culturally responsive pedagogy (Gay, 2018; Lambeth & Smith 2016). Therefore, these teachers are challenged with creating supportive learning environment for culturally diverse learners.

As a way forward, effort is needed to understand how best to create classroom contexts that foster culturally diverse learner's engagement. Culturally inspired frameworks such as culturally responsive teaching (e.g., Gay, 2018; Villegas & Lucas, 2002), culturally relevant pedagogy (Ladson-Billings, 1995), and culturally sustaining pedagogy (Paris, 2012) are beneficial in this inquiry due to their emphasis on the role of culture on students learning. Research in this area, although from different perspectives, provides ideas on how to address the issues that confront minority and underrepresented students such as social injustice, systemic racism, educational inequality, lack of engagement and achievement gaps (Howard, 2021, Paris, 2021). Fortunately, research is examining how classroom contexts (e.g., instructional activities) can support student engagement and success (Anyichie, 2018, 2023; Fredricks, 2011; Gray et al., 2020). For instance, culturally responsive teaching (CRT) describes how culturally diverse students' engagement improves when they perceive that their background, experiences, prior knowledge, and interests are utilized as resources for teaching and learning (Gay, 2018). However, most CRT research pays attention to how teachers are designing CRT classrooms with less emphasis on the impact of those practices on student engagement and self-regulation of learning (Anyichie, 2018, Sleeter, 2012).

On the other hand, self-regulated learning (SRL) research attests to multiple instructional practices that foster students' agency and enhance their engagement in active forms of learning (Butler et al., 2017). SRL refers to students' ability to control thoughts and actions to navigate environments and achieve their goals (Zimmerman, 2008). Self-regulating learners are strategic learners who define task requirements, generate and deploy effective cognitive and metacognitive strategies for successful learning (Perry & Rahim, 2011). Such learners are actively engaged and regulate their learning processes (Zimmerman, 2002, Ilishkina et al., 2022). SRL research has examined how empowering instructional practices (e.g., choice provision) support students' engagement, motivation and success (Buter et al., 2017; Perry, 2013). For example, SRL research demonstrates how students are actively involved in autonomy supporting learning activities such as tasks with choice provisions on what, how, where, whom and when to work (Patall & Zambrano, 2019; Perry, 2013).

Recent investigations suggest that supports for self-regulation are beneficial across cultures in terms of supporting human agency and academic performance (McClelland & Cameron, 2012). However, regulatory processes associated with success (e.g., learning behaviours, strategies, goals) can vary across cultures. Nevertheless, most SRL research focuses on learning as an independent process with less attention given to the influence of sociocultural contexts on learning processes. Lately, SRL researchers (Anyichie, 2018, 2023, Anyichie et al., 2016; Järvenoja et al., 2015; McInerney & King, 2018; Perry et al., 2017) are paying attention to understanding how students' social and cultural contexts shape their learning experiences including engagement. Thus, more attention is needed on how to proactively use SRL promoting instructional practices to design culturally meaningful contexts to meet the needs of culturally diverse students.

Based on the complementarity between the principles and practices of CRT and SRL, educators could integrate these instructional practices to optimize their benefits (e.g., engagement, SRL) for all learners in a multicultural classroom context (Anyichie, 2018). Therefore, this study examined how culturally diverse learners' engagement could be supported by embedding a combination of pedagogical practices from CRT and SRL within a classroom learning activity.

1.2. Designing classroom contexts to foster culturally diverse learners' engagement
To better understand how to foster culturally diverse learners' engagement in classrooms, this study builds on theories and practices around CRT and SRL. Specifically, each of these areas of research recognizes instructional practices that support student engagement. For instance, culturally inspired pedagogies including culturally responsive teaching; culturally relevant pedagogy, and culturally sustaining pedagogy, although developed from different perspectives, highlight the role of sociocultural contexts in learning. In addition to addressing issues of systemic racism, social injustice and inequality in education systems, research from these frameworks has also identified evidence-based practices for designing equitable learning environments for culturally diverse learners' engagement. This study is sensitized by CRT due to how it identifies specific pedagogical practices to support the learning experiences of racialized students (Gay, 2018). For example, culturally responsive pedagogical practices (CRPPs) include creating caring and safe environments (e.g., by fostering a trusting relationship; acknowledging student cultures, contributions and perspectives); establishing cultural congruity in teaching and learning (e.g., by designing culturally meaningful and relevant activities that are connected with students' backgrounds and interests); and designing culturally relevant curriculum content (e.g., by adjusting the curriculum to reflect students' lived experiences and prior knowledge) (Gay, 2013, 2018; Ginsberg & Wlodkowski, 2015). CRPPs are linked to student engagement and achievement (Aceves & Orosco, 2014; Gay, 2018; Howard & Rodriguez-Minkoff, 2017; Ladson-Billings, 2021; Ginsberg & Wlodkowski, 2015) since students' interests are aroused and sustained in an environment perceived to be personally meaningful to their background and prior knowledge.

Furthermore, SRL research has shown how empowering practices support students' engagement, motivation and success (Buter et al., 2017; Perry, 2013). Examples of SRL-promoting practices (SRLPPs) include creating opportunities for students' decisions and choice-making about their learning, exercise of control over the level of challenge appropriate to their learning needs, and offering

teacher support for strategic action (e.g., task interpretation, planning, monitoring, evaluation). These SRLPPs relate to student improved engagement and positive learning outcomes (Anyichie, 2018, 2023; Anyichie & Butler, 2015, 2023; Anyichie et al., 2023; Anyichie & Onyedike, 2012; Perry, et al., 2020).

SRL models (e.g., Efklides, 2011; Pintrich, 2000; Winne & Hadwin, 1998; Zimmerman, 2000) emphasize individual and social processes of learning. For example, Butler and Cartier's (2018) situated model of SRL highlights how dynamic interactions between individuals (e.g., self-efficacy beliefs; metacognitive knowledge about themselves as learners) and contexts (e.g., qualities of activities, supports, and assessments) combine to shape learning engagement. This current study built on the situated model as a practical guide for designing an integrated pedagogy. Deliberate attention to integrate culturally responsive, relevant and a sustaining agenda into SRL research has the potential to foster culturally diverse learners' engagement in SRL and attend to both individual and sociocultural processes of learners (Anyichie, 2018; Anyichie & Butler, 2017; Anyichie et al., 2016).

To augment the impact of CRT and SRL research in relation to improvement of the quality of students' engagement, researchers developed "A Culturally Responsive Self-Regulated Learning (CR-SRL) Framework" (see Anyichie, 2018; Anyichie & Butler, 2017 for a detailed review). This CR-SRL framework was designed based on a theoretical and empirical analysis of the similarities and differences between the principals and practices of SRL and CRT. Instructional practices integrated into this framework are associated with student motivation, SRL, engagement and achievement (Aceves & Orosco, 2014; Anyichie, 2018, 2023; Anyichie & Butler, 2018, 2019; 2023; Anyichie et al., 2019; 2023; Anyichie & Onyedike, 2012; Elaine & Randall, 2010; Perry et. al., 2020; Revathy et al., 2018; Wolters & Taylor, 2012). This framework was developed as a practical guide to support educators in designing inclusive learning contexts that are meaningful and relevant to students' cultural backgrounds and lived experiences; and increase student desires and participation in their learning process.

The CR-SRL framework has three interdependent dimensions: (1) classroom foundational practices; (2) designed instructional practices; and (3) dynamic supportive practices.

Figure 1. Culturally Responsive Self-Regulated Learning Framework
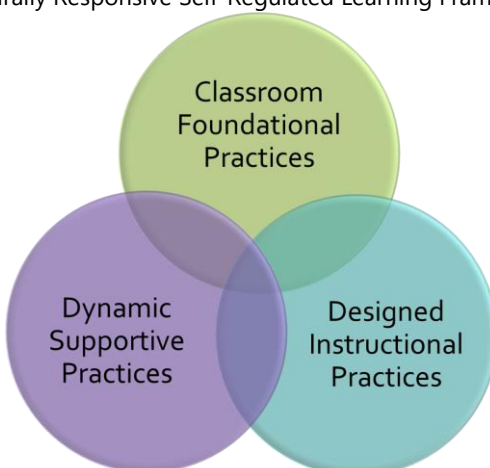
Source: Adapted from Anyichie (2018).

Classroom foundational practices describe teachers' proactive activities in setting up a culturally inclusive and empowering classroom context. Combined foundational CRPPs and SRLPPs include generating knowledge of learners and creating a safe, caring and supportive learning environment (Butler, et al., 2017; Gay, 2018, Ginsberg & Wlodkowski, 2015; Rahman et al., 2010). For example, as a strategy, "knowledge of learners" refers to practices teachers can use to gain understanding of their students' background histories (e.g., their cultural backgrounds, lived experiences, ways of knowing, interests, strengths and learning needs) and build from those when designing instructional practices. For example, at the beginning of the academic year, a teacher can design ice breaker activities with opportunities for students to share their background information and lived experiences. These same practices also support students' metacognitive knowledge of themselves and cultural competence. Also, teachers can increase their awareness of student's experiences of social injustice, educational systemic racism, issues of power while improving their own cultural competence by reading about these issues and questioning their cultural bias (Gay, 2018; Ladson-Billings, 2021; Paris & Alim, 2017). Foundational practices furnish teachers with the relevant information to design a safe and caring classroom where every student, regardless of their cultural background, feels safe to learn.

Designed instructional practices form the hub of this framework. These practices describe CRPPs and SRLPPs planned into lessons and activities with multiple learning opportunities to engage culturally diverse learners. A learning task could be designed to connect with students' cultural background and lived experiences (CRPP) and provide opportunities for decision- and choice-making, exercising control over learning challenges, self-evaluation, and strategic action (SRLPPs). In some cases, a single practice may both support SRL and be culturally responsive (e.g., a choice that enables learners to build from their cultural histories). In other cases, educators may weave together combinations of SRLPPs and CRPPs to create culturally responsive and empowering activities (e.g., a "complex" task). A "complex" task is defined as a task that addresses multiple instructional goals; focuses on large chunks of meaning about the learning content; integrates across subject areas; extends over time; involves students in making meaningful choices; engages students in diverse cognitive and metacognitive processes; and allows multiple ways of demonstrating learning and knowledge (Perry, 2013). A complex task that is relevant to students' background and interests (CRPP) can empower learners to take control over their learning, make choices (SRLPP) in ways that build on their culturally rooted knowledge and experiences (CRPP), and support their engagement (Gray et al., 2020).

Dynamic supportive practices refer to all the available supports to students as their learning progresses. These supportive practices that embed both SRLPPs and CRPPs include feedback from peers, teachers, and parents (e.g., highlighting examples of what could be done to improve an on-going task), and formative assessments (e.g., completing self and peer assessment forms based on rubrics) (Butler & Cartier, 2018) that are culturally relevant (Egbo, 2019; Ladson-Billings, 2021). These practices have the potential to support students' active engagement in SRL (Butler, et al., 2017; Perry et al., 2020).

1.3. Fostering engagement

Student engagement predicts many learning outcomes such as achievement and success (Kahu, 2013; Reschly & Christenson, 2012). Researchers have defined engagement variedly (Fredricks et al., 2016). Generally, engagement defines the process of a student's active involvement in a learning activity in relation to accomplishing a task expectation. Most researchers agree that engagement is a multidimensional construct including behavioural, emotional, and cognitive aspects (Fredricks & Mccolskey, 2012; Wang et al., 2011). *Behavioural engagement* describes students' observable participation in learning tasks such as asking and answering questions, and concentration (Fredricks et al., 2016; Sinatra et al., 2015). *Emotional engagement* defines students' attitude and affective reactions towards a learning activity including expression of enjoyment and interest (Pekrun & Linnenbrink-Garcia, 2012), and perceived benefits of a task (Schunk et al., 2013). *Cognitive engagement* describes students' psychological investment in an activity including self-regulation, awareness and use of strategies, and persistence in challenging tasks (Cleary & Zimmerman, 2012). Recently, researchers (e.g., Reeve & Tseng, 2011) introduced *agentic* engagement which defines students' proactive initiative in creating motivationally supportive environments for their learning. Agentic engagement also involves student contributions to the flow of learning activities such as making suggestions and offering input (Reeve, 2013).

Researchers (e.g., Jang et al., 2016) have tried to capture these dimensions of engagement through self-report. However, it is very challenging to distinctively observe them in a learning environment since they overlap and tend to complement each other within a given context (Bingham & Okagaki, 2012; Eccles, 2016; Sinatra et al., 2015). For instance, cognitive engagement is related to behavioural engagement (Wang et al., 2011), and emotional engagement is associated with behavioural engagement (Pietarinen et al., 2014). Furthermore, cognitive engagement includes student involvement in SRL which empowers their agency during the earning process. More specifically, engagement in self-regulation of learning involves student's participation in self-regulated learning pedagogical practices (SRLPPs) such as cycles of strategic action (e.g., task interpretation, goal setting, planning, enacting strategies, self-monitoring and adjustments towards achieving set goals); choice making and exercising control over one's level of learning; self-evaluation, self-reflection, and self-assessment (Butler, et al., 2017; Schunk & Greene, 2018).

Engagement has been investigated independently in the fields of self-regulated learning (SRL) and culturally responsive teaching (CRT). SRL research shows how SRLPPs support student engagement due to how it empowers students' autonomy towards their learning (Anyichie, 2018; Patall & Zambrano, 2019; Perry et al., 2020). Research among culturally diverse students' documents evidence of how students' engagement is improved in contexts that are meaningfully relevant to student cultural background and lived experiences (CRPPs) (Kumar et al, 2018; Gray, et al., 2020). To foster engagement, researchers have identified the significance of situating supports for SRL and motivation within learners' sociocultural contexts (e.g., Järvenoja et al, 2015; McInerney & King, 2018; Perry et al., 2017; Kumar et al., 2018). Thus, integrating SRLPPs and CRPPs in a classroom context have the potential to foster student engagement in SRL in ways that are responsive to the contextual features of a learning environment (Anyichie, 2018; Anyichie & Butler, 2018, 2019; 2023; Anyichie et al., 2016, 2019; 2023; Butler et al., 2013; Järvenoja et al., 2015). Nevertheless, there is extant research about the combination of SRLPPs and CRPPs to optimize their benefits for culturally diverse students' engagement in SRL.

Most engagement research has been measured through retrospective self-report that is often biased. Currently, there is an emphasis on understanding students' engagement through multiple sources of evidence because of its complexity, malleability

and situation in context (Fredricks et al., 2019). Therefore, this study contributes to engagement research by collecting multiple sources of data to better understand student engagement in SRL within a classroom context that combined across SRLPPs and CRPPs.

2. Research questions

The purpose of this study was to examine how Venus was supporting culturally diverse learners by trying out the integration of CRPPs and SRLPPs within the context of a complex task and how the identified practices combined to foster her students' SRL engagement. The following questions guided this study:

(1) What practices did Venus integrate into a complex task to support culturally diverse learners?
(2) What practices could be associated with her culturally diverse learners' SRL engagement?

3. Methodology
3.1. Design

We conducted an in-depth, case study of students' engagement during the complex task within Venus' combined grade 5, 6, and 7 classroom. Case study designs are effective in examining a complex and dynamic phenomenon as it manifests in situ (Butler & Cartier, 2018; Merriam, 2009; Yin, 2014). Such designs allow for collection of multiple sources of evidence and provide a framework for understanding the connections between pedagogical practices (e.g., CRPPs, SRLPPs) and associated outcomes (e.g., SRL engagement).

3.2. Participants

Venus' 22 students were all invited to participate in this study. Six of those students provided parent consents and assented to participate. Table 1 shows that these six students were from culturally diverse backgrounds. Overall, they were reflective of the cultural and linguistic diversity in Venus' classroom overall. Note that this study was designed to look for patterns in engagement across this diversity, not to associate differences with particular cultural backgrounds.

Table 1
Participant Demographics

Participant	Grade	Sex	Date of birth	Country of birth/origin	First language	Other languages	Years lived in Canada
Emelda	5	Female	Feb 2006	Canada	English	X	11
Nana	5	Female	X*	Korea	Korean	English	X
Edwardo	6	Male	June 2005	Columbia	Spanish	English	2
Ajin	6	Male	June 2005	India	Malayalam	English	4
Anusha	7	Female	X	Canada	English	Punjabi	X
Racheal	7	Female	May 2004	Canada	English	X	13

Note. * X describes information unknown to the researcher as the information in the table were obtained, with permission, through review of students' task folders.

3.3. Study context

This article reports findings from an initial study that investigated the potential of a CR-SRL framework in fostering culturally diverse learners' engagement in self-regulated learning. This study was conducted at Queens[1] elementary public school located in a multicultural area in Canada. At the time of this study, teachers at Queens had been participating in a Professional Development (PD) project facilitated by a university professor. The PD focused on the development of students' SRL in the classroom context. The lead author of this article, a male researcher of African descent, had a lived experience of the challenges of culturally diverse learners that inspired this research. He has experience in SRL and CRT research. With the permission of the school principal, he visited the classes of some of the teachers who were interested in supporting culturally diverse students in their classroom. He volunteered to collaborate with two interested upper elementary teachers in designing classroom practices. Both teachers taught in "combined grade 5, 6, & 7" classrooms (a common instructional configuration in this context) .

One of the teachers, Venus, later volunteered to participate in this study. Venus' combined classroom was situated within a "Discovery Program", which was originally designed to empower gifted students' curiosity and creativity. The lead author met with Venus in Fall 2016 to discern more about what she was learning about SRL in the context of her PD. He had meetings with the

[1] All names in this article are pseudonyms.

teacher where they had conversations about the CR-SRL framework, introduced earlier in this paper, and how it could be implemented to support student engagement.

3.4. Procedure

With all the necessary ethics approvals in place, the lead author and Venus co-designed a complex task based on the CR-SRL framework. While Venus was primarily responsible for the design of the complex task, the lead author supported Venus on integrating ideas from the framework. Ultimately Venus designed the learning task, "**Getting to Know Yourself and Your Classmates in other Contexts**," with the goals of connecting with students' cultural backgrounds and lived experiences, fostering their agency and enhancing their learning engagement (see Appendix A).

3.5. Data collection

To study Venus' practices in relation to her students' SRL engagement in considerable depth, we coordinated multiple sources of data including: (1) classroom observations and associated field notes; (2) documents; (3) student work samples; (4) students' self-reports about their engagement using an Experience Sampling and Reflection Form (ESRF); and (5) student interviews.

3.5.1. Observations

The lead author conducted 5 observations during "work period times" when students were working on projects (including the complex task). Observations focused on the practices Venus enacted to support culturally diverse students, and how the students were participating in those practices. Each observation lasted between 40 – 70 minutes. Observing the same students across different sections of the task provided an opportunity to understand their engagement in SRL as related to the specific features of the task as they were working.

During each observation, the lead author created a running record of what he observed, including teacher and student talk. In those records, he tried to capture exact learning actions during independent and group activities. Some of the observations were video-taped when it was possible to capture only the consented students. Those video-taped observations were helpful in gathering contextual information, and better understanding and interpreting engagement.

Occasionally, the lead author debriefed with the students as he circulated during an observation, and with the teachers after each observation to clarify what was happening in relation to student engagement and observed practices, respectively.

3.5.2. Teacher documents

The lead author accessed and reviewed the instructions and plans to identify practices Venus designed to support her students. The review of those documents helped him to focus attention during observations on how students were participating in relation to specific contextual features especially SRLPPs and CRPPs.

3.5.3. Student Work Samples

During the observations, while students were working, the lead author photographed student work samples. He sometimes took pictures of students' draft copies in their work folders. These pictures helped to see how students were engaging in the task in relation to pedagogical practices associated with each specific section.

3.5.4. Experience sampling and reflection form (ESRF)

To gather students' self-reports of their experiences of participating in the complex task, we developed an ESRF (adapted from Larson & Csikszentmihalyi, 2014). This form asked questions about students': (1) *feelings* (i.e., how did you feel about working on this activity today?); (2) *concentration* (i.e., how well did you concentrate while working on this activity/project today?); (3) *perceptions of challenge* (i.e., was this activity challenging for you? If so, what made it challenging? What did you do about the challenge?); (4) *perceptions of importance* (i.e., how important is this activity?); (5) *perceptions of enjoyment* (i.e., did you enjoy what you worked on today?); and (6) *interest* (i.e., was this activity interesting?). Students rated their responses from: *not at all =0, slightly =1, somewhat = 2, much =3; to very much =4*; and explained the reason for their rating by responding to a follow-up "why"? Students were asked to fill in this form each time they worked on their task. These immediate repeated reports reduced retrospective bias and helped us to understand their actual-time experiences.

3.5.5. Interviews

The lead author conducted individual semi-structured interviews with students at the end of the study. Participating students were asked about their perceptions of classroom activities and their participation within them. For example, they were asked questions such as: Can you tell me how you felt about the class assignment (i.e., complex task)? Was it interesting? What was helpful? Why was that helpful? What was challenging? Why was that challenging? What would you recommend if your teacher were to do that again? Some people say that they enjoy learning things that relate to their cultural and home backgrounds. What do you think?

Does it happen in this class? These interviews, which took place at a quiet corner of the students' classroom, lasted approximately 10-15 minutes.

3.6. Data Analysis
We conducted qualitative analyses of classroom observations, interviews, documents, student work samples and self-reports on the ESRF. We then coordinated that evidence to draw conclusions in relation to our research questions. Triangulation of multiple sources of data supports generating a comprehensive understanding of phenomena in context such as teacher instructional practices and student engagement (Carter et al., 2014).

3.6.1. Coding of teacher practices
Video-taped classroom observations, debriefings and semi-structured teacher and student interviews were transcribed. The instructions for different sections of the complex task and student work samples were reviewed. Our coding was informed by the a priori categories developed from the CR-SRL framework (see Anyichie 2018 for detailed review). There were two levels of coding. At a first level, we established a list of all instructional practices enacted in each section of the complex task.

3.6.2. Coding of teacher enacted SRLPPs
We started our second level coding by examining each practice with an SRL lens, noting any practice associated with SRLPPs. Teacher practices were coded as supportive of SRL if there was evidence of the teacher: (a) providing opportunities for choice and control over challenge (e.g., allowing students' choice and decision making, scaffolding students' meaningful choices, and supporting control over learning); (b) fostering self-evaluation (e.g., by creating opportunities for students' self-assessment, self-reflection, self-monitoring, and adjusting of learning); (c) offering teacher support (e.g., by providing resources and instrumental supports, and co-regulatory opportunities between the teacher and student(s)); (d) providing opportunities for peer support (e.g., offering opportunities for peer-to-peer support group activities, co-regulation of learning, and assessment); and/or (e) providing opportunities for students to engage in cycles of strategic action (Butler et al., 2017; Perry, 2013; Schunk & Greene, 2018).

3.6.3. Coding of teacher enacted CRPPs
Next, we reviewed the comprehensive list of practices from CRT point of view, identifying any practice that clearly linked with CRPPs. Teacher practices were coded as CRT when there was evidence of the teacher: (a) establishing cross-cultural communication (e.g., creating opportunities for social interactions about personal or cultural issues); (b) designing cultural diversity in curriculum content (e.g., adjusting and situating curriculum content to connect with students' prior knowledge and lived experiences by using multicultural textbooks); and/or (c) establishing cultural congruity in classroom teaching and learning (e.g., matching class instruction with students' prior experiences and cultural background) (Egbo, 2019; Gay, 2018; Villegas & Lucas, 2002).

The result was a chronological list of instructional practices identified as SRL, CRT, both, or neither. Note that, because each practice was reviewed twice, once from an SRL lens and once from a CRT perspective, some practices were coded as both SRL and CRT. This approach to coding enabled us to explain if and how SRLPPs and CRPPs were integrated within each section of the task (see Appendix A).

At a second level, once all sections and activities were coded, we classified the practices in relation to the three main categories of practices recognized in the CR-SRL framework (i.e., foundational, pedagogical and supportive practices). This lens aided us to interpret how the practices enacted by Venus did (or did not) link with the major kinds of practices consistently identified across the SRL and CRT literatures. Finally, we mined the documents and fieldnotes for confirming or disconfirming evidence.

3.6.4. Coding of Students' SRL Engagement
Students' SRL engagement was coded, analyzed and interpreted based on: (a) students' reflections through the task (using the ESRF), (b) students' work samples and (c) observations of students' engagement over time.

We analyzed the ESRF by creating a display of each student's reflective explanations of ratings on concentration (as an indicator of engagement). Displays were constructed to help us to see what students' explanations could tell us about their SRL engagement (e.g., choices they made to deal with environmental learning challenges).

To code observational data on students' SRL engagement, video-recordings as well as field notes from observations and transcripts of debriefs were reviewed to identify instances of SRL in specific contexts (i.e., while working on a particular section of the complex task). Student activities were coded as engagement in SRL when there was evidence of students' self-evaluation including self-reflection and self-assessment of their participation in the task; involvement in cycles of strategic action including setting goals, planning, enacting strategies, self-monitoring and adjustment of strategies; control over challenge by making decisions about

choices of what to work on, where to stay, how to deal with distractions, personal information to share, materials to use, and how to demonstrate their learning (Anyichie, 2018; Perry, 2013; Butler et al., 2017; Christenson, et al., 2012; Fredricks et al., 2004).

Finally, student work samples were examined for traces of regulation of learning especially in ways that are personally relevant and meaningful to the students (e.g., making connections between the assignment and their interests, family, and cultural backgrounds). Whenever we flagged a link between teacher' practices and SRL engagement in our displays (e.g., when students took up opportunities to bring their histories and lived experiences), we then accessed other forms of data to look for patterns to understand how particular practices (e.g., SRLPPs, CRPPs) may have facilitated different students' engagement in SRL within specific contexts.

4. Findings
4. 1. Teacher Practices
To answer the first research question about the practices Venus enacted in the context of the complex task, we examined the task instructions and observed instructional practices while students worked on the task. We also built on the three main categories derived from the CR-SRL framework to interpret coded practices. We cross-checked against teachers' and students' debriefing and interviews and student work samples to confirm our descriptions of observed practices. Note that we were not interested in *how many*, but *what kinds of* practices Venus enacted within the task to establish a learning context.

Overall, our findings were that Venus was able to build from the CR-SRL framework to embed practices of each main type into her classroom practice (see Appendix A). First, we found that Venus enacted many *classroom foundational practices*. For example, Venus's main goal when designing her complex task was to gain a better knowledge of the students' backgrounds (i.e., as a foundational practice). In addition, in the task, she combined SRLPPs and CRPPs to support students' engagement in thinking about their backgrounds and histories they were bringing into the classroom. For example, most sections of the task required students to describe their personal backgrounds and culturally-situated lived experiences (CRPP).

Second, Venus proactively *designed* her complex task to combine CRPPs and SRLPPs (See Appendix A). A review of the task's instructions showed how she established cultural congruity throughout most of the sections by providing opportunities for students to make personal connections between the task and their cultural backgrounds as well as personal experiences at home (CRPP). More specifically, the section on "Review and Reflect" asked the students to reflect (SRLPP) and describe their cultural backgrounds (CRPP). To support students' task understanding (SRLPP) and successful completion of this section of the assignment, Venus provided them with resource materials in the form of a printed definition of culturally relevant terms (e.g., family, religion, culture, belief, value and tradition) (CRPP). She further asked them to "interview a family member about how each of the defined terms fits into their lives" and to record the interview in any electronic device or ask their interviewee to fill out a form in response to their interview questions (CRPP). In these ways, Venus offered students opportunities to advance their cultural knowledge through the information they were expected to generate from their family members (CRPPs) and make decisions that would allow for choice and control over demonstration of their learning (SRLPPs). Moreover, Venus provided instrumental support through modelling and scaffolding of expectations (SRLPP). For example, she shared her own cultural values and beliefs in relation to the guiding questions she had provided (SRLPPs and CRPPs). Also, in the "Me Collage" section, Venus offered her students opportunities to create relevant collages that were important to them (CRPP), reflect on the importance of the content of their collage, experience strategic actions through planning, self-monitoring of progress and adjusting timelines, and choose which section to focus on and the presentation format (SRLPPs). In these sections of the task, Venus also created opportunities for students' involvement in self-reflection, choice making and exercise of control over the information they were sharing about their personal histories including what they were bringing into the classroom context (SRLPPs and CRPPs). They also could connect the class assignment with their background and culturally-based lived experiences (CRPP). Note that, while Venus integrated both CRPPs and SRLPPs across most of the sections of the task, SRLPPs were evident in all the sections, but CRPPs were not directly evident in some.

Third, Venus provided *dynamic supportive practices* as the students participated in the complex task. For example, a review of student work samples showed that Venus provided feedback to students' individualized plans on how to meet deadlines for different sections of the task and their self-generated interview questions (SRLPP). Through the provided feedback, she offered support for student planning, self-monitoring and the adjustment of their learning engagement (SRLPPs). To assess and generate feedback on students' moment-to-moment engagement and emotional experiences, Venus had students fill in the ESRF most times they worked on the complex task (SRLPP).

In sum, our analysis suggested that Venus combined SRLPPs and CRPPs in the complex task designed to support culturally diverse students. These findings also indicate that Venus wove in CRPPs and SRLPPs from each of the three main categories of the CR-SRL framework into the CR-SRL complex task.

4.2. Association between teacher practices and culturally diverse learners' SRL engagement

To address the second research question, we first examined observation data, ESRF, student work samples, debriefing and interviews to consider how culturally diverse students were engaged in SRL during the complex task. Second, we traced the link between their SRL engagement and teacher instructional practices. Overall, we found that students were actively engaged in SRL during the complex task. For example, they engaged in cycles of strategic action, choice making, and taking control over challenge. Also, our analysis showed that their engagement in these SRL processes is associated with the practices Venus enacted in the task to support their learning.

4.2.1. Cycles of strategic Action

Evidence suggested that through the complex task, students were meaningfully engaged in cycles of strategic action (i.e., goal setting, planning, enacting strategies, self-monitoring, self-evaluation and revising efforts as needed). For example, at the beginning of the task, participating students made plans and devised strategies on how to complete the requirements of all the sections of the task. Most set personal goals that included actions to take and specified timelines to meet deadlines based on their personal schedules. For example, in his planning sheet, Edwardo wrote: "I will read every definition and write how each of them fit into my life. Then, I will do the same with my parents and write down their answers" [See Figure 2]. As the students' participation in the different sections of the task unfolded across days, the students monitored their progress and adjusted their plans accordingly. For example, while working on her "Me Collage," Emily was distracted by what other students were doing, but she focused her attention and stayed on task because: "I was hoping to finish today...I decided to ignore them" [Emily, ESRF].

Figure 2
Edwardo's work plan
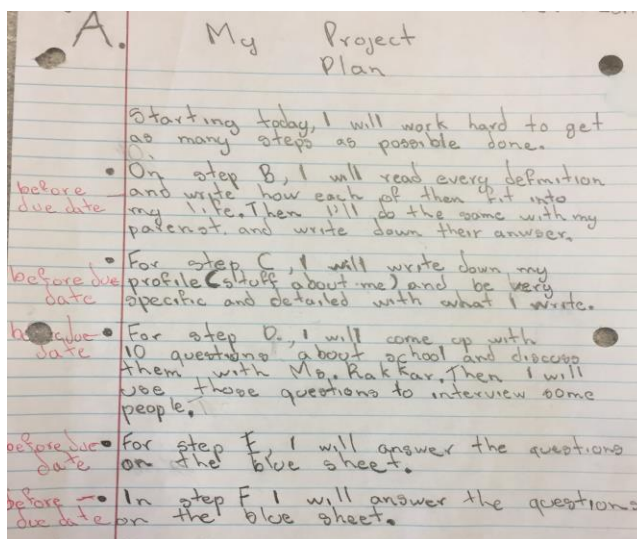
A pivotal process in self-regulation is to keep track of progress as it unfolds and make adjustments as needed. In this study, evidence suggested that students' engagement in cycles of strategic action included evaluation of their learning participation during the task through self-assessment and self-reflection. For example, students assessed their moment-to-moment participation in the task by rating their level of concentration every day they worked on it [Observations, ESRF]. Students' reflective explanations for their ratings of concentration included: "I did a pretty good job concentrating because I got two pages of work done" [Anusha]; and "because I had to search pictures that represented me and got distracted" [Edwardo]. Also, the participants were engaged in reflective thinking processes while making connections between task requirements and their lived experiences. For example, while working on the "Profile" section, they generated reasons to support the choice of what they liked such as, "Family and Friends, they make me happy and tell me the truth" [Rachael]. Also, they generated reasons for the things they did not like such as, "When people you trust lie to you, it breaks the truth [trust] and you won't be able to trust them for a very long time" [Racheal].

Furthermore, we noticed that students evaluated their overall experiences of the task and generated feedback for Venus. For example, Anusha recommended having the interview sections at the beginning of the task: "I recommend to get all the interviews done first, because those are like, the most time-consuming things, and then do the writing parts because those are the easiest parts and they like take less time." Similarly, Ajin suggested including diverse ideas into the "Writing" section, saying: "I think ...there

is a lot of writing part to it… some of them were like the same. So, I feel like adding more ideas into it, … say like the future or something like that… or how do you feel the future will be like?"

Our findings also suggested how students' engagement in cycles of strategic action could be related to the pedagogical practices in the complex task Venus created for them (particularly SRLPPs). For example, Venus, clearly communicated the expectations of each section of the task. Then, in the first section, "Organize and Plan", students had opportunities to set personal goals, plan for how to achieve them, and discuss their plans with her. Venus offered feedback on students' plans while appending her signature on the approved versions. Again, their engagement in reflective processes could again be linked to multiple opportunities Venus created for them to evaluate their participation and their learning experiences throughout the task (SRLPP). For example, in the last section "Reflection", Venus specifically asked the students to write about two things they had learned from the task and provide reasons on whether or not they enjoyed the task. Similarly, Venus scaffolded student self-assessment through the guided questions in the ESRF and different sections of the task (e.g., "Profile") where they were asked to provide explanations about the choices of what they liked (CRPP).

4.2.2. Choice making
Another key process in SRL is students' taking ownership over their learning by making meaningful choices. Examination of work samples showed that students were also engaged in making meaningful decisions across different sections of the task. For example, they made choices of how to record their interviews from the section "Review and Reflect"; what to include in their "Self-Profile," "Me Collage," and "Writing Assignment" sections; and, who to interview and questions to ask in the "School: in the past compared to the present" and "Past, Present and Future" sections. Findings also showed how the choices they made enabled them to connect their learning to their personal histories, experiences, and cultures (CRPP). For example, the "Writing Assignment" section required students to write an imaginary story about waking up at one of the three-time periods (i.e., 1940, 1970, and 1990). In this section, the students made choices that were relevant and meaningful to their background and cultural experiences. For example, Anita chose to write about her parents' wedding that did not fall exactly on any of the given years. Explaining the reasons for her choice, Anita said that: 'I did 1995 instead of 1990 because that is the closest time period to my Mom's and Dad's wedding. Usually, my Dad and Mom tell me something about their experiences …" (Student debriefing). Similarly, in his imaginary story writing, Ajin, a student from India, wrote about fighting in the 1965 Indo-Pakistani war which did not exactly match any of the given dates in the assignment.

Students' successful engagement in these activities is connected with the supports Venus provided to them, both in how she designed the complex task, and through the kinds of support she provided as they worked through the task. For example, their decisions about what they were sharing (e.g., their histories, cultural backgrounds and lived experiences) is related to deliberate opportunities and supports Venus offered them to make personally relevant choices (e.g., who to interview, what to include in their collages, to create an imaginary story with cultural relevance) (SRLPP, CRPP). In that context, they exercised ownership and control over their learning experiences in ways that were personally meaningful to their cultural backgrounds.

Venus also scaffolded students' decisions and choice making processes as situated within their sociocultural context using guiding questions (SRLPP and CRPP). For example, in the "Writing Assignment" section, she provided students with guiding questions, and gave them choices of conducting interviews or doing research to gather the required information. For grade 5, 6 and 7 students to write about waking up in 1940, 1970, and 1990, they had to think about their ancestral roots and how life was in their cultural contexts at those times. The students were able to connect with these cultural aspects of their lives because Venus deliberately wove it into the task.

4.2.3. Exercise of control over challenge
When engaged in SRL, students also have opportunities to exercise control over the level of challenge they experience while working on the task. In this study, evidence revealed ways in which students were exercising control over the level of their learning challenges through the choices they made. For example, in the section on "School: In the past compared to the present," the students were asked to generate interview questions based on their interests. Most of them found it very challenging to conduct interviews as required by this section. However, there was evidence of them exercising control over this challenge. For example, Nana asked her interviewee to write down responses to the interview instead of recording them using an electronic device. She said: "Well, I only did a couple of interviews. Um, basically they would write down those words and what it meant to them" [Interview]. Ajin, who was conducting an interview for the first time, described how he persisted in the face of challenge: "I felt like we were messing up a lot; but we never quit. I had to do many retrys [sic]. I just kept on trying until I go a good one" [Ajin, ESRF].

Furthermore, evidence showed how students were navigating challenges in their learning environments. For example, while working on their complex task, students chose to work in different rooms including the library and computer room [Observations, Teacher Debriefing]. Some students reported being distracted by peers during the task [Interviews]. However, they were strategic

in navigating distractions by: (1) *focusing attention, taking a break or seeking help from the teacher*: "I ignore them.... I will like take a break from my work until it quiets down, or I'll ask Venus to put on the timer so that it will be silent times" [Emily, Interview]; (2) *changing location*: "Sometimes, not very often, I move to like a different area of the classroom or a different spot, so they are not distracting me" [Rachael, Interview]; and/or (3) *offering peer support to stay on task*: "I will try to find a way to like tell that classmate, … that it's not a good moment right now to talk about something irrelevant to the project; because, you know you have to get everything done. Talking about other stuff, it's not really going to help. … it's not a good moment to talk about something that is not about the project. So, that's what I normally do" [Edwardo, Interview].

Students' engagement in exercising control over challenge is related to opportunities Venus offered them during the complex task. For example, in the section "School: in the past compared to the present," Venus offered students opportunities to exercise control over who to interview, the type of questions to ask and how to document information. These were the opportunities that allowed Nana to develop her own approach to recording responses, and Ajin to do many rounds of an interview. By providing opportunities for culturally meaningful choice-making, Venus supported her culturally diverse students' agency and ability to navigate the challenges they experienced while working through the task.

In sum, our findings suggested that the culturally diverse students in Venus' classroom were engaged in SRL during this complex task through their participation in cycles of strategic action, choice making, and exercise of control over challenge. These students' experiences of SRL engagement are associated with the ways in which Venus integrated CR-SRL-promoting practices into a complex learning context to support her culturally diverse students. One striking finding was that provision of choices seemed to be fundamental in supporting students' engagement in SRL. For example, choice provision offered students opportunities to control the kind and amount of the relevant information they were sharing about their cultural backgrounds and lived experiences.

5. Discussions

This study examined the potential utility of an integrated CR-SRL framework for supporting teachers to create culturally responsive and empowering practices that might foster engagement for diverse learners within multicultural classrooms in Canada. To that end, we studied the instructional practices an elementary classroom teacher co-designed with the lead author to support her culturally diverse learners within a complex task, and how the identified practices could be associated with the students' engagement in SRL. Our findings suggested that Venus was successful in building from the framework to integrate CRPPs and SRLPPs into her complex task. As she designed it, Venus' complex task enabled her to gain a better understanding of her students (i.e., a classroom foundational practice). At the same time, the practices she enacted clearly reflected all three main dimensions of the CR-SRL framework (i.e., foundational, designed pedagogical, and dynamic supportive practices). We anticipated this finding since Venus had been learning about SRLPPs as part of a professional development (PD) initiative and was exposed to the framework and collaborated with the lead author in the design of these practices. Further, Venus had some experience implementing SRLPPs because her "Discovery class" is essentially focused on fostering students' self-directed learning. Still, our findings extend previous research about the promise of collaborative forms of PD in supporting teachers to situate research and theory in practice, in this case to foster the active engagement in SRL of culturally diverse learners (Butler et al., 2013; Perry et al., 2006).

Second, the findings of this study suggest that an integrated CR-SRL framework was related to culturally diverse students' engagement in SRL during the complex task. Our analysis showed that our participants were engaging as strategic and self-regulating learners, by working through cycles of strategic action, making thoughtful choices, and exercising control over challenge (Butler et al 2017; Patall & Zambrano, 2019; Perry, 2013). These SRL processes were associated with the pedagogical practices Venus wove into the complex task. These findings extend previous research on how pedagogical practices (e.g., classroom activities) that employ CRPPs and/or SRLPPs can support culturally diverse students' engagement in SRL (Anyichie, 2018; 2023 Anyichie & Butler, 2017, 2023; Anyichie et al., 2023; Gay, 2018; Perry 2013; Wolters & Taylor, 2012). Also, our findings extend previous reports on how SRL and engagement are situated in context (Anyichie, 2018; Anyichie & Butler, 2019; 2023; Anyichie et al., 2023; Järvenoja et al., 2015).

In this research we were not able to tease apart the specific influence of either CRPPs or SRLPPs on students' engagement in SRL since both practices were woven together. But what we did observe was that these diverse students manifested powerful evidence of SRL in the specific sections of the task that combined CRPPs and SRLPPs. Provision of choice (SRLPP) that enabled students to connect task requirements with their cultural backgrounds and lived experiences (CRPP) seemed uniquely powerful. Future research should investigate the impact of choice on students' SRL in ways that are culturally relevant and how their cultural backgrounds may influence the way they engage in SRL.

Our study contributes a methodological approach to understanding culturally diverse learners' SRL as situated in the context of a complex task. A case study design allowed us to collect multiple sources of evidence and was beneficial in understanding how

students' interaction with contextual features could be related with their SRL engagement (Butler & Cartier, 2018; Yin, 2014). Nevertheless, this study is limited by the number of participants (i.e., a teacher and 6 students). In subsequent studies, we have been extending from what we learned in this pilot study by involving more teachers and students to better understand how culturally diverse learners' SRL might be associated with integrated CRPPs and SRLPPs during a complex task.

6. Conclusion

In conclusion, the findings of this study are promising in terms of: (1) unveiling the potential of integrating principles and practices of CRT and SRL as a framework in support of diverse learners' engagement; (2) identifying how educators might foster culturally diverse learners' engagement in SRL by designing environments and activities that integrate CRPPs and SRLPPs; and (3) the use of case study to capture engagement in SRL within the context of integrated complex task within a particular socioculturally situated context. Overall, this study adds to the literatures on SRL, CRT and engagement by uncovering how an integrated CR-SRL pedagogical approach could be associated with culturally diverse learners' SRL engagement.

Conflicts of Interest: The authors declare no conflict of interest.
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Appendix A

Venus' CR-SRL Complex Task

Sections	Task Requirements for the students	Teacher Practice	SRLPP	CRPP
Organize and Plan	To make plans of how to meet each of the deadlines and discuss with the teacher.	Opportunity for scaffolding of students' strategic actions [Teacher support].	X	
Review and Reflect		Opportunities for self-reflection, and, scaffolding of the process; and provision of resource for completing the assignment [Teacher support].	X	
	To reflect and describe their cultural values and life using guided definition of terms (e.g., family, religion, culture, custom, belief, and value);			X
	To interview a family member about how each of the terms fits into their lives; and	Opportunity for cultural competence through interview and gaining input from family members about their cultural values [Cultural congruity].	X	
	To record the interview on their electronic device or have the interviewee fill out responses to their questions.	Opportunity for choice making and exercising control over challenge about recording of the interview.		
Self-Profile	To describe themselves including their name, birthplace, birthday, people they live with and their ages, places they have lived and the length of time at each place, hobbies, five things they like most and least respectively.	Opportunities for knowledge of learners; students' self-reflection, and metacognitive knowledge [Teacher support].	X	X
School: Past and the present		Opportunity for choice of including more facts about themselves.		X
	To share any other thing they consider important about themselves.			
	To generate 5 to 10 questions about school that they can ask four people e.g., their parents, grandparents, aunts, uncles, siblings, cousins, etc. to help them get a better understanding of learning in a different country, place and/or time.	Opportunities to generate interview questions, decide on family members to interview and when, and how to demonstrate knowledge (with teacher scaffolding of the process). [Choice and control over learning].	X	X
	To have their interview questions approved by the teacher.		X	
	To create a Venn diagram or a chart to think about how school has changed and how it has stayed the same over time based on the responses from the interviews.	Opportunity for generating and offering feedback		
Learning	To define and describe learning in their own words; How do people learn; Where can you learn; Who can you learn from?	Opportunities for students' self-reflection [Self-evaluation].	X	

Activity	Description	Opportunity		
Technology	To write about use the use of technology in their family and life. They were provided questions such as: Who uses technology in your family? What types of technology do you and your family use? Do you use any of them for your learning?	Opportunities to integrate across subjects [].	X	
		Opportunity for students' self-reflection, cognitive and metacognitive processes [Self-evaluation].		X
		Opportunities for students to make connections between class and home [Cultural congruity].		X
Past, Present and Future:		Opportunities for knowledge transfer building from previous assignment [Teacher support].	X	
	To compare how life has changed and will continue to change. To do this, they were asked to interview some people. They had the option of either recording the interview or just write them down.	Opportunity to connect class activity to student backgrounds [Cultural congruity].		X
	To generate 3 to 5 questions that they could ask some people about life or perhaps three typical days in their lives. They were asked to interview two persons of different ages including 75 years or older; 50 and 70; 25 and 45; 10 and 20; 4 and 8).	Opportunities to generate interview questions and decisions about who to interview. [Choice and control over challenge].	X	
	To reflect about What they had learned? What they think about life 50 or more years ago in comparison to now? and, how has life changed over the years? To write about waking up in one of the time periods below including 1940; 1970; and 1990.	Opportunity to connect with students' social and cultural contexts, lived experiences and home culture [Cultural congruity].		X
			X	
	To pay special attention to questions like: Where are you? What are you doing? Who are you living with? How do you pass your time? They had choices of conducting interviews or doing some research to gather this information. The instruction also reminded them to have a proper beginning, middle and end while focusing attention to details and organization.	Opportunities for students' self-reflection and evaluation – metacognitive process [Teacher support/scaffolding].		X
		Opportunities to connect to lived experiences [Cultural congruity].	X	
		Opportunities for self-reflection; and imaginative thinking [Self-evaluation].	X	
		Opportunities for teacher support including scaffolding of the writing process with metacognitive questions; Opportunity for research experiences e.g., acknowledging resources [Teacher support].	X	
Me Collage		Opportunity for self-reflection [Self-evaluation].	X	
	To think about what is important to them and what represents them; and make a collage [either on a poster board, in a video or using PowerPoint]. They could collect, gather and take pictures or could also draw their pictures. They had options of bringing their pictures on a USB or a hard copy. Ms. Venus emphasized that the pictures should represent them and the things that are important to them.	Opportunity for students to make connection to their culture and personal experiences [Cultural congruity].		X
			X	
		Opportunity to make choice of what to include in the collage and demonstration of their knowledge [Choice and control over challenge].	X	

		Opportunity for accommodation of individual differences.		
Government	To discuss issues about government and voting. They had guiding questions such as: (1) Does your family talk about the government? (2) If so, are they going to vote? (3) Do they want to vote for a specific party? (4) How does your family decide who they will vote for? (5) What influences people when they vote or how they vote?	Opportunities for making connections between class activities and family/personal experiences [Cultural congruity]. Opportunity for fostering self-reflection [Self-evaluation].	X	X
Mental health	To reflect and report on the following questions based on the definition of Mental Heath provided by the teacher: (1) Have you heard about the term before?; (2) Does your family ever talk about this?; (3) Ask five people you know about mental health?; (4) Thinking back, to our key terms: family, religion, culture, custom, belief, value and tradition- how do you think these terms affect how people close to you feel about mental health?	Opportunity for the provision of resource such as definition of mental health [Teacher support]. Opportunities for students to make connections between classroom activities, and family and culture [Cultural congruity]	X	X
Reflection	To reflect and write: (1) two things they learned from the project; and (2) whether or not they enjoyed the project.	Opportunity for self-reflection [Self-evaluation]	X	