Building Youth's Agentive Capacities: Using integrative design to shape student's future thinking in history education
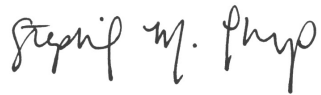
By: Gowri Balasubramaniam

Bachelor's Degree, National Institute of Design, GJ, India 2011

Thesis Submitted in Partial Fulfillment of the Requirements of the Degree of Master of Design in Integrative Design

Penny W. Stamps School of Art and Design
University of Michigan
Ann Arbor, Michigan

December 2, 2020

Approved by:

_____

Stephanie Tharp, Graduate Committee Chair

_____

Kentaro Toyama, Graduate Committee Member

_____

Darin Stockdill, Graduate Committee Member

_____

Audrey Bennett, Director MDes Graduate Program

_____

Brad Smith, Associate Dean for Academic Programs

_____

Gunalan Nadarajan, Dean, Stamps School of Art and Design

Date Degree Conferred: January 2021

M STAMPS
SCHOOL OF ART & DESIGN
UNIVERSITY OF MICHIGAN

Building Youth's Agentive Capacities: Using Integrative design to shape student's future thinking in history education

By: Gowri Balasubramaniam

ABSTRACT

Youth's future visions are colonized by the hegemonic view of the future produced and propagated by governments and popular media. Youth often do not grapple with the concept of futures and struggle to imagine how their actions impact the larger course of events. This thesis project aims to help youth recognize the agentive capacities they hold by leading them through envisioning and analyzing futures. Specifically, building on previous research, the research examines how a design-based futures thinking curricular module might engage students in such thinking within history curricula. The module's objective is not teaching students to envision or predict but recognize the values and virtues of envisioning futures and the influence such thought has over their present. This thesis documents the methodological integration of the fields of Design and Education through the development of an interdisciplinary curricular module. The curricular module was developed in collaboration with the Equitable Futures project, a five-week project-based learning history curriculum developed at the School of Education. It was piloted in two classrooms in Michigan. The curricular module's development and implementation bring to the front the value of futures imagery for vocalizing students' hopes and fears and presents a novel method for engagement with teachers for curriculum development and professional learning.

Keywords: Historical Literacy, Futures Literacy, Participatory Design, Youth, Empowerment, Agency, History Education, Curriculum Development

ACKNOWLEDGEMENTS

research. Most of all, thank you to all participants for sharing your visions, hopes, and fears.

This project is a culmination of my experiences and learnings from the MDes program, and it has indeed been a transformative journey. Thank you, John Marshall, for founding and designing this learning experience and always helping me see the bigger picture. Thank you for educating me, pushing me to think critically and feel deeply.

Thank you to Roland Graf, our cohort lead, for cultivating a space for constructive critique, engaged learning, and fostering experimentation. Thank you to all Stamps faculty for teaching me over the past few years; I cannot fully convey the depths of your impact on me.

To Meghan Jellema, thank you for being there day or night, for your support, your laughter, and most of all, for making this strenuous journey amusing.

To my cohort C4, Ashley, Jennifer, Colleen, and Megan, thank you for being a constant source of inspiration, for our stimulating conversations, sharing joys and sorrows of this journey, and crucial conversations that have shaped the course of my work. It is not easy to describe in words all that I owe to you.

Lastly, I express my heartfelt gratitude to my friends and family for their encouragement, love, and support. Thank you, Evan; I am deeply thankful for all you do for my dreams and supporting my work. A big thank you to Noopur; your virtual check-ins and words of wisdom brought me a piece of home in Michigan. Thank you to Amma and Gargi for guiding me to overcome self-doubt and for being the wind beneath my wings. Thank you, Appa, for being with me in spirit and being my pillar of strength.

KEY DEFINITIONS

Curricular Module: A curricular module refers to a relatively autonomous portion of a curriculum that is based and designed for specific learning outcomes.

Curriculum: A curriculum is a broad set of student learning experiences in formal education settings; it serves as a plan for teacher instruction to meet learning objectives.

Disciplinary literacy: It is defined as a set of skills combining content knowledge with the ability to reach, write, reflect, speak, think that is meaningful within the context of that discipline.

Empowerment: Youth empowerment is the youth's capacity to address social issues and then take action to improve systems and institutions that impact these issues.

Future Literacy: It is the capacity to understand how to imagine the future and know why it is necessary.

Historical literacy: Historical literacy is the ability to examine historical events through different perspectives and construct an understanding of history using available and valid sources.

Participatory Design: Participatory Design is a research orientation and method that places participants in experts' roles and actively shares decision-making and meaning-making.

Professional Development: It is a set of resources and training sessions for educators to enhance their instruction and effectiveness.

Professional Learning: Engaging in professional learning allows educators to stimulate their thinking, enhance their professional knowledge, and progress instruction quality.

Project-based learning: It encourages student learning by applying knowledge and skills through an engaging experience or a project that allows them to identify and formulate their problems, work autonomously, and build their knowledge.

Strategic Foresight: It is a discipline looking to alternative futures and possibilities to inform strategic planning to better prepare for potential threats and capitalize on opportunities in the present.

Youth: There is a lack of consensus over the definition of youth. In many international contexts, youth extends far beyond the age of 18 years; for this study, I assume the American definition of youth that includes those who are not yet 18 years of age.

Youth Agency: It can be defined as a capacity for youth to express their views and opinions to be heard to actively participate with systems and institutions that impact their environments and social issues.

Table of Contents

1. INTRODUCTION

This project introduced modes of envisioning, reflecting, and analyzing future(s) to high school youth in their history lessons through engagement in a curricular module designed and developed through a participatory design approach. In collaboration with the Equitable Futures project, a project-based US history curriculum, I developed a futures-thinking curricular module leaning on curricular expertise from my project partner, Dr. Darin Stockdill, one of the designers for the Equitable Futures curriculum. The module was implemented for testing in two classrooms across Michigan, where in collaboration with teachers, the activities were adapted to suit their respective students and classrooms.

Education plays a crucial role in supporting youth to critically and creatively investigate the future, but as practiced now, it has a diminished capacity to enrich youth's social imagination (Gidley & Inayatullah 2002). Future(s) are seldom explicitly studied in the classroom settings, while outside school environments, entities such as governments regularly depend on future studies and foresight to inform present action (Gidley et al. 2004). Educational institutions, specifically K-12 schools in the US, have remained passive in pivoting to forward-looking curricula (Gidley et al. 2004). This research aims to explore whether and how future-oriented thinking in history classrooms can make high school youth aware of their agency in

social contexts beyond their immediate micro-environments. Micro-environments refer to ecosystems, including their interactions within everyday contexts like family, friends, and peers. What role does future-oriented thinking play in aiding youth to develop such an agency? This research intends to find if this manner of thinking enhances student agency by analyzing futures and envisioning change beyond these immediate microenvironments. Empowerment in the context of this project, specifically with regards to youth, is defined as the nature of ownership youth can take as shareholders if not leaders in their community (Greene et al. 2018); while youth agency is defined as the power to shape their own life experiences, where they can contribute to them and not merely shaped by them (Bandura 2001). While the research cannot study students' actual change-making, it aims to find out more about student hopes, fears, thinking, and visions about the future, which are essential precursors to action.

Over three semesters, the module developed as part of this research was prototyped thrice across two 9th grade history classrooms in Michigan; observations and learnings from each iteration informed the subsequent prototypes' plan and design. The design, engagement with stakeholders, and implementation of the project utilized combined approaches of Design-Based Research, Participatory Design, and Design Justice. The design of the curricular module itself was influenced by and borrowed methods from Design and Strategic Foresight. The module was prototyped for determining how these methods support

high school youth to facilitate encounters, conversations, and imaginaries that challenge the status quo. Challenging the status quo is a crucial step towards discovering agency. The methods in the curricular module centered youth in critical and creative processes of envisioning futures, highlighting their perspectives on various issues to join the discourse on futures. When youth question the constructs of the future they unconsciously hold, through generating new visions that resonate with their values, they may develop the ability to challenge ideas about change itself and imaging their role within that. Ultimately, the research's larger aim is to develop a framework to support teachers' planning and students' future thinking in history education.

The Equitable Futures project, its curricular objective, and its content were a springboard for my exploration. History education routinely counts understanding the past as an objective in itself; however, research shows that many students overlook history's value and fail to understand its purpose, yet history holds an influential role in the orientation of the present and future (Straaten et al. 2016). At present, more than ever, the youth are presented with high stakes in the future, whether it be climate change or economic collapse. Candy (2019) draws attention to the fact that the existential risks humankind has to face are mounting, under-imagined, and under-addressed. Hence there is a need for youth to actively engage with future(s) to equip themselves for the uncertainties and challenges they face and ultimately determine their role in shaping the future. School curricula

provide few practical and experiential tools to engage students in making sense of this change and exploring their role within it (Bishop et al. 2012).

Through participant (disciplinary experts, teachers & student) engagement, and underpinned by relevant theory, this research yields several insights for why this module is necessary now. The proposed, designed module is adapted from methods of Participatory Design and Strategic Foresight. I have been driven by my enthusiasm for bringing together the fields of Foresight and Design to apply it with a lens on transformative justice. A narrow focus on historical facts and trajectories does not account for invisible systemic relationships and interdependencies to recognize long term change. It is in our communities' benefit to evolving meaningful approaches to engage in inquiries into our collective futures. Empowerment is a multi-layered notion constituting social action approaches and individual and collective outcomes (Jennings et al. 2006). This research addresses empowerment in specific reference to youth, theoretically and practically. The youth are genuinely empowered when they have the capability and capacity to address the structures and social values behind the issues at hand (Jennings et al. 2006). Empowerment entails understanding the rudimentary processes and systems of a social environment and learning how to influence them adequately (Zimmerman 1995). Thinking and envisioning the ways they can influence these systems are precursors to action.

Having recognized the need for such thinking, there is tension around introducing these new ways of thought (Candy 2018). This research identifies an opportunity for the insertion of such thought. The Equitable Futures curriculum's core is its encouragement of student inquiry into historical events in a critical manner. History education requires students to engage in historical thinking, which is a means of chronological reasoning (Seixas 2015). It requires students to grapple with issues of causality, connections, and significance (Social Studies State Standards C3 framework). Such a process of rationalizing requires understanding processes of change and progression of change over time. According to Shemilt (2009), knowledge of the temporality of experience is crucial in generating perspectives on the future. Events in history were neither fixed nor inevitable, but not everything in history took place entirely at random; likewise, the trajectory of the future is not predetermined, not all potential situations are equally plausible; history has a crucial role in part to play in recognizing the plausibility of different future scenarios. (Straaten et al. 2016).

Therefore, the research strives to make an argument for introducing future(s) thinking methods into classrooms, particularly history classrooms, where students already deal with the concepts of the temporality of change. Slaughter (1995) identifies 'foresight' as a human capacity, in distinction to the widespread notion that the 'future' is an event/occurrence that happens to us. He placed the future in our human capacity to perceive consequence, change, difference, temporality. As

quoted by Shemilt (2009): *'The disposition to investigate and analyze the past from the perspective of possible futures is a key development in historical consciousness and one that transcends the all too common perspective that 'the past is dead and gone.'"*

1.2 Project Background

1.2.1 Partners and Access

Equitable Futures is a five-week curriculum exploring social justice and inequality in southeast Michigan, embedded in US history courses. The Equitable Futures curriculum aims to reveal historical patterns of change behind the present-day issues of equity and justice in Metro Detroit through project-based inquiry and to bring together different school populations from across Oakland, Wayne, and Macomb counties that otherwise might not collaborate.

The Equitable Futures project was developed as a collaboration between Oakland Public Schools and the Center for Education Design, Evaluation, and Research (CEDER) at the School of Education, University of Michigan. CEDER at the School of Education offers support in designing and developing educational curricula for on-campus units and K-12 learning settings in surrounding regions. The team that developed the curriculum included Amy Bloom and Stacie Woodward, social studies consultants at Oakland Schools; Kim Kocsis, a project-based learning consultant at Oakland Schools; and Darin Stockdill, Design

Coordinator at CEDER. Another goal for the Equitable Futures project was to bring together a cohort of teachers across schools to foster a supportive community to promote social justice education in social studies. The project engages teachers in professional learning to build support for such learning. Dr. Darin Stockdill was my project partner. He provided critical insights into the design and ideology behind the curriculum. I also collaborated, worked with, and learned from two high school history teachers Mr. Mike Greve and Ms. Jane Jordan, and engaged with their students. The classroom experience was highly valuable to the outcome of the project and shaped key learnings.

1.2.2 Introduction to the Equitable Futures Project

The curriculum takes Project-Based Learning approach-engaging students with real-world problems through a process of supported inquiry. The curriculum is also aligned with the C3 Framework, a set of broad standards designed to help create state-level standards that prepare youth for successful and productive participation in College, Careers, and Civic Life (C3). It is focused on inquiry and facilitates exercises (see Fig. 1) that support students as they strengthen their faculty to know, analyze, explain, and argue challenges in our social world. Lastly, Stockdill mentions that bringing student voices into curriculum development was a crucial part of the process.
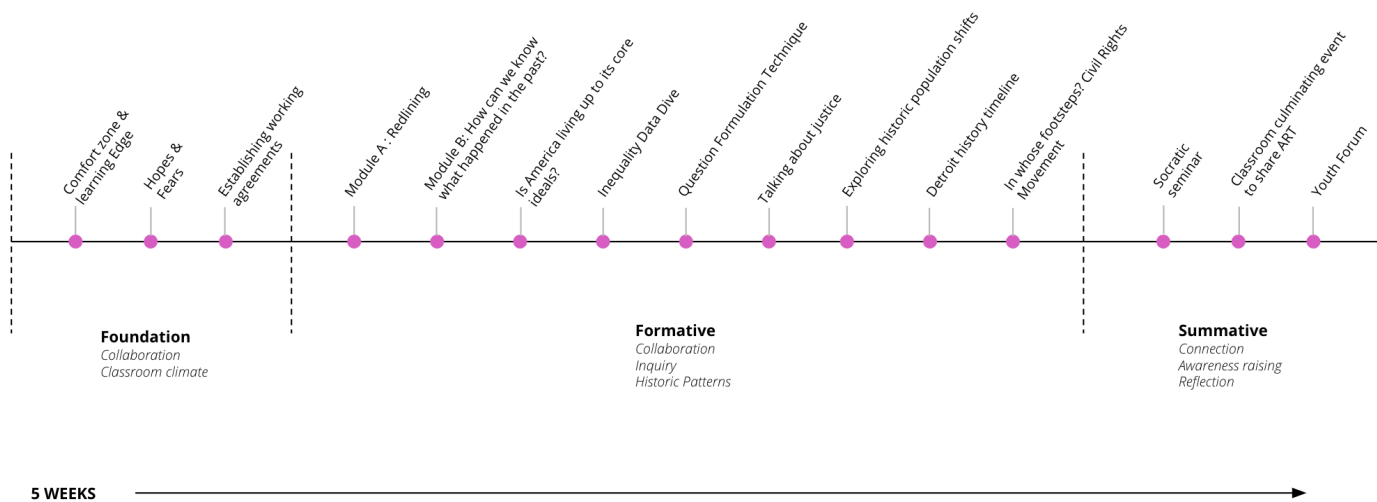
Figure 1: Activity Overview of the Equitable Futures Curriculum

The curriculum's objectives are for high school youth to understand how the past and present are connected and equip them with the knowledge and skills necessary to lead change in their community for more equitable futures. The curriculum leads students through inquiry on local and regional histories to connect to national narratives. The curriculum also engages students to work collaboratively with challenging, real-world problems to enhance their critical thinking and collaboration skills.

1.2.3 Theoretical underpinnings of the curriculum

In his earlier research (Stockdill & Moje 2013), Stockdill found that many high school youth in an urban community were not engaged in their history lessons, and yet many of them displayed an interest in social, economic, and political issues that affected their community. He notes this work building upon curriculum to improve quality learning, especially in history, has real implications for their lives out of

15

school. In order to address any community problem effectively, the history of that problem needs to be considered. Social science and history are thus necessary for exploring issues of social justice. To engage students in this type of learning, youth need a specific foundation of knowledge and literacy (Stockdill 2011). Paulo Freire (1990) considered that critical literacy development could help marginalized people better understand their reality and effectively strive for change. Through problem-posing, Freirean critical inquiry allows students and teachers to examine their experiences to larger public issues. Such integration of perspectives supporting meaningful inquiry can demonstrate why people experience familiar and different social realities (Nieto 1995).

1.2.4 Impact of the Equitable Futures Project

Teachers participating in the EF Project noted that students were highly engaged in the conversations and learning that took place around the project. As part of the curriculum, students spend the last portion of the project making research-informed posters to present in classroom-level conferences and also participate in a student-led-youth forum. The forum presents an opportunity for students who are traditionally segregated by race and socioeconomic status to come together to share their research and ideas with one another and learn from each other's perspectives. The teachers expressed that their students were not only empowered by their ability to use research skills to analyze equity issues in Detroit and the surrounding areas, but they got an opportunity to personally connect with

students from other districts, both online and in-person. A remarkable feature of the forum was that students could see the issues they were studying through each other's perspective, allowing them to gain an even more in-depth understanding of the issues that would be hard to achieve through classroom research alone. Students also noted that this mode of inquiry allowed them to express their opinions, research, and hopes to an audience beyond their peers.

1.2.5 Opportunity for Intervention

Analysis of data from previous youth forums shows that students desire to be equipped with skills to use on the information they learn and understand the concrete steps they can towards applying those skills in real-life contexts for change.

Student Quotes -

> "*We got to learn about something that we can be a part of now, instead of learning something we can't do anything about.*"
>
> "*We can take one step at a time.*"
>
> "*...how alike we are thinking about how much work we need in both of our communities and how we can only accomplish them together.*"

Emerging themes from analyzing student responses show that they want information on acting upon their envisioned ideals. The research on young people's future hopes and visions shows that young people sense a dissonance between their individual futures that are optimistic and national futures that are often

pessimistic, and only some are able to articulate it (Gidley et al. 2004). While the curriculum has robust methods to guide student inquiry on historical issues and their connection to the present, there is an opportunity to introduce methods for students to comprehend these issues' progress to the present and imagine its preferred future. There is also an underlying assumption that understanding patterns in the past will produce knowledge and skills to apply in the present and future. Analysis of surveys and artifacts from previous years of the curriculum indicate that students selecting a present-day issue to address in their culminating project only make surface connections to events in the past and feel inadequately prepared to affect change.

This research identifies the core opportunity area as building methods and tools to help students go beyond surface-level knowledge to interpretive and critical knowledge while connecting histories to futures. Surface level knowledge is primarily descriptive knowledge of obvious, evidential conditions. In history, the teacher exemplifies this knowledge by presenting names and dates for historical events; hence, it offers a fixed description of reality (Rawnsley 2000). Such knowledge lacks the more in-depth analysis of causation and the linking of meaning with people and their lived experiences; Interpretive knowledge involves more than accepting the facts; instead, it involves accepting other interpretations. It recognizes multiple interpretations of reality. A critical approach encourages students to investigate how values and power dynamics are maintained and

requires students to deconstruct and analyze societies and cultures' structures.

Through new ways of approaching knowledge about the past, history can also

contribute to how students see themselves and the groups they most closely

identify. It can also reshape how students perceive groups that have come to be

seen as the "other" historically marginalized groups (Cole & Murphy 2010).

2. CONTEXTUAL REVIEW

2.1 History Education - Challenge with relevance.

There is a lack of consensus in education research globally about history education's objective, mainly how history can be relevant (Straaten et al. 2016). Curricular standards in the UK identify the aim as students comprehending their identity and contemporary challenges, whereas curricula in Germany stipulate that students position themselves in the present and future by critically reflecting on history. There are comparable points in curricular standards in Canada & Netherlands (Seixas & Morton 2013). In the US, history Standards (NCSS 2010) designate the purpose of history education for learners to become active citizens and to prompt analysis of historical events to understand the present and make decisions for the future. Across all these standards, awareness and understanding of the past are regarded as primary aims in themselves. However, there is an assumption that studying the past will directly generate insights into the present and the future and skills to apply learning in real-life contexts (Straaten et al. 2016). Based on this, many history curricula are devised to examine past events and do not explicitly steer students towards reflecting on their relevance in the present (Straaten et al. 2016).

Research in the US shows that students have limited views on the purposes of history and have difficulty in articulating its relevance to contemporary issues. (Barton & Levstik 2011; Harris & Reynolds 2014). Findings from the project "Historical Pasts," conducted by Foster, Ashby, and Lee (2008), revealed that only a small number of students referred to history while reflecting on contemporary issues.

2.2 Making History Relevant

Stockdill and Moje (2013) posit that youth should have the opportunity to learn with stories about people who share their identities while also developing an understanding of history through people who do not share them. In their research, Stockdill and Moje (2013) investigate the relationship between student engagement and relevant social studies curricula. Their study demonstrates that the requirement is not making social studies "relevant" to the youth; however, it is to use their perspectives to make evident to them the relevance and connection of social studies to their own lived experience.

Youth are more engaged and tend to achieve more success when they care about the subjects being studied (Durik et al. 2005). Young people are interested in a variety of social issues outside the context of school (Collatos et al. 2004; Morrell 2004), and findings from studies indicate that they are not inherently disinterested in social studies issues (Bain 2005).

Students often accept historic inference as facts without inquiry; however, they also find the issues detached from their own experiences and lives (Bain 2005). This circumstance is further exacerbated for the youth of color in the U.S. because they feel disconnected from the history curricula due to the lack of representation in mainstream history discourse within the school classroom compared to their white peers (Lee 2007). Inquiry is key to reframing how we go about the process of making history relevant to students. Historical thinking plays a vital role in this process. History education researcher Peter Seixas believes that rather than focussing on disseminating historical narratives, history education should engage students with the processes and methods through which those narratives are constructed. According to his research, historical knowledge should be understood as relevant skills instead of information. Teachers in this capacity need to enable students to develop the skills required to critically analyze history (Thorpe 2012). In defining historical thinking, Peter Seixas and Tom Morton state-

> "*Our model of historical thinking comes from the work of historians. It is rooted in how they tackle the difficult problems of understanding the past, how they make sense of it for today's society and culture, and thus how they get their bearing in a continuum of past, present, and future*" (Seixas & Morton 2013).

They claim that it is about specific competencies rather than narratives themselves. They theorize the following six aspects of thinking historically-significance, primary

source evidence, continuity and change, cause, and consequence, historical

perspective-taking, and the ethical dimension (Seixas 2017).

Seixas (1993) found that students' thinking about history was shaped

fundamentally by their individual lives, families, and concepts from popular media.

Young people bring what they learn outside of school into the classroom; their

notions of history, for example, maybe shaped by their family and community

narratives (Seixas 1993). However, this can be a challenge to historical thinking as

even though youth have images of the past in their minds, their attempts to figure

out what the past means for them and their futures is often sporadic, incomplete,

and inaccurate (Seixas 2015). History education needs better ways for youth to

make sense of their images instead of focussing on the transfer of knowledge of

history as per operationalized standards (Seixas & Peck 2004).

Within education theory, inquiry signifies that learning begins with

something the student does and not what is done "to" her by the teacher (Brown

1996). In history, this becomes carrying out historical inquiry-reading primary

sources, constructing their inferences, etc. Connecting this way of "doing" history

with bringing in students' positionality can shift learners from passive recipients to

active participants (Stockdill 2011). According to Friere (1990), students faced with

challenges analogous to their experiences will be more inclined to respond to those

challenges. Considering these factors, it becomes vital to address how to build

curricula that recognize student knowledge and allows them to use it as an asset

and make way to utilize narratives of students who feel excluded from the mainstream curriculum (Stockdill 2011). Historians assert that histories present incongruent and varying records; hence there is a need to turn to disciplinary values of inquiry, examination, and revision (Cronan 1992; Bailyn & Lathem 1994, Colby 2007). Levstik and Barton (2001) substantiate the value of inquiry led and student-constructed historical narratives.

However, inconsistent with actual historian practice, Bain (2000) found that students viewed history as fixed and constant, fueled with the belief that history consists of facts compiled by historians for students to memorize and that all of this by some means helps them improve the present. Straaten et al. (2018) find that students are inclined to connect history to the present to view contemporary issues from a different perspective by engaging with futures. Their research indicates engaging with futures in regular history curricula is a novel approach to make history education relevant; they cite ample reasons for linking history to the present and future for students to make sense of them. Such connections may improve student motivation towards the subject and encourage them to see real-life applications of subjects they study in school (Brophy 1999; Pintrich 2003).

2.3 Connecting History to Future(s)

> *"The conceptual frameworks that influence historical accounts also influence speculation about the future. In this respect, history and futurology share a subtle affinity. They are both children of the moving present"* (Buchanan 1992)

Students' outlook on the past is generally viewing it as a chain of events to be memorized (Lee 2004). There is also a dissonance between how young people imagine their future and national/global futures. Johnson's (1987) study of 600,000 school children in the US found that they often have an optimistic view of their individual futures; however, a rather pessimistic view of national futures. Futurists believe that this results from an onslaught of concepts of fearful futures in popular media on youth's imaginations and that youth do not feel they have the capacity to contribute to the discourse on Futures. In his writing on Design Futuring, Tony Fry (2009) communicates that *"looking back teaches ways to think about how to project forward. It can be a way to formulate key questions and to create 'critical fictions,' enabling the contemplation of what would otherwise not be considered"*. Rusen (2004) further elaborates the relationship between history, present, and the future. Though the aim is not to predict the future, historical thinking may assist in thinking about the future.

Straaten et al. (2016) hypothesize that by putting students in positions to envision futures, the possibility of them using historical knowledge meaningfully may emerge. According to Rusen's (2004) theory, some students, when they think

about the future, take the past as a blueprint to be followed literally, whereas others view it more critically. Students who do not use historical information seem to reason the future from a personal and present perspective. This variability can be witnessed in the following two studies. Instone (2013), in his study, asked students to envision and describe China's position in the world a hundred years from now. While few claimed China's global dominance, overall, most cast doubts on whether that might actually happen considering the social problems it faces. A reason might have been that they did not have enough knowledge about China (Straaten et al. 2016). Much earlier than that, Culpin (2005) asked his students to envision the future but embedded the process in a series of lessons to build on student background knowledge. However, results from this study also show that student's use of historical knowledge to make future visions vary considerably.

Discerning long-term historical change that has shaped the present puts high demands on pre-existing historical knowledge that students must possess; hence they must be adequately equipped with disciplinary knowledge (both history and future) to begin to make such connections. There is sufficient evidence in the literature pointing to the synergy in thinking about history and the future.

2.4 Introduction to Future(s) Thinking and Futures Literacy

In contrast to previous positivist epistemologies of time where the future is an "occurrence," Slaughter (1995) put forward the notion of futures as a human

capacity. He came from the constructivist understanding that various communities cognize time differently. Future(s) thinking recognizes that our conscious and unconscious visions we hold about the future affect our individual and collective futures (Tsai 2016). Trope and Liberman (2003) theorize that the temporal distance alters one's mental image of the world, which leads to change in one's response to future events.

Having understood this, acknowledging "Futures Literacy" is significant. What does it mean to be futures literate? Futures Literacy is the ability to know how to imagine the future and understand why it is necessary. Futures Literacy enables one to become aware of the sources of their hopes and fears and improves their ability to harness the power of images of the future, to enable them to more fully appreciate the diversity of both the world around them and how the choices they make can impact them. It is the ability to become aware of assumptions about the future (Miller 2007). Mastering it allows one to view uncertainty as a resource. By imagining different futures, individuals can become aware of their capacity to shape new future directions (Miller 2007). This act of shifting this ability to imagine and envision from an unconscious to a conscious state is the start of becoming futures literate.

Futures literacy can change the conditions of change by challenging thought patterns, which are an important requirement for guiding transition processes in individuals and society. Thought patterns around events will most likely tend to

obscure visions of potentially more desirable but still possible future outcomes,

giving a false sense of having exhausted available possibilities and narrowing our

choices (Miller 2007). This can lead to under-investment and imagination of such

outcomes, which may impair change in the present (Miller 2007; Candy 2018). Such

thought needs to be carried out both on the individual as well as a collective level,

which is fundamental to transforming society. While foresight practitioners apply

these concepts within larger groups and organizations, Futures Literacy as a

capacity can be essential to individuals. The focus of such literacy is not to predict

or even plan but to improve such capacity in practice (Miller 2007).

2.5 Futures Literacy - In the context of Youth

Youth around the globe struggle to make sense of the world they inhabit. This

predicament is reinforced by the fact that their hopes and fears are given

inadequate regard (Gidley & Inyatulah 2002). In their book outlining youth

perspectives on the future, they make various policy suggestions to include youth

actively in the discourse on the future. They urge policymakers to recognize youth's

popular disenchantment with the dominant materialist worldview and their desire

to see ethical values become central to policy. Eventually, according to Gidley &

Inyatullah (2002), this conversation needs to include teachers, educational

researchers, and relevant stakeholders to make sure such perspectives are honed in

youth and are integral to education. Hicks (2002), through his collection of research

essays on futures oriented action within learning institutions, states that processes for change in the future and change in oneself are concurrent. Personal and political justice cannot be separated. Foresight practitioner Riel Miller (2007) suggests futures literacy as a mode of social participation and empowerment for the people, allowing them to build on the collective intelligence of a future and helping them cognize change over time. This capacity may hold significance to youth empowerment by building resilience in youth through imagining various possible futures (Bishop et al. 2012). Ramos (2020) says that though the evidence is limited, such practice can be transformative for individuals, as it may help them overcome anxieties about the future and help them discover their agency.

2.6 Futures Literacy - In the context of K-12 education

While the field of foresight and futures studies is an established practice, it is rarely explicitly utilized in school instruction despite offering methods and concepts relevant to the classroom (Rawnsley 2000). Futures thinking methods add value in many ways within the classroom- increase student engagement, develop students' values discourse, foster students' analytical and critical thinking skills, and empowers individuals to value and work towards alternative futures (Jones et al., 2012). In their study, Liberman and Trope (1998) researched the ramifications of enhancing student creativity of a futures-thinking curriculum. They state that thinking about the future prompts abstract thinking that facilitates student creative

capacity. Also observed in evidence from Forster et al. (2004), their study indicated better performance of participants in problem insights and the creative generation who were primed with imagining distant futures compared to those who were not. They suggest thinking about the distant future allows for students to explore their creative potential (Friedman & Förster, 2002).

As a learning process, Futures Literacy consists of three phases - Awareness, Discovery, and Choice. Awareness involves temporal understanding *'that change happens over time, that people do harbor expectations and values, and that choices matter'* (Miller 2007), while discovery involves *'consistently distinguishing between possible, probable and preferable'* scenarios that encourage *'rigorous imagining'* (Miller 2007) that assists in making choices for the present.

2.7 Theoretical Conclusions

Summing up relevant theory, it can be inferred that Historical Literacy and Future Literacy make analogous cognitive demands - temporally and spatially. To think historically, students need to understand the historical significance, use primary sources appropriately, discern change, analyze consequence, and take into context historical perspectives, having these skills tie into Historical Literacy. Historical literacy aims to give learners an understanding of the complexities of the present through inquiry on history. Futures Literacy prods learners to integrate this complexity in understanding how their choices and action shape the future

(UNESCO). It can be extrapolated that these ways of thinking are complementary in the following ways-

I. Both ways of thinking demand learners to apply deductive reasoning.

II. Both practices encourage critical thinking.

III. They challenge the predestined notion of both history and futures.

IV. Both bring forward the significance of human agency.

V. Both require consideration of how narratives are built - whether it's building a historical narrative from primary sources or scenarios using trends.

In the UK and New Zealand, such curricula have been adapted across various formal education settings in subjects of geography and citizenship, primarily to address 21st-century skills amongst learners (NFER, Futures thinking pack). In the US, Teach the Future is a non-profit organization providing educators with access to curricula to teach futures thinking and foresight within their classrooms. While there are curricula consisting of activity plans and workbooks available to support such learning, Rawnsley (2000) points out that many methods within these aren't novel in themselves but become valuable given the context of the future. In particular, this research makes a case for such methods to be adopted more readily in history lessons. While not only having synergy in their methods, a historical understanding of change and time is needed to more critically think about the future and understand how the path forward carries many implications from the past (Fry

2009). There is sufficient theoretical evidence supporting the need and potential

benefits of such a curricular module.

2.8 Approach to engagement - Participatory Futures
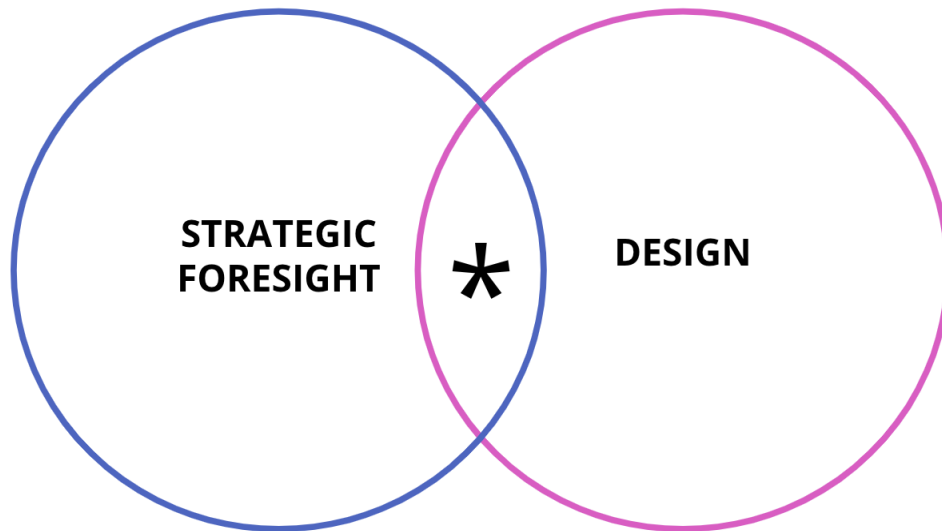
Figure 2: Exploration of methods at the intersection of Strategic Foresight & Design

Having acknowledged the potential of a Futures Thinking Curricular module, it's

necessary to lean on frameworks and methods best suited to the context this

research operates within. This research aimed to bring together methods from

foresight and design (see Fig. 2), and it is necessary to inquire into the various

methodological possibilities each of these practices afford. Design and foresight are

both oriented towards futures but offer differing yet complimenting frameworks,

ways of engagement, and doing. The field of foresight and futures studies is a

planning oriented discipline that is interdisciplinary in nature, but on a conceptual

and methodological level, intersect with the practice of design (Candy and Dunagan

2017). This intersection has further developed various approaches within this subgenre - "experiential futures," "speculative design," design fiction," these modes of practice focus on tangible and experiential aspects for discourse futures, whereas foresight lends itself to strategy and planning (Ollenburg 2018). The scenarios crafted in these are created for subversion and serve as provocations for further thought (Tharp and Tharp 2018).

This design of the curricular module takes a participatory futures approach combining methods of participatory design and futures thinking, such frameworks that have combined these approaches have been reported to work very well in contexts of transformative work (Ramos 2013). In its over fifty-year history, the field of foresight has gone through what Ramos (2017) argues are five stages - Predictive, Systemic, Critical, Participatory, Action-Oriented. The most recent shifts have been towards the participatory and action-oriented paradigm—this research functions within that.

The challenge ultimately is translating these tools, methods, and concepts to an audience that aren't experts in the field. Facilitatory methods from participatory design practice that place participants as experts lend themselves well to this mission. Participatory Futures aims to democratize the process of thinking and planning for the future when people engage in an inquiry on the future collaboratively and give birth to new narratives that are based on a shared vision (Ramos 2020). Problems of the 21st-century demand that decision making involves

the opportunities and dilemmas of the future. Such an approach to participatory

envisioning can help people collectively deal with uncertainty and build resilience

to change (Ramos 2017). They also ensure the benefits of collective action are

shared. Ultimately, there is no one size fits all approach to this mode of

participation. It is necessary to adapt Futures processes that best suit the

participants and their context.

2.9 Case Study: South Side Speculations: Designing Public Histories & Public Futures on Chicago's South Side

This is a relevant case study as this project involved an interdisciplinary approach

to combine aspects of history, design, and futures in the context of youth. This

project was a collaboration between researchers from the University of Illinois at

Chicago's Gender and Women's Studies program, Department of History, and the

University of Cincinnati's School of Design, blending methods from Participatory

Design, Speculative Design, Oral History, and Literary Studies. The driving question

for this research was finding out how the youth of color, particularly from

neighborhoods constructed from practices of segregation, envision a future of that

space grounded and informed by local history.

The project engaged twenty-three African American and Hispanic

adolescents from the South Side of Chicago to investigate their neighborhoods'

histories and imagine how to build healthier and freer futures. The project involved

youth from the community to imagine the future of Chicago's South Side to resist

dominant representations of the city. Twenty-three children participated in the project and worked through the two summers of workshops to produce multimedia of public histories in the first year and speculations for futures of healthier neighborhoods in the second year.

The participants produced scenarios and low fidelity prototypes (see Fig. 3) to convey their future visions. They then collaborated with media scholars, filmmakers, and design students to make high-fidelity material and visual representations of their visions that culminated in an exhibition.

Figure 3: Student participants presenting their scenarios & prototypes

The results of the resulting research pointed out that the participants gained trans-disciplinary skills in politically and critically motivated research through various activities employing rapid prototyping methods, archival research, writing, narrative forming, etc. They also indicated that such work could benefit from

developing more robust approaches towards the facilitation of envisioning futures

within the context of the present. I was able to interview one of the lead

researchers, Matthew Wizinsky, lead researcher on the project, who mentioned

that youth struggled with the inherent processes of temporally extending

imagination and a similar project could use more support and scaffolding,

particularly when collaborating with youth. He said, *"The whole issue of giving a sort*

of giving agency to public audiences to think about the future differently, requires a

pretty heavy amount of scaffolding one way or another" and recalls, *"We had a plan.*

And we didn't really stick to it exactly, I mean, particularly for the sort of speculative

design components when I came in; it changed every 15 minutes."

3. METHODOLOGY

3.1 Rationale

The problem of making history lessons relevant to students and surfacing their agency is inherently wicked. It is "a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize" (Rittel and Webber 1974). The problem and the approach change when viewed from the perspectives of different stakeholders, making the complexity in itself complex. Integrative design is a framework that incorporates research methodologies across design and other disciplines to determine the best approach the problem demands. In this practice, designers redefine their role in collaboration with the stakeholders in the problem space, taking on roles of facilitators of hybrid forms of knowledge (Michel 2019). To address the research aims of this project, I adopted a hybrid methodology combining Design-Based Research (DBR), Participatory Design (PD), and Design Justice (DJ).

Design-based research is a research methodology in education where a hypothesis is formed, based on which curricular materials are built and tested to evaluate and refine the curricular materials (Barab and Squire 2004). This method is not only applied for discerning whether curricular materials work but also to

investigate why they worked and how learnings can be generalized over various learning environments (Cobb et al. 2003). Participatory Design, Spinuzzi (2005) states, is research in itself and not merely an approach of engagement with stakeholders. Participatory Design has its own methodological orientation founded in constructivism and bears its roots in Participatory Action Research. Participatory Design places the participants in the role of experts where their engagement is not only to test the hypothesis of the research but is essential to the refining and meaning-making aspect of the research. In Participatory Design, the knowledge is located in the practices and interactions of the researchers and participants; it is interpretive and cannot be decontextualized (Spinuzzi 2005). Given the nature of co-interpretation between researchers and participants, attention needs to be set on how positionality informs this knowledge-making and participation (Media and Band 2014); hence research methods need to adapt appropriate theoretical lenses - decolonial, post-racial (Bang et al. 2016). Design justice here becomes an essential concept as it provides a lens to disrupt the roles and relations between researchers and participants to create new roles for transformative work (Costanza-Chock 2020). Pedagogies from Design Justice support designers to develop their own critical analysis of power within these relationships and to evolve their relationship to the participants. Frierian critical inquiry underpins many aspects of this research, where the goal of education is to engage marginalized and oppressed individuals in collective action to transform circumstances of oppression.

Therefore, doing work around student transformation and agency, this approach is vital. It reduces the risk that the means implied may repackage and reproduce rather than transform inequities and structures that shape learning (Costanza-Chock 2020).

My integrative approach adapts the research cycles for incrementally improving on curricular materials from Design-Based Research, it adapts methods of engagement and meaning-making placing the participants as experts from Participatory Design and finally takes a critical lens to underpin the various relationships from Design Justice, hence the roles of researcher, designer, and the participant are treated as open and extended categories. Design Justice positions change an accountable and collaborative process, rather than the end of the process itself. The integrative approach involving the research cycle and its four stages is described in further detail below.
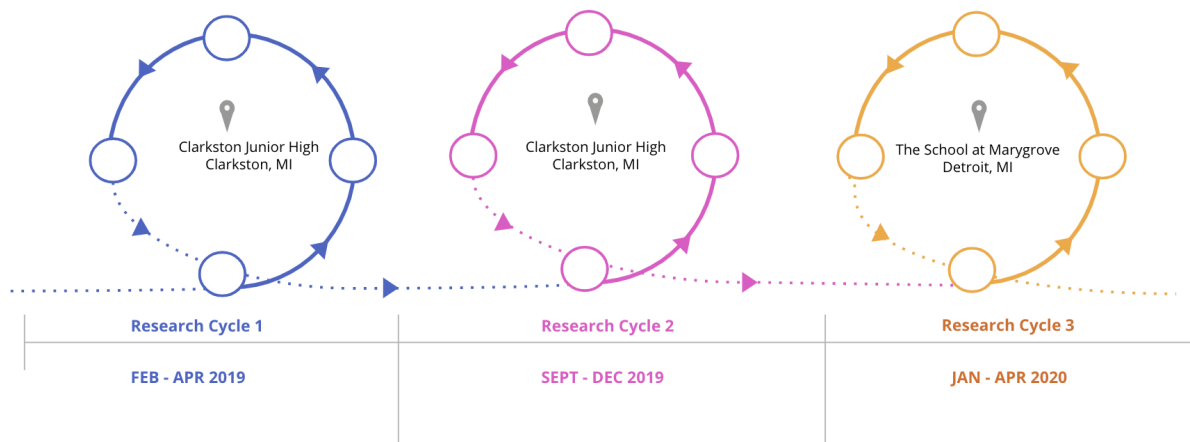
Figure 4: Timeline of research cycles carried out

Research Cycle

A model for Design-Based Research can be described as a design cycle. Each cycle includes a focus on problem and data analysis, and design of theoretical framings and materials, implementation, and evaluation (Cobb 2003). The process of designing, testing, and revising my curricular module spanned across three cycles (see Fig. 4), each informing the next. Each cycle consisted of four distinct stages (see Fig. 5): design, test, evaluate, reflect. The design stage supported the development of the hypothesis through generative research methods. The test stage involved the developed module in assessing features of the module that were successful at addressing the research aims and revised aspects that didn't meet the aims. The evaluate stage consisted of assessing and analyzing learnings, and finally, the reflect stage supported synthesis of these learnings to generate actionable insights. These insights informed further cycles of the research.
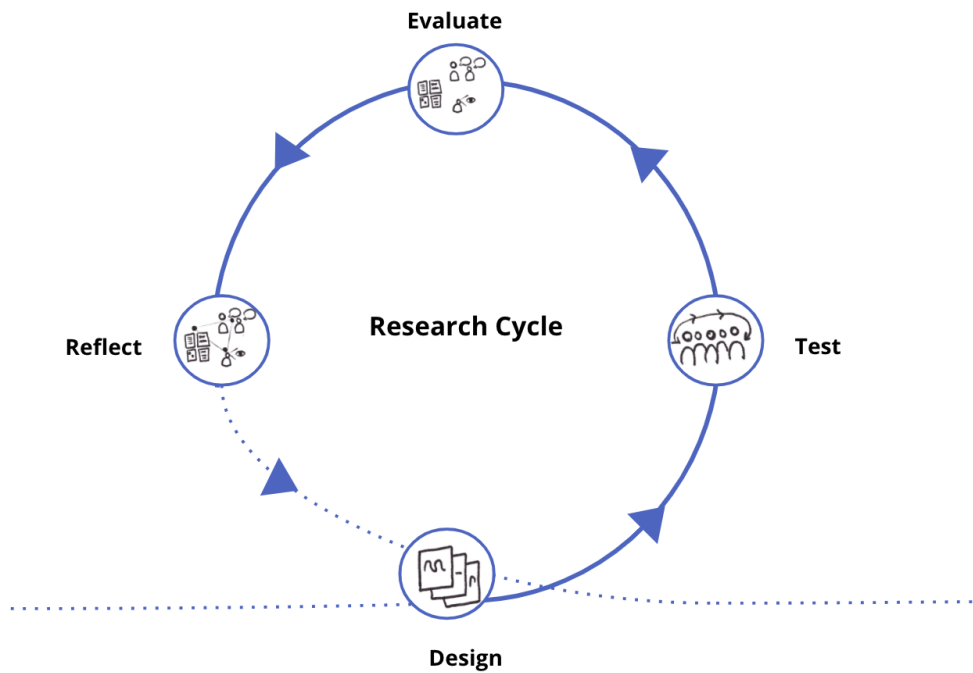
Figure 5: Stages of the research cycle

1. **Phase 1: Design**

   This phase within the cycle was aimed at developing the module to be tested

   and evaluated, and this was further divided into four stages (see Fig. 6) –

   understanding, synthesizing, creating, and engaging. Taking a participatory

   approach, the initial stage was to understand the problem space through

   interaction between stakeholders and researchers, and this was done to

   identify an opportunity to address. During synthesis, the explorations from

   the previous stage were synthesized and co-interpreted with participants; in

this case, my project partner. During this stage, a connection for co-creating

research was established. Implications from the synthesis were then taken

to iteratively construct the module. The module was designed to address

both the theoretical and practical concerns of the problem. Finally, before

testing, understanding the highly contextualized nature of knowledge in

classroom settings, to test the module in order to produce an experience

where materials can be evaluated appropriately required collaborating with

teachers of the classroom to refine the order and sequence of activities best

suited to their classrooms. This engagement, over a few sessions, also

provided an informal professional learning opportunity for the teacher to

implement the module as well as provide their expertise to refine it. This is

crucial as this allows to bridge the researcher's abstract knowledge to the

tacit knowledge of the participants (Spinuzzi 2005).
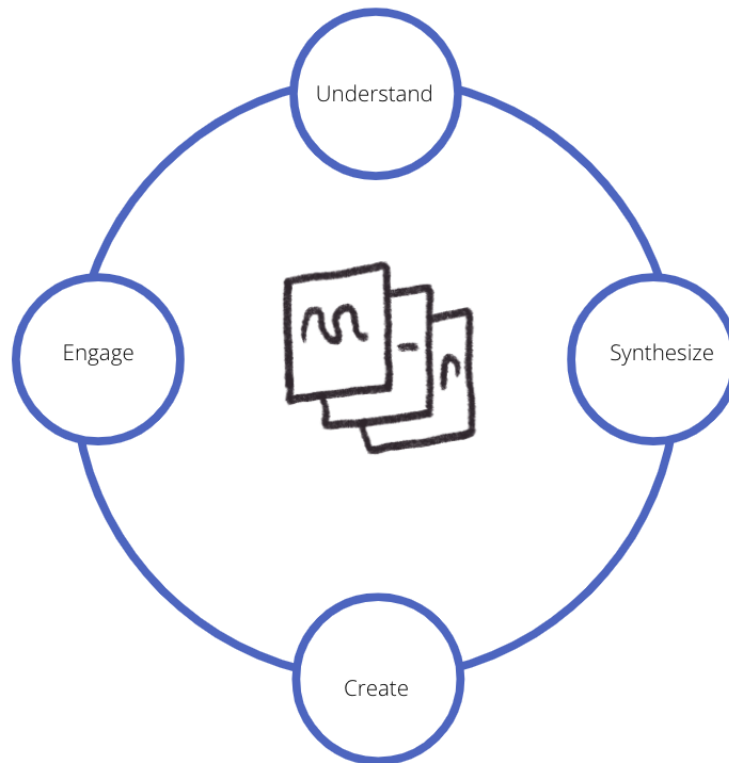
Figure 6: Stages within the *Design* phase of the research cycle

2. **Phase 2: Test**

   In this phase of the cycle, the curricular tools are tested by implementing them in classrooms. The instructional tools are placed in the classroom in order to expose the details of the module to scrutiny (Cobb et al. 2003). This allowed me to observe how the module performed in the real-world setting and learn from the participant implementation and how it diverged from the initial expectations. During this phase, the design was also adjusted to account for unanticipated conditions such as class cancellations and delays and to adjust with the pace of instruction.

3. **Phase 3: Evaluate**

This phase of the cycle involved evaluating the effectiveness of instructional

tools using evidence of student learning (Barab and Squire 2004). This was

done using evidence in the form of artifacts generated from students during

the testing of the module, interviews, classroom observations.

4. **Phase 4: Reflect**
    The final of the cycle involved a reflective analysis of how the outcome met

    and in what ways did not meet the expectations set by the hypothesis on the

    basis of which the module was designed. The reflection sought to learn if the

    curricular module supported student learning relevant to the problem and

    identified the critical features that supported success. Learning served as an

    intermediate archive of reflective inferences between two cycles, which were

    accumulated throughout the previous research cycles. This phase

    documented the learning in various forms of findings such as needs =,

    artifact features, curricular requirements, etc.

3.2 Methods

3.2.1 Cycle Phase 1: Design

3.2.1.1 Visual Structuring - Concept Mapping & Mind Mapping

Given the many parts to the problem space, complex relationships, and a

pattern of steps that can't be isolated from one another, visually structuring

information allows researchers to think through the complexities of a

problem, which mimics the non-linear way of thinking. Visually structuring

inquiry is a framework for sense-making to challenge regular patterns of

thinking, where new meanings and connections can emerge (Hanington and

Martin 2012). Such structures include concept mapping and mind mapping.

Concept mapping allows researchers to put new concepts into an existing

understanding of a domain so that new connections can be made, and

existing connections can be studied and expanded upon. Mind mapping is a

visual tool that can facilitate idea and concept generation when the

relationships are loosely defined. It provides a nonlinear means of

externalizing the information, and because of its visual nature, it can be used

to promote understanding of a problem space. This project tackled concepts

from various disciplines, and in the exploratory stages of the process, these

methods were key to map out various concepts within topics of exploration.

The topics covering youth empowerment, history, Design, and Foresight

included many subtopics within each (see Fig. 7). For example, within the

literature, there were many definitions for youth empowerment, various

studies on how researchers have accessed it, and many approaches to

engagement. Mapping out the various topics and subtopics within each

domain was key in identifying overlaps and means to build a general

understanding of the problem space.
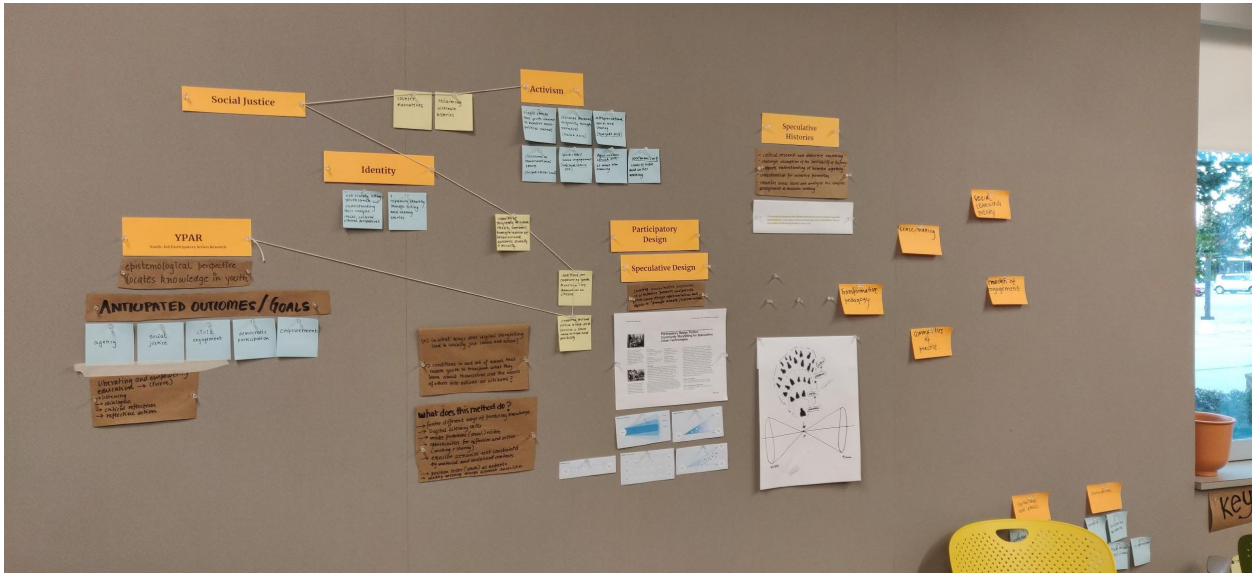
Figure 7: Concept mapping topics of inquiry

3.2.1.2 Stakeholder Mapping

The project developed a curricular module to serve as a vehicle to supplement the research aims. Considering the module and development required testing outcome of the research aimed to develop a curricular module, it was critical to identify all the constituents who might have a stake, however big or small, in the design outcome. Stakeholder Maps serve this very purpose to visually consolidate and communicate the key constituents of the research, also allowing one to see the interactions and relationships between all of them (Hanington and Martin 2012). At the onset of the research, a stakeholder map was speculatively identified with constituents varying in impact from the design outcome to allow to focus the

opportunities to the constituents most impacted by the problem. The

stakeholder map was utilized to identify the key stakeholders, which

included teachers and students, and identify the relationships and the kind of

relationships between them when mapped out (see Fig. 8). Mapping out

support structures such as the schools of the participating teachers added a

layer of specificity and context when proceeding with the design and

development of the module.
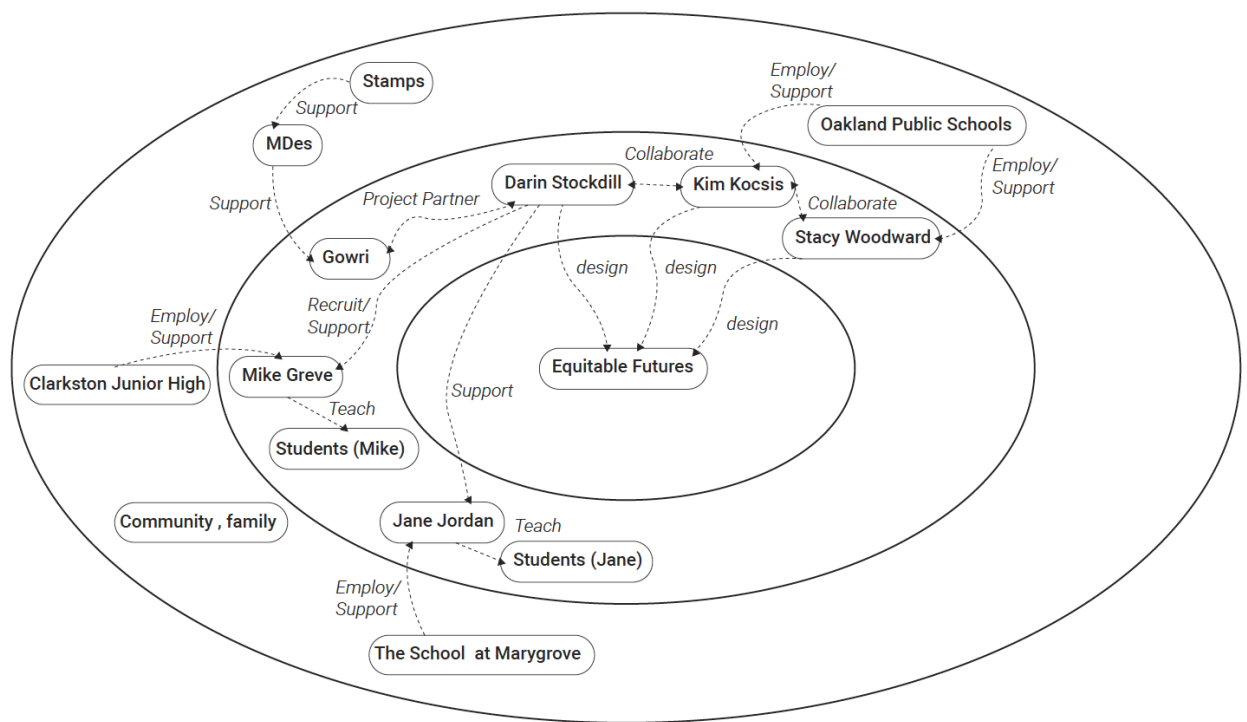
Figure 8: Stakeholder Map

3.2.1.3 Storyboarding

Storyboards help in illustrating contextually rich narratives of products or experiences. They help frame multiple touchpoints in the process and help consider design alternatives in the exploratory stages of the project (Hanington and Martin 2012). Storyboards harness methods of visual storytelling to capture the diverse factors that shape the context of the product or experience. The curricular module Equitable Futures spanned across five weeks. Not having first-hand observation experience of the participants, storyboarding student learning experiences through the curriculum was key in understanding and mapping student experience. Storyboarding the experience required going through each lesson plan (see Fig. 9) and illustrating the activity using scenarios, the process of storyboarding added a level of detail to the existing overview of the curriculum that was crucial to identify scaffolds within the module that support student learning.

Figure 9: Storyboard for the activity "How can we figure out what really happened in the past."

3.2.1.4 Service Blueprint

A service blueprint adds further levels of detail and complexity to the experience of a storyboard by giving a holistic viewpoint, including the work and processes that go into creating and delivering the experience. This process helped break down and identify various key components in the curriculum that shape and inform student experience. While the storyboard illustrated student experience, the service blueprint more accurately helped identify how the curriculum facilitates those experiences. The blueprint mapped out the activities within the module. Each lesson plan in the module was broken down into four categories to be mapped out (see Fig. 10) – activity, content, learning objectives, and tasks.
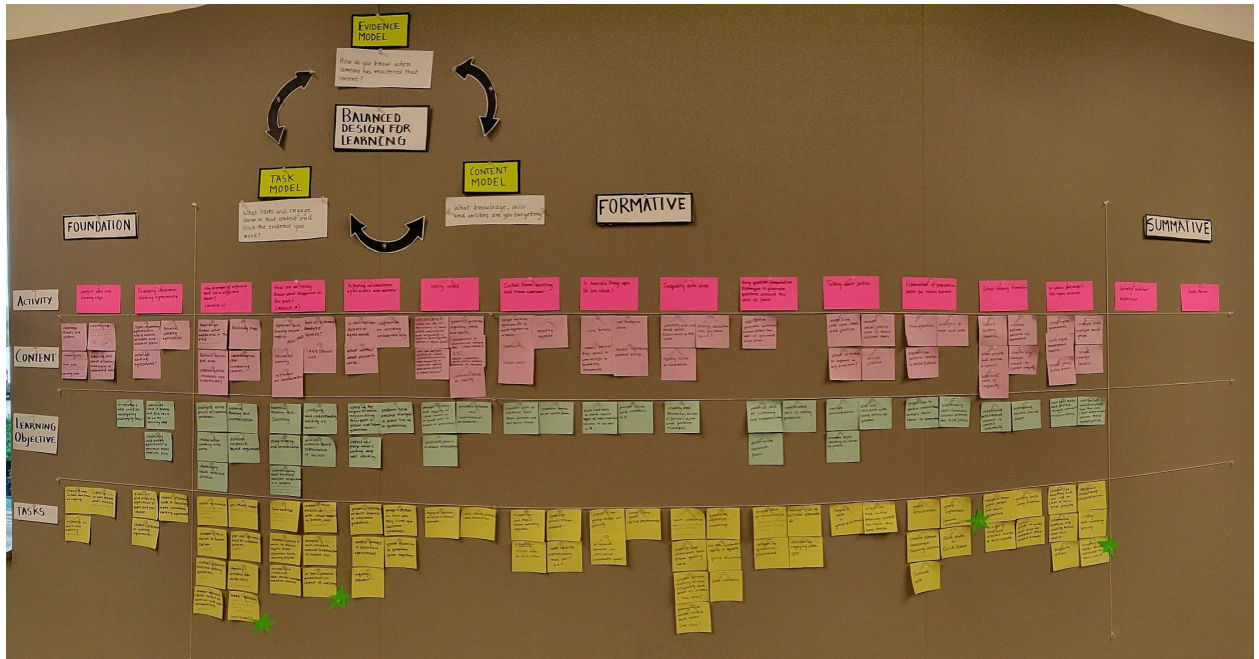
Figure 10: Service blueprint for the Equitable Futures curriculum

3.2.1.5 Secondary Research/ Precedent Research

Secondary research was a critical component of the project that helped establish previous work, studies, and projects in the problem area, guiding the selection process of an approach to the problem. Secondary research is a valuable yet time-consuming resource that may include books, research papers, journal articles, conference papers, etc. In the context for designers, this may extend to include precedent projects or case studies documented to have similar methods or in the same problem space. The research spans across a few disciplines in education and design. There were many precedents across both disciplines that had novel ways of addressing the problem in their respective contexts. Understanding and mapping out these was an essential part of creating the module to be tested.

3.2.1.6 Semi-Structured Interviews

Semi-structured interviews are those "in which you can ask key respondents for the facts of the matter as well as for the respondents' opinions about events" (Yin 2009). Ideally, these interviews are conducted in person so that nuances of expression are recognized, but they can also be conducted remotely. Semi-structured interviews have a flexible structure where researchers prepare questions ahead of time but can change and adapt these as the interview progresses with new information emerging. Interviews allow the collection of first-hand experiences and attitudes of the stakeholders. The semi-structured format suited the exploratory stage of the research and involved interviewing - curriculum designers, doctoral students in education, teachers, and students. I interviewed three high school teachers during the development. I also interviewed six students from the participating classroom after prototyping an activity for their feedback.

Subject Matter Expert Interviews

These were an essential aspect of semi-structured interviews. The research demanded an inquiry into areas of expertise outside of my domain - fairly quickly. Speaking with experts in a given field accelerated general understanding of the problem at a much rapid pace and where their experiences were grounded in context and details that provided robust references. I interviewed three experts whose previous work and expertise

spans across, Strategic Foresight, Speculative Design, and Future Studies.
They included Professor Mathew Wizinksy, Associate professor at the
University of Cincinnati's School of Design and lead researcher for the case
study "south side speculations" described earlier on in the contextual review.
I also interviewed Leah Zaidi and Pupul Bisht, both practicing futurists with
experience in facilitating participatory futures workshops.

3.2.1.7 Generative research tools

Generative Research tools are defined as "a series of collaborative activities
involving participants with the aim of generating meaningful solutions for the
issue to solve" (Sanders and Stappers 2012). Generative research methods
give both the researcher and the participants a tool to focus the interview
and provide the researcher with more descriptive details. Within this project,
generative research tools included diagrams, concept maps, and early
curricular prototypes.

3.2.1.8 Card Sorting

Card sorting activity is a participatory design method and is used to explore
how participants group items into categories and arrange concepts
(Hanington and Martin 2012). Participants are given cards with printed
concepts and terms and are asked to sort them in various ways. The card
sorting method can also be used to generate options for structuring

information. Given the highly contextual nature of the classroom, card sorting was an essential planning tool to involve teachers in selecting the sequencing of curricular activities. The cards were prepared prior to the session with the teachers. Each card contained a description of a specific activity within each stage of the module (see Fig. 11). The overall organization of the activities was explained to the teacher, and then they were asked to lay out activities in the order they believed most suitable for their students.
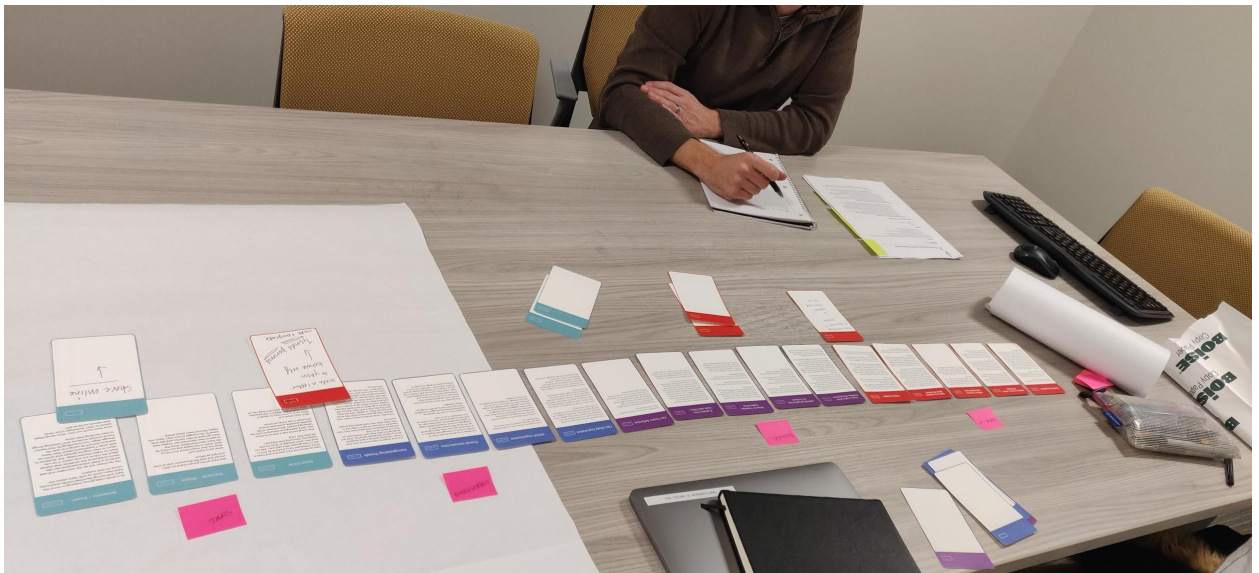
Figure 11: Card sort activity with Mr. Mike Greve at Clarkston Junior High

3.2.1 Cycle Phase 2: Test

3.2.2.1 Low Fidelity Prototyping

Low-fidelity prototyping is common in early ideation processes in the design appearing as concept sketches or sketch models. These prototypes serve an internal development purpose and as a checkpoint. Low-fidelity prototypes are best applied for the early testing of ideas with stakeholders in generative

research so that the outcome is seen as a concept proposed for constructive review and timely feedback for iterative changes. The module structure needed several low fidelity prototypes for critique before being implemented in the classroom. This method was especially useful for the third research cycle, where the activity focused on using bodily movement and arrangement of artifacts. Since it wasn't possible to test each with student participants, many early iterations were prototyped by me to test ways in which the activity engages a person.

3.2.1.2 Design Workshop

Design workshops are efficient and compelling modes of gaining stakeholders through activity-based research. Design workshops are worthwhile for their strength in collecting a wealth of insight from participants and securing buy-in from team stakeholders. In evaluative sessions, participants are brought together to collectively review concepts, offer feedback, and contribute insights for design iteration and refinement. Generally, design workshops entail several activities, planned and facilitated by the design researcher. The curricular module was treated as an evaluative design workshop to gauge student and teacher feedback (see Fig. 12). The design workshops were carried out in each research cycle to test the developed module. The workshop was conducted at two sites and co-facilitated by teachers and me.

Figure 12: Participants in the workshop of the curricular module at Clarkston Junior High

3.2.3 Cycle Phase 3: Evaluate

3.2.3.1 Participant Observation

Participant observation is a method adopted increasingly by design from anthropology. Design researchers have a more time-limited engagement; however, the intent is the same, for the designer-researcher to actively participate in the community, forming deep connections, experiencing events in the same way as the people they are working with. Systematic observation and recording are critical, documenting not only what is physically evident in the environment, but the behaviors, interactions, language, motivations, and perceptions of the participants. This was a vital mode of observing non-verbal feedback and cues from students during their engagement with the curricular module. I used participant observation when students were engaged in activities and also to observe teacher facilitation

methods of the module. I took notes with a pen and paper as it seemed least obtrusive. I refrained from using pictures and videos given the absence of appropriate permissions and consent. I took note of student responses, both verbal and non-verbal when the activity was introduced. I also noted the movement of the students throughout the lesson and also took note of how the teacher modified the facilitation and gave examples to help students generate ideas.

3.2.3.2 Fly on the wall Observation

Fly-on-the-wall is differentiated from other types of observation, such as participant observation because it intentionally removes the researcher from direct involvement with people's activities under research. Fly-on-the-wall attempts to minimize potential bias or behavioral influences that might result from engagement with users. This kind of observation is conducted flexibly, without predetermined criteria to specifically categorize or code observations. This was applied, especially when teachers facilitated lesson plans from beginning to end, allowing me to observe things that would be hard to discern as a facilitator. I took note of the surroundings, the classroom layout, student seating arrangement, movement with regard to the activity, and other cues such as active participation in discussions to gauge the level of engagement.

3.2.3.4 Artifact Analysis

The emphasis of artifact analysis is on the object itself. Artifact analysis seeks to find what objects say about people and their culture, time, and place. The researcher attempts to understand the substance of the object and what it says through its material, aesthetic, and interactive qualities. The aesthetic analysis includes a subjective visual assessment that was primarily applied to making sense of a student's future imagery and what might be some values that inform them. The workshops resulted in the generation of multiple student artifacts, including student-generated imagery (see Fig. 13) and responses on activity sheets. I used their responses and creations to discern the degree of engagement with the activity, looking at the level of details they added in the written and drawn responses. I also used this to gauge their understanding of the topic being explored and their understanding of the prompt.

Figure 13: Artifact analysis of student-generated campaigns from Clarkston Junior High

3.2.4 Cycle Phase 4: Reflect

3.2.4.1 Sensemaking tools

Sensemaking is a critical component to design engagements "to uncover hidden meaning in the behavior that is observed" (Kolko 2010). Effective sensemaking relies on a designer's ability to leverage synthesizing the data and making sense of it in a way that's novel (Stickdorn et al. 2018). To leverage

sensemaking, various design methods were used, including activity maps and

affinity diagramming. An activity map allows one to make a list of activities

gathered during research and see how they are grouped based on their

relationships. Affinity diagramming is "a process used to externalize and

meaningfully cluster observations and insights from research" (Hanington

and Martin 2012). The student artifacts generated around students' visions of

the future demonstrated key themes that were focal points in their creations.

I assigned a broad theme and description to each artifact being analyzed and

then arranged them in affinities to unearth the broader categories (see Fig.

14).

Figure 14: Affinity diagram for themes from student artifact analysis

3.2.4.2 Triangulation

Triangulation is the process of combining several different research methods

to illustrate the area of study, in other words using several methods to

examine the same thing. This method is commonly applied in social science

research. The goal is to identify where the information overlaps and the area

of convergence are considered the most accurate truth.

4. RESULTS

4.1 Research Cycle 1 - Future Analytica

This research cycle was carried out collaboratively with my peer, Megan Freund, from my design cohort. It was carried out over a period of two weeks between March 2019 and April 2019. Mr. Mike Greve, from the previous cohort of participating teachers in the Equitable Futures curriculum and his ninth-grade interdisciplinary history classroom, became the collaborative partner and site for this research cycle. The workshop's design and development took into consideration the limitations of this specific classroom and students at Clarkston Junior High.

4.1.1 Design

Using visual structuring methods to highlight concepts from relevant literature on history education and our collaborative exploratory brainstorm showed an inherent connection between student action and their want for active participation in transformative work. This was further supported and affirmed by a thematic analysis of student responses from previous student participants in the curriculum of the Equitable Futures (see Fig. 15).

Figure 15: Thematic analysis of student feedback from previous years of the Equitable Futures curriculum.

The responses were grouped with thematic affinity and overlapped with the initial finding of student's interest in active participation. The most prevalent themes emerging from this analysis were - "more student communication," "disseminating to a broader audience," "more relevant implementation action plans," "talk more with the community." Secondary research on precedent projects led us to discover the project *Bushwick Analytica* by an Australian artist, Tega Brain. The project consisted of a series of workshops at the Bushwick public library where participants were invited to engage with content to create advertisements on the internet and identify groups of people on the internet to target that information.

The idea of redefining the role of kids as mere users and receivers of information online to them being creators of content became a point of departure for designing our curricular module to be tested in the classroom. This was significant learning and insight, such a process of subverting the roles of makers and receivers can enhance students' sense of agency by them taking a role with the power of information dissemination.

Our curricular module developed for this iteration included activities aimed to empower youth through the active imagination of futures to understand their agency in crafting their visions of the future. Our objective with the curricular module was to craft activities that allow students to identify their preferred futures and identify actions to bring that future about.

The curricular module consisted of two forty five minute sessions- 1) Making the campaigns and 2) Reflection. The first part sought to engage students to begin thinking about the future: What might happen, how we prepare for it, and, most importantly, how they can affect it. The activity was designed to engage students in thinking critically about the present and reflecting on history to design campaigns about their visions of the future they most cared about. The prompt for the students was - 'What will be to the benefit of most people in the year 2039?". While this was the overarching theme for the design of the campaigns, it was supplemented with scaffolding prompts such as "who is part of the common good?", "how does thinking about the common good make you feel?", "who is/are

responsible for creating the common good." The use of internet advertising campaigns aimed to subvert the hyper-personalized, and persuasive messaging students are subject to online via targeted ads. The activity aimed to challenge the power dynamic between advertisers and consumers by making youth more cognizant of the messages they are subjected to. The aim of the campaigns was to eventually post online ads on google for them to reach an audience. The students within their groups identified their audience using parameters given to them based on google's ad platform. The parameters included gender, age, parental status, geography, and subject interests. Part two consisted of a reflective activity that consisted of an ad lib-style worksheet (see Fig. 16) aimed to further aid student thinking on the previous activity prompt.

Figure 16: Ad-Lib style worksheet for a reflection activity

4.1.2 Test

The workshop was piloted in a 9th-grade interdisciplinary history classroom at Clarkston Junior High in Oakland County, Michigan, with over 68 students. The activities in the classroom were co-facilitated by us and the collaborating teacher - Mike Greve, who taught the class. The introductory lessons on futures and designing the campaigns were led by us, whereas Mike facilitated the brainstorming session where they came up with initial thoughts, feelings, and ideas. Due to a constraint in time and materials, they were then randomly assigned into groups of three and were then asked to come up with a campaign image, slogan, and campaign. Once the students completed their designs, we scanned their designs,

ensuring we made no changes, and uploaded their campaigns to ad platforms for dissemination. We also returned to the classroom after two weeks to share the outcomes of their campaigns and who all they had reached.

4.1.3 Evaluate

Evidence was collected in the form of designed student artifacts, student-generated campaigns (see Fig. 17), classroom observations, student feedback interviews, written student reflections, teacher reflections, and student responses on exit tickets (see Fig. 18) at the end of the activity. Multiple sources of information were collected to discern if the guiding aims of the research were met. Did envisioning a future that reflected their values change the way they think about the present and their role within it? Did it inspire a sense of agency in the youth?
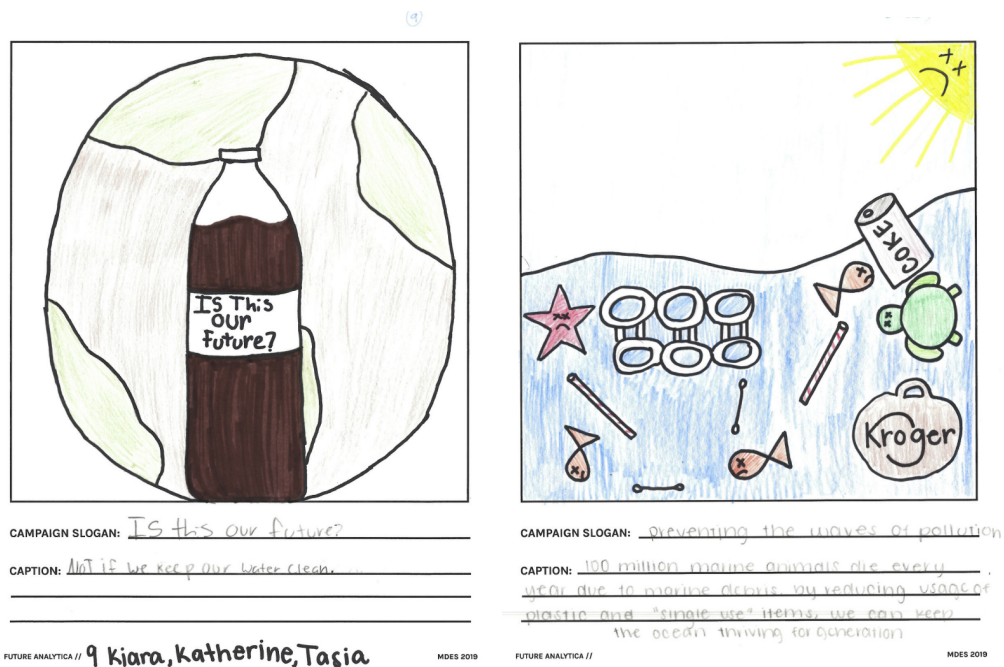
Figure 17: Student-generated campaigns
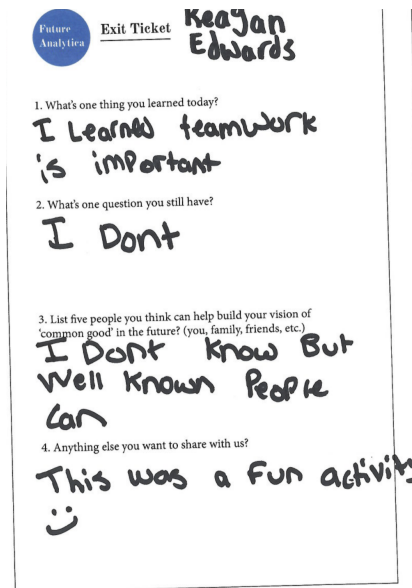
Figure 18: Student responses to exit tickets

4.1.4 Reflect

Once the campaigns were posted online, we were able to track the analytics and understand the reach that the campaign had. The student-generated content reached over 138,215 social media feeds, reaching about 100 K people in the 18 -24 year age range. Geographically, their campaigns got views from across the globe, including the US, Indian, Brazil, South Africa, Canada, Peru, Romania, Indonesia, Spain, and many others. The artifact analysis of the student-generated campaigns identified five major themes students Identified as key themes for collective good 20 years from now-

i. Human Connection and belonging -

ii. Concern for the environment

iii. Global Politics

iv. Physical Health

v. Technological Dependence

Analysis of the interview, class observations, and exit tickets yielded the following overlapping feedback-

i. Workshop sequencing-Students indicated that they wanted more context as to "why" they were doing what they were doing. They indicated they would have liked more time in the exploratory phase of the activity to generate more ideas and develop them further between their groups.

ii. Time Constraint-We learned from both our observations and participant feedback that things took longer than anticipated and would have benefited from additional time accounted in.

iii. Need to scaffold activities with examples- Most feedback from participants indicated they wanted more clarity on vague concepts, specifically concepts related to the future with more examples. The teachers also suggested scaffolding the main activity with introductory activities to support student understanding of the prompts.

Our engagement with the teacher also prompted us to think about how their involvement in the design process could be increased, and they could be engaged earlier on. Mike's teaching pedagogy was open and curious. His students were already instilled with values of collaboration, which was very conducive to the outcomes of the research.

The key learning and takeaway from the research cycle one were to build on further questions that can scaffold learning. We also learned that we couldn't assume students' ability to critically question the present; hence questions are needed to support their understanding of the current situation: What happens now, and why? With regards to scaffolding thought processes for the future, students need to be taken through the process of identifying trends: How does what happens now differ from what happened in the past, and why? Are the changes desirable? Are some of the changes (trends) related? What are the underlying causes of these changes? When asked to develop visions of the future, they need to be asked how these trends affect the future? What might change them? Selecting within these scenarios with justification and answers from previous questions might aid in adding depth to students' understanding of their role in shaping the future and for them to make deeper connections.

4.2 Research Cycle 2 - Clarkston Junior High

4.2.1 Design

Research cycle 1 displayed the value of a Futures oriented design process to student engagement but was inconclusive about if the process of inquiry into the future enhanced student agency and capacity for change. The curricular module's design needed to address key learnings from cycle one, which involved expanding on the concept and building more support for student learning. This cycle was carried out

individually by me between the months of October 2019 and December 2019. This was also tested in collaboration with Mike Greve and his students; however, this was a new cohort of 9th-grade students. They hadn't been part of the activity previously carried out at Clarkston. This module consisted of four parts (see Fig. 19), designed to take place over the course of eight forty-five minute classroom sessions for increasing the time students spend with the subject. The design of the curricular module is described in detail below. The module was planned with content designed on the topic of child labor to give a context to student inquiry.
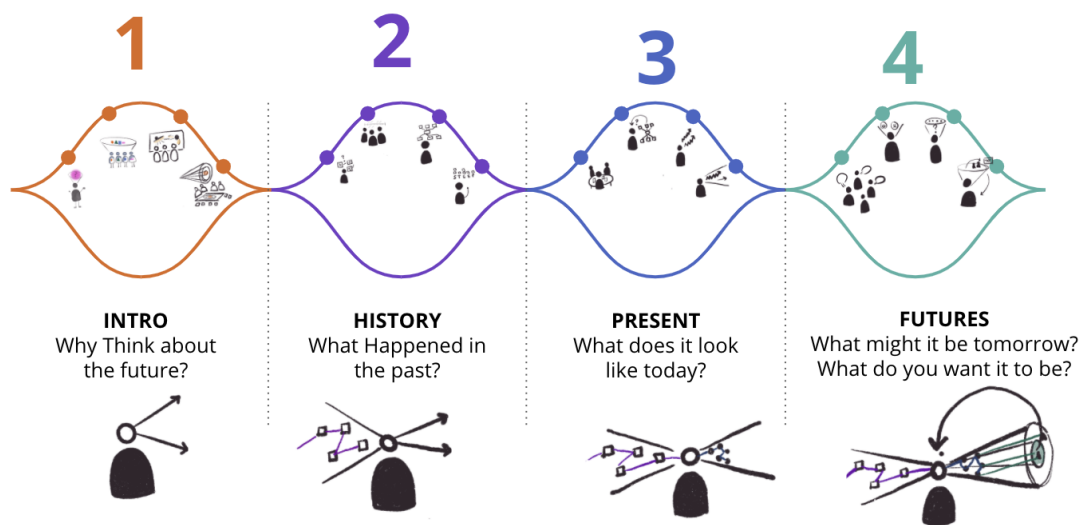

Figure 19: Overview of the curricular module

1. *Part 1 – Why think about the future? Primer to futures (see Fig. 20)*

    This segment of the module helps students discover and express their beliefs and assumptions about the future and introduce the concept of futures thinking. This activity was designed as a primer to the upcoming module and

also as a gauge for their baseline understanding. The questions in this module lead students through a process to identify their own beliefs about the future, their assumptions, and most importantly, "why" thinking about the future is important. This segment begins with a reflection activity to gauge student perceptions of the future. The reflection asks students to draw or write their scenarios on the following prompt "Imagine traveling 20 years into the future, in a time machine. What do you see? Think of what you see, think, wonder, feel, hear based on what is happening in the world today. The future doesn't exist yet, so there are no wrong answers." To scaffold this prompt, the activity built-in further questions for reflection while considering the prompt -" What does your school, neighborhood city look like? How will things look different? Think about things you most use, how will they look like in the future? What are other changes that are happening?" The next part of the activity asks students to exchange and discuss their reflections amongst their peers and asks them to think about similarities and differences in the way their peers understood the future. The aim here is to help students come to terms with the fact that there are multiple interpretations of the future, and each viewpoint brings something valuable. The next activity introduces students to different mindsets about the future and encourages them to see that these mindsets need to work collaboratively to envision the future. The mindsets with their descriptions are displayed in

the class, and the students are asked to select the mindset they most identify with. The hope is that there are a few students in each of these categories. As a wrap-up to this segment, the activities ask students who identified different mindsets to come together in a group discussion around how they may work together for everyone's benefit. Having led the students through a few priming activities about the future, the activity plan then introduces students to how other people have thought about the future. The lesson makes the students watch a clip from the movie Back to the Future 2, a movie made in 1985 that shortly depicts how they thought the year 2015 would be. Students are then asked to identify the similarities and differences while also giving explanations for their answers, as a wrap up to this discussion. The final part of the lesson introduces students to the idea of "multiple future possibilities," introducing the idea of probable, preferable, plausible, and possible futures, primarily to discern that thinking about the future doesn't aim to *predict but rather anticipate.* The lesson's final activity is a card sort, where students are divided into smaller groups and given multiple cards with images of the future. They are then tasked with sorting them into probable, preferable, plausible, and possible futures. Once the students have completed the exercise, the groups share what they did.
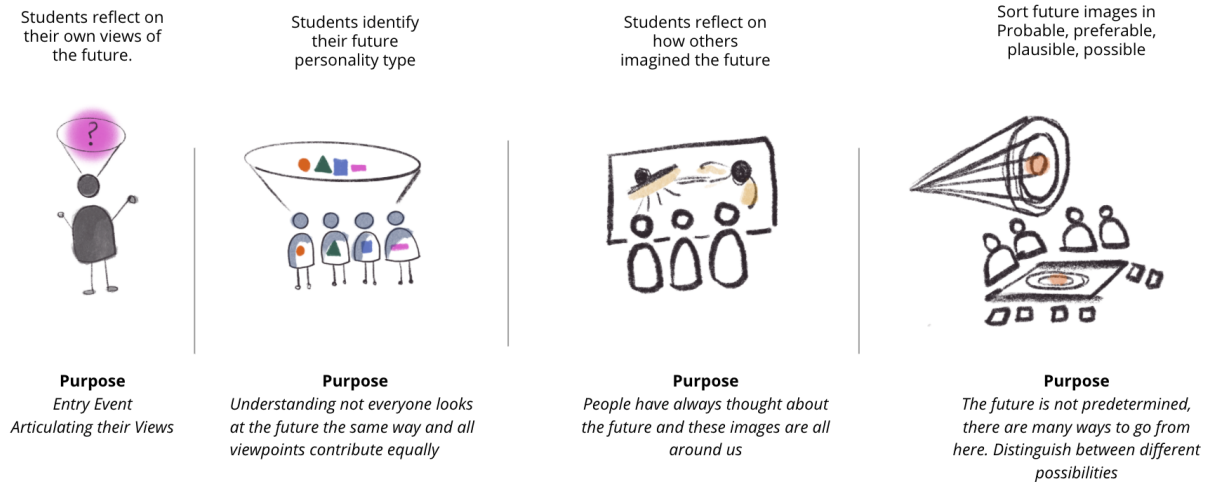
Students reflect on their own views of the future.

Students identify their future personality type

Students reflect on how others imagined the future

Sort future images in Probable, preferable, plausible, possible

Purpose
Entry Event
Articulating their Views

Purpose
Understanding not everyone looks at the future the same way and all viewpoints contribute equally

Purpose
People have always thought about the future and these images are all around us

Purpose
The future is not predetermined, there are many ways to go from here. Distinguish between different possibilities

Figure 20: Overview of part 1 of the curricular module

2. *Part 2 – Exploring Histories (see Fig. 21)*

The second lesson aims to present an overview of the historical aspect of the issue being considered. Students are led to identify the challenges that forced children into the labor face and make reasoned conjectures as to why that might have happened and what factors influenced it. The lesson begins with a photo exploration activity where the students identify the issue being addressed. This is an exploratory activity to deduce what the theme or central issue they might be working on is. It is then introduced that they will be exploring it through the lens of history, present, and future. The photo exploration activity is a group activity where students respond to the following prompts –" What do you see? (observations)", "What do you want to know? (questions)" "What do you think the story is about? What evidence do you see to support your claim".The next part of the lesson introduces the

topic and provides a definition of the issue being addressed. The next activity

leads students to reflect on their own experiences and make observations on

the prompts - "How many of you have chores at home?" "How many of you

have jobs?" "How old do you have to be to work?" "What do you receive in

exchange for the work that you do?"

Students continue to work in groups in which they were working. The

activity then introduces a historical timeline of child labor in the. Along with

the timeline, they are also given a list of historic jobs held by children.

Students review both the documents in their groups and make a note for the

following prompts- "Brainstorm a list of reasons as to why children might be

forced to work then? Do any of the reasons justify child labor? What are jobs,

under any circumstances, children should not be permitted to do?" After

having reviewed the historical timeline, the students are then asked to

construct a problem tree identifying cause and effect. Students are guided

through the activity by means of examples. The activity is ambiguous, as

many changes are complex and interconnected. The students are

encouraged to be as speculative and as descriptive as they can be. The lesson

then concludes with a wrap-up discussion around the following prompts-

"Having been introduced to child labor, ask students if they think it is still

prevalent? How and where might this be happening? What kind of places or
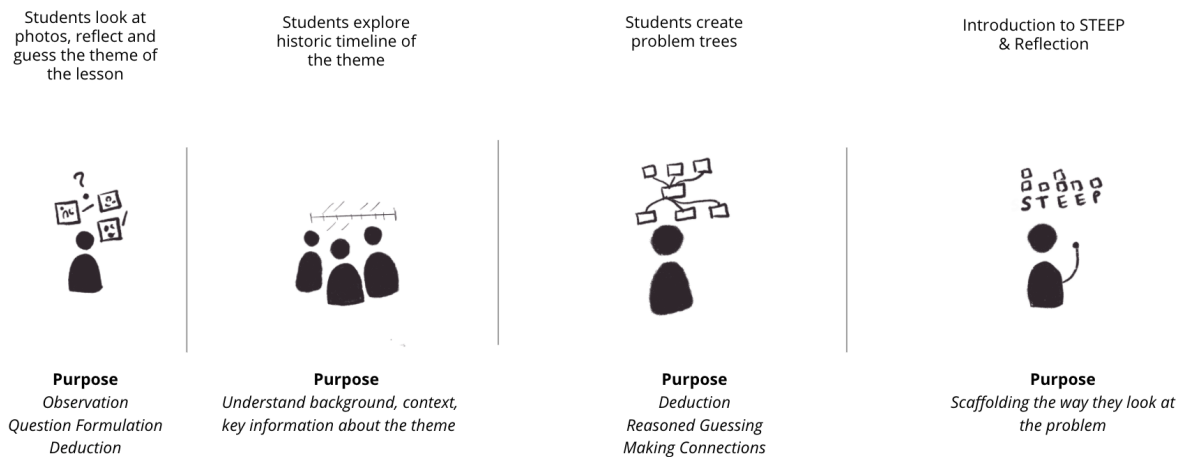
industries?"

Students look at
photos, reflect and
guess the theme of
the lesson

Students explore
historic timeline of
the theme

Students create
problem trees

Introduction to STEEP
& Reflection

Purpose
Observation
Question Formulation
Deduction

Purpose
Understand background, context,
key information about the theme

Purpose
Deduction
Reasoned Guessing
Making Connections

Purpose
Scaffolding the way they look at
the problem

Figure 21: Overview of part 2 of the curricular module

3. *Part 3 – What's happening today, and what is changing? (see Fig. 22)*

   This lesson presents an overview of where, why, how, and in what conditions
   child labor occurs in the present. Students are led to identify the challenges
   that children face today and begin to start thinking about patterns and
   trends. Students are then introduced to are trends, how to identify them, and
   how to extrapolate them. The lesson begins with a case study exploration.
   Students in groups review four case studies of child labor across the globe.
   The students are asked to identify, discuss, and write down what are the kind
   of jobs kids are doing today. Once the students are done making a list, the
   activity prompts them to question why these children might be forced to
   work. The activity then leads students through a comparison of their historic
   problem trees and the present-day cases. As a conclusion to the lesson, the
   students are introduced to the definition of trends. The lesson then prompts

students to identify trends based on their brainstorm on the similarities and differences that they found out about their topic. Students are encouraged to come up with trends in the group. Once the students have come up with their trends, the activity to practice extrapolating trends is introduced. The students are encouraged to use logic and their best thinking to come up with what happens next if they assume that the trend they identified continues. The students are then prompted to write about how their lives would be in the next 15 years when the trend cards they picked continue.
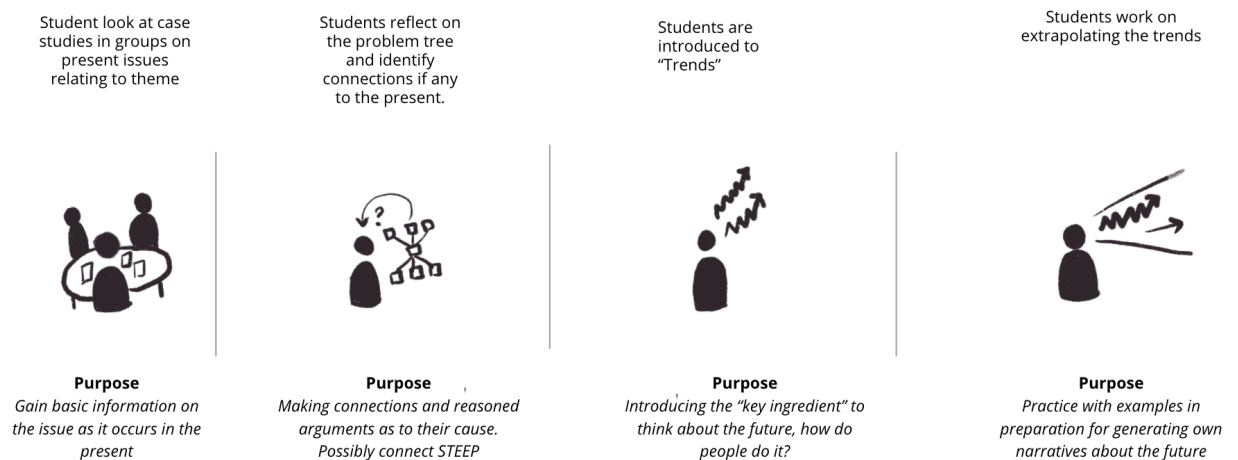

Student look at case studies in groups on present issues relating to theme	**Students reflect on the problem tree and identify connections if any to the present.**	**Students are introduced to "Trends"**	**Students work on extrapolating the trends**
Purpose	**Purpose**	**Purpose**	**Purpose**
Gain basic information on the issue as it occurs in the present	*Making connections and reasoned arguments as to their cause. Possibly connect STEEP*	*Introducing the "key ingredient" to think about the future, how do people do it?*	*Practice with examples in preparation for generating own narratives about the future*

Figure 22: Overview of part 3 of the curricular module

4. *Part 4 – What might happen in the future, what do we want the future to be, and how might we plan for it? (see Fig. 23)*

   This lesson is the concluding part of the process aimed at helping students express their hopes and fears about the future of their topic and begin to identify tangible steps that might need to be taken to address them. The

lesson introduces the concept of strategic planning for change and helps students imagine what role they might have in that plan. The lesson asks students to come together and share the stories they created in the previous lessons. Once everyone has narrated their story, the lesson leads students through a group discussion on the following prompts- What story stood out? What story is most likely to happen? What story is less likely but still possible? What future would you most likely live in? The lesson then reminds them of the possible, probable, preferable futures discussed in the initial activities. The concluding activity is a scenario generation activity. Students are introduced to the fact that narratives about the future are only useful if they are used in making choices today. To help students imagine and create this scenario, they are given specific tasks such as identifying a character and having guiding questions that help their reflections- "How do details from your future affect the character's life? How would this character's life be different if he/she/they lived today? What is happening in the world around the characters? What does the character like about this world? How does your character navigate the problems in the world? How do "what if" consequences you came up with earlier affect the character?"

The lesson then concludes with a critical reflection on what needs to change in the present to avoid or achieve those scenarios?
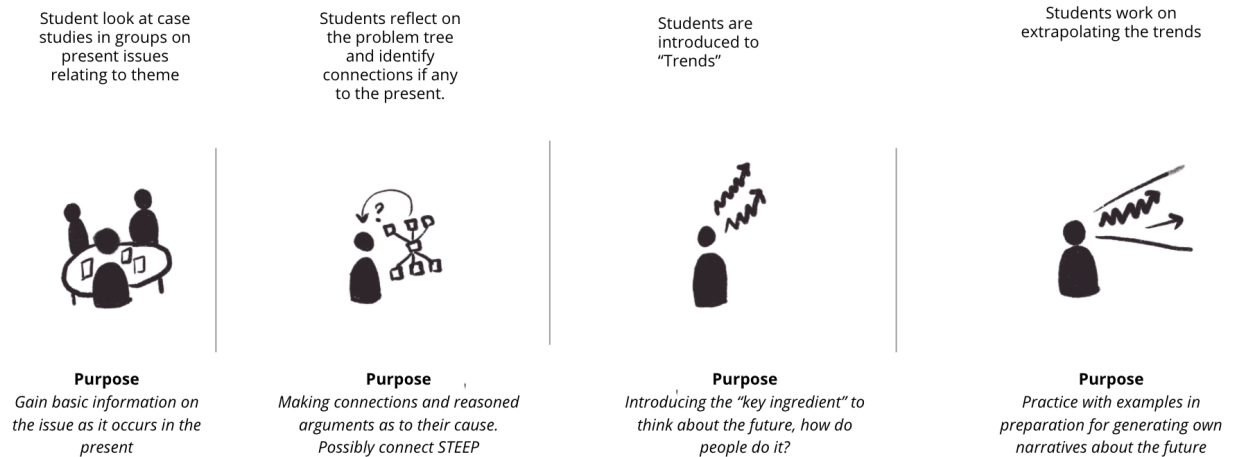
Student look at case
studies in groups on
present issues
relating to theme

Students reflect on
the problem tree
and identify
connections if any
to the present.

Students are
introduced to
"Trends"

Students work on
extrapolating the trends

Purpose
*Gain basic information on
the issue as it occurs in the
present*

Purpose
*Making connections and reasoned
arguments as to their cause.
Possibly connect STEEP*

Purpose
*Introducing the "key ingredient" to
think about the future, how do
people do it?*

Purpose
*Practice with examples in
preparation for generating own
narratives about the future*

Figure 23: Overview of part 4 of the curricular module

4.2.2 Test

The lesson was implemented in the same classroom as the previous iteration

in collaboration with Mike Greve with a different cohort of students in the

interdisciplinary history class. There were 68 participants in this

implementation. Cycle 1 pointed to the need for increased teacher input in

the design process. Before the lesson was implemented, a card sort activity

was carried out with Mike to identify the sequencing that would suit the

structure of his class the best. The card sort gave rise to a modified version

of the 4 part lesson plan where the activities exploring histories were

shortened and combined into the consequent lessons to accommodate for

time. This lesson was facilitated entirely by Mike over the course of two days

spanning over four 55 minute sessions. The curricular module, as described

above, consisted of - 1. Lesson Plan & Facilitation Guide 3. Supporting

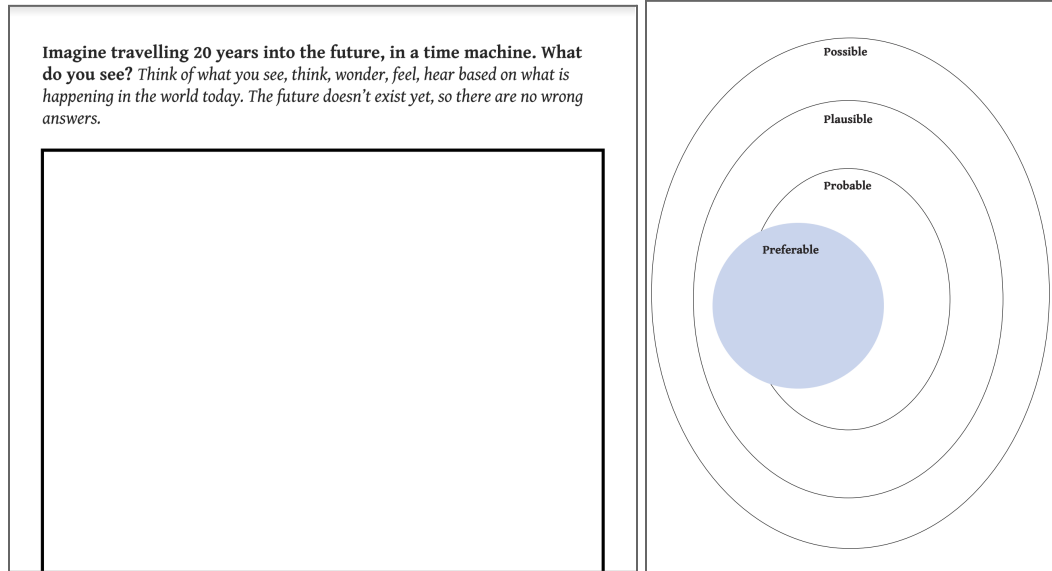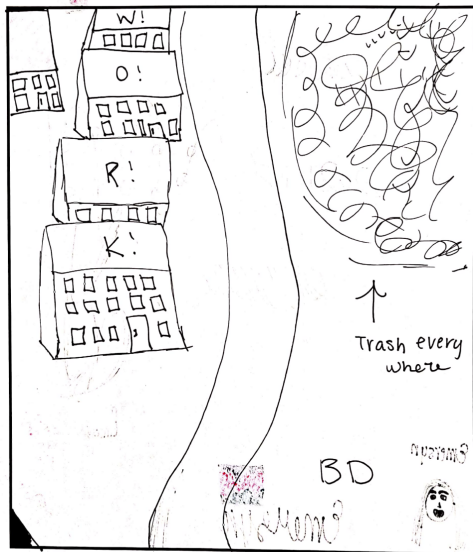presentation deck 4. Student Worksheets (see Fig. 24)

Imagine travelling 20 years into the future, in a time machine. What do you see? *Think of what you see, think, wonder, feel, hear based on what is happening in the world today. The future doesn't exist yet, so there are no wrong answers.*

Possible

Plausible

Probable

Preferable

Figure 24: Student worksheets

4.2.3 Evaluate

Evidence collected for evaluating this cycle included teacher reflections,

teacher interviews, student interviews, student-written feedback, researcher

observation notes, student artifacts generated (see Fig. 25 and Fig. 26)

through the lesson plan. The principal aim of the research was to understand

how the scaffolded process might enhance their future thinking capacity

and, in turn, reflect on their agency in the present. Keeping in mind this aim,

comparative evidence from the primer lesson and the final lesson was

collected to qualitatively understand if there were any differences between
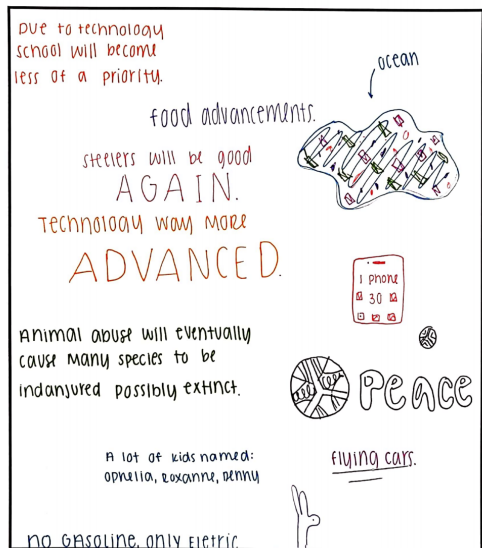
the two.

Figure 25: Student artifacts from the first activity in part 1 of the curricular module
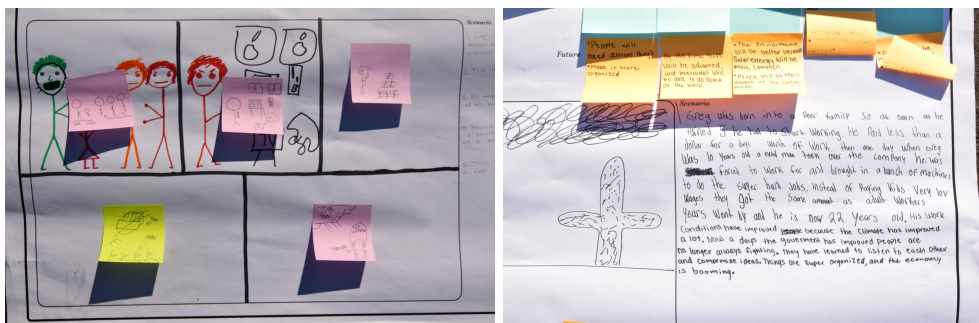

Figure 26: Student artifacts from final activity exploring scenarios of the future in part 4 of the curricular module

4.2.4 Reflect

The collected information indicated a significant involvement from participants in activities with examples and exploratory, open-ended questions; however, the plans where the scaffolding questions were more directed proved to be confusing for the students. Cycle 2 seemed to also have course-corrected more than wanted. The additional scaffolding may have

restricted generative thinking. A lot of activities demanded written reflection and writing on worksheets that proved to be not conducive to the class with seventy-two students and led to lower engagement with those discussions.

Figure 27: Students doing the future card sort activity

The most engagement was observed in the future card sort activity (see Fig. 27), where the students sorted images of the future into probable, possible, plausible, and preferable futures. The visuals combined with the bodily movement of sorting them out facilitated conversations about the future that took into consideration the present in greater detail. Most participants within the group seemed to be paying attention and participating in the discussion during the card sort.

The implementation of the curriculum was also impacted by factors not previously anticipated, such as the layout of the classroom and the time of day the class took place. The class took place at the last hour of school,

which meant that student energy levels were lower and which probably why bodily activities seemed to engage most students. While the activities were given careful consideration in how they are sequenced, the content needed to be analogs with the activity. There was a need to sequence the content in a manner that led them from exploration to extrapolation—analyzing student artifacts brought to light that absence of reflection on student values while imagining the future scenarios and comparing scenarios from the first and last lesson. The students envisioned futures with enhanced details applying the STEEP framework, but it seemed to lack critical reflection. While trying to get students to go through the process of envisioning futures with a lot of scaffolds, the curricular module fell short of demonstrating why critical reflection and consideration of futures is necessary. The student feedback seemed to indicate a lack of clarity on the purpose of carrying out scenario generation; hence a lot of scenarios generated carried stereotypes from the present, not completely considering the historical context. This may have also been due to reducing the focus on the historical context in the lesson plans.

Learnings from research cycles 1 and 2 prompted me to find an appropriate balance between open-ended and highly structured activities. It also stressed incorporating the more embodied and playful methods of "doing" beyond just drawing. The research findings also pointed to an

intermediate step between learning how to envision futures and the present state. It brought about the notion that maybe the curricular module needs to promote values that support future thinking and why such a mindset is relevant before aiming to guide students through envisioning futures.

4.3 Research Cycle 3 - The School at Marygrove

The school at Marygrove was identified as the next site to test and implement the modified curricular module. Ms. Jane Jordan and her elective class exploring "children in peril" became the site for implementing this research cycle. During this iteration, the main focus was to embody ways of doing future thinking rather than having students respond to scaffolded prompts. Participatory futures methods of "play influenced the development of this module." The objective was to envision and critique to be guided by engaging in play, not necessarily a game but involving aspects of play. Games inherently lead people through exploring alternative worlds and offer a lot of potential in the classroom to translate complex concepts. Games draw from approaches of gestalt, play, role-playing to embody the process of foresight and have become part of various approaches to engage people in these methods. (Inayatullah 2016). Flanagan (2009), in her book on critical play, questions narrow definitions of games, arguing that "games can be thought of more productively as situations with guidelines and procedures." Considering limitations in time, there was not an opportunity to design a new curricular module based on

play from scratch. However, the aim was to understand how to include embodied

methods of foresight within the already existing lesson plan. Working on the

success of the card sort activity, it was expanded to be done over two lesson plans

for comparative purposes. Another modification that was made was to convert the

study of the historical timeline to the construction of a historical timeline through a

card sort (see Fig. 28). The card sort consisted of a surface with the futures cone to

lay out their ideas, along with cards of different categories, including - event, trend,

people, action, and values. The curricular module was scheduled to take place in

March 2020; however, due to the COVID 19 pandemic, the lesson was not able to be
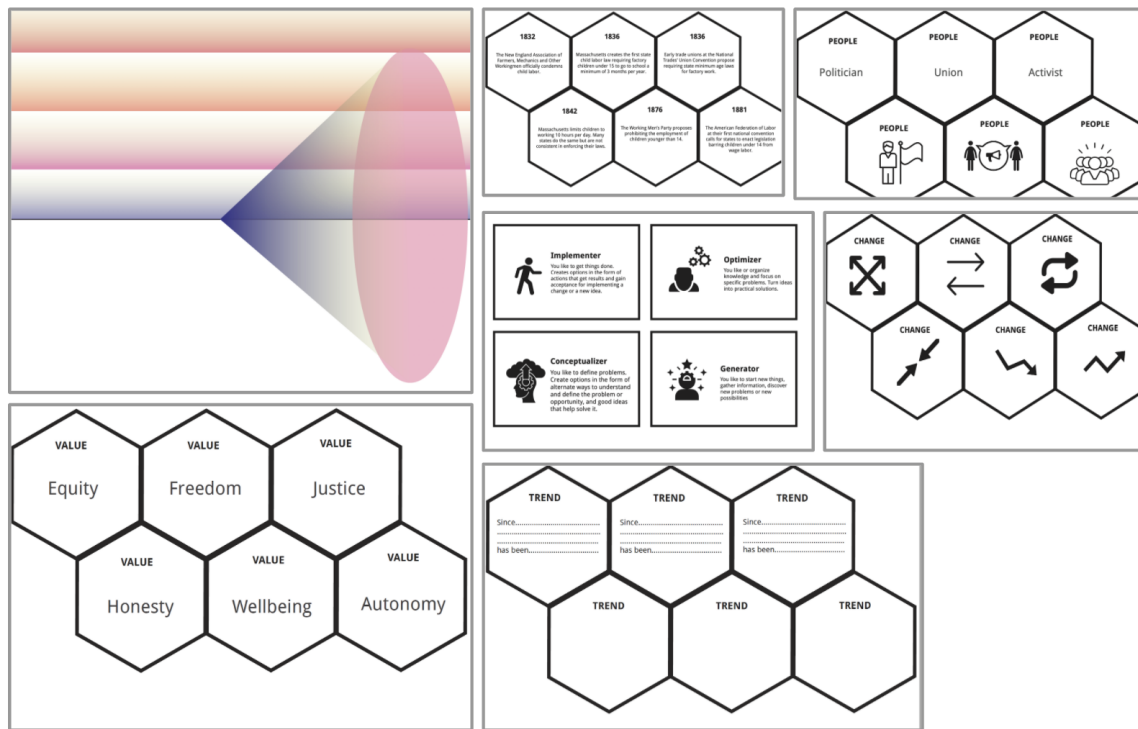
tested in the intended classroom.

Figure 28: Modified card sort activity

The aim and objective with this iteration were to discern if, instead of generating visions of the future from scratch, participants would put together their visions through the mode of a card sort enhance their analysis of the future and application of historical knowledge. The design aimed to find if the design of the card sort facilitated and guided actions that build students' future thinking. The classroom setting, student numbers, and demographic were also a stark contrast to the previous sites of the research cycle, which might have surfaced new insights. Eventually, when situations permit, the next step would be to implement this activity using either the same content of child labor or modifying that to the needs of the class to compare to previous iterations and test the hypothesis on which the latest iteration was designed.

5. DISCUSSION

Learnings from the results on the design-based futures thinking curricular module, piloted across three research cycles in two classrooms in Michigan, demonstrate engagement methods, teachers' adaption and facilitation of activities, and student engagement with the module. Designed and developed as a vehicle to probe research aims concerning student agency, the module models a structure for teachers to adapt these methods within their history lessons. In particular, findings from the research cycles indicate:

1. **Images of the future are powerful tools to vocalize student hopes and fears**

   "Humans can only work to build a future if they can first imagine it. " (Ellyard 1992)

   Student-generated visions of the future, incorporating their hopes and fears, reflect what they care about most and their values. The disparity between images of their preferred futures and the present may act as a catalyst for action towards change. Envisioning futures through a Design-led approach involving multimodal communication and presentation methods opens new possibilities in the way students express their values through the generation of scenarios, stories, characters, prototypes, visual representations, etc.

2. **Integration of design methods within education presents new modes of student participation.**

   Through its strategies for analyzing, synthesizing, and presenting information in novel ways, design can position youth to construct affirming and agentic beliefs about their impact on the future. Besides merely applying Design methods, adopting a design mindset fostering collaboration, exploration of ambiguity, critical thinking, iterative experimentation can augment work within the spheres of education on student engagement. While establishing a safe and structured yet open learning environment, design methods promote students' ability to apply, adapt, and critique their thinking in various contexts. The artifacts produced from engagements in the classroom have a material and conceptual facet that support the activity, meaning-making, and communication of ideas themselves.

3. **There is no "one size fits all" approach to surfacing student agency.**

   Given each classroom is a unique ecosystem in itself, with factors such as space and time producing variable characteristics within the same classroom environment, there is no "cookie-cutter" approach to engagement in activities that surface agentic student beliefs. However, leading students through generating their visions of the future creates a condition and space for youth to confront and analyze issues that impact them. It is about providing a space to vocalize their hopes and fears and supporting them with

the means of doing so. Youth have their unique perspectives and observations of the social issues surrounding them; modes of engagement based on design can facilitate teachers in connecting their learnings in school to their real-life contexts. Adopting a participatory approach also centers on youth's experiences in the research. For youth, the act of analyzing, defining, and envisioning preferred futures through creative expression is a stepping stone toward creating the conditions for agency.

4. **Design provides a novel approach to participatory professional learning.**
   Curricula don't always meet the learning objectives they were designed for. This project adopts a hybrid approach combining Participatory Design, Design Justice, and Design-based Research and demonstrates a way to design, deliver, and evaluate learning modules, explicitly focussing on teacher engagement in the development and implementation. While previous research and this project show a need to support student agency within the classroom, this cannot be fully realized if teachers aren't afforded the appropriate introduction to these skills. The approach I adopted, involving teachers early on in the planning and design of the curriculum and using novel modes of introducing the module using cards, fosters collaboration and exploration rather than prescription. Such a process also pays attention to what the teachers hope to get out of the experience rather than fulfilling requirements. Their involvement throughout the process also helped

contextualize learning specific to their students; though there is a desire to

create scalable modules, teacher involvement adds flexibility to the process.

6. CONCLUSION

This research puts forward a curricular module outlining implementation outcomes with a specific focus on integration from project-based learning, Design, and Foresight. These methods outlined in the lesson plans are not novel themselves; however, when applied within the interdisciplinary context of K-12 history education, futures, and design combining their pedagogical approaches, expand to a degree student capacity for discourse in transformative contexts and demonstrate a model of application within history education. Transformative contexts are spaces where youth have the opportunities to reflect on assumptions they hold and participate in dialogue critically. This research could encourage teachers to combine future thinking approaches to existing history lessons to increase students' motivation to think about their futures and engage with subject content. The research demonstrates through student feedback and artifacts that such a curricular module and mode of engagement can enhance students' creative and critical thinking while also increasing engagement. Wenger (1998) emphasizes that students' active engagement is key to learning; this research taking a design-based approach to engagement and participation demonstrates new ways for students to interact and participate with each other, thereby facilitating new learning ways. The design-led approach to engagement with teachers before the

lessons may also be a novel approach for professional learning and curriculum development. While multiple sources of data were gathered, the data involving classroom observations, observation notes, and informal teacher reflections, student feedback, student responses, etc., were evaluated in a highly contextualized manner particular to a particular set of students influenced by many variant factors and may not be applicable across different learning contexts. This future-oriented curriculum identified the application of future-oriented imagery as a vehicle that enabled students to vocalize their hopes and fears. From the instruction perspective, the curricular module needs to ensure flexibility to modify the teacher's pace of instruction and adaptability. Educators, researchers, and designers may also be better positioned to fully understand how young people can use the tools at hand to confront forces of inequality and injustice.

REFERENCES

Bandura, Albert. 2001. "Social Cognitive Theory: An Agentic Perspective". Annual Review Of
Psychology 52 (1): 1-26. doi:10.1146/annurev.psych.52.1.1.

Bang, Megan, and Shirin Vossoughi. 2016. "Participatory Design Research and Educational
Justice: Studying Learning and Relations Within Social Change Making." Cognition and
Instruction 34. 173–193. https://doi.org/10.1080/07370008.2016.1181879.

Barab, Sasha, and Kurt Squire. 2004 "Design-Based Research: Putting a Stake in the Ground."
Journal of the Learning Sciences 13. 1–14. https://doi.org/10.1207/s15327809jls1301_1.

Buchanan, Richard. 1992. Wicked Problems in Design Thinking. Design Issues, 8(2), 5-21.
doi:10.2307/1511637

Candy, Stuart. 2018. Gaming futures literacy: The Thing From The Future. 233–246.

Candy, Stuart, and Kornet, Kelly. 2019. "Turning Foresight Inside Out: An Introduction to
Ethnographic Experiential Futures." *Journal of Futures Studies*, 23. 3–22.
https://doi.org/10.6531/JFS.201903_23(3).0002.

Costanza-Chock, Sasha. 2020. "Design Justice : Community-Led Practices to Build the Worlds
We Need." Book. Information Policy Series. Cambridge, Massachusetts: The MIT Press.

Cobb Paul, Jere Confrey, Andrea diSessa, Richard Lehrer, and Leona Schauble. 2003. "Design
Experiments in Educational Research." *Educational Researcher* 32, no. 1. 9–13.
https://doi.org/10.3102/0013189X03200100

Cole, Elizabeth A., and Karen Murphy. 2010. "History Education Reform, Transitional Justice,
and the Transformation of Identities." In *Identities in Transition*, edited by Paige Arthur,
334–68. Cambridge: Cambridge University Press.
https://doi.org/10.1017/CBO9780511976858.012.

Coulton, Paul, Dan Burnett, and Adrian Gradinar. "Games as Speculative Design: Allowing
Players to Consider Alternate Presents and Plausible Futures," n.d., 17.

Durik, Amanda, Vida, Mina, & Eccles, Jaccquelynne. 2005. Task values and ability beliefs as
predictors of high school literacy choices: A developmental analysis. Journal of Educational
Psychology, 98(2), 382-393. doi:10.1037/0022-0663.98.2.382

Flanagan, Mary. 2009. "Critical Play : Radical Game Design." Book. Cambridge, Mass.: MIT Press.

Freire, Paulo. 1990. Pedagogy of the oppressed. New York, NY: Continuum Publishing
Company.

Gidley, Jennifer, Debra Bateman, and Caroline Smith. 2004. *Futures in Education: Principles, Practice and Potential.*

Gidley, Jennifer, and Inayatullah, Sohail. 2002. "Youth Futures: Comparative Research and Transformative Visions", Praeger Publishers https://doi.org/10.1016/j.futures.2004.01.006.

Greene, Stuart, Kevin J. Burke, and Maria K. McKenna. 2018. "A Review of Research Connecting Digital Storytelling, Photovoice, and Civic Engagement." *Review of Educational Research* 88, no. 6: 844–878. https://doi.org/10.3102/0034654318794134.

Hanington, Bruce, and Bella Martin. 2012. Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions. Rockport Publishers.

Kolko, Jon. 2010. "Abductive Thinking and Sensemaking: The Drivers of Design Synthesis." Design Issues 26, no. 1: 15–28. doi:10.1162/desi.2010.26.1.15.

Jennings, Louise B., Deborah M. Parra-Medina, Deanne K. Hilfinger-Messias, and Kerry McLoughlin. 2006. "Toward a Critical Social Theory of Youth Empowerment." *Journal of Community Practice* 14, no. 1–2: 31–55. https://doi.org/10.1300/J125v14n01_03.

Jones, Alister, Cathy Buntting, Rose Hipkins, Anne McKim, Lindsey Conner, and Kathy Saunders. 2012. "Developing Students' Futures Thinking in Science Education." *Research in Science Education* 42, no. 4: 687–708. https://doi.org/10.1007/s11165-011-9214-9.

Lee, C. D. 2007. Culture, literacy, and learning: Taking bloom in the midst of the whirlwind. New York, NY: Teachers College Press.

Miller, Riel. 2007. "Futures Literacy: A Hybrid Strategic Scenario Method." *Futures* 39, no. 4: 341–62. https://doi.org/10.1016/j.futures.2006.12.001.

"National Curriculum Standards for Social Studies: Chapter 2—The Themes of Social Studies | Social Studies." Accessed December 3, 2020. https://www.socialstudies.org/national-curriculum-standards-social-studies-chapter-2-themes-social-studies

Ollenburg, Stefanie A. 2018. "A Futures-Design-Process Model for Participatory Futures," n.d., 12.

Ramos, José. 2017 "Linking Foresight and Action: Toward a Futures Action Research." In *The Palgrave International Handbook of Action Research*, edited by Lonnie L. Rowell, Catherine D. Bruce, Joseph M. Shosh, and Margaret M. Riel, 823–42. New York: Palgrave Macmillan US. https://doi.org/10.1057/978-1-137-40523-4_48.

Ramos, Jose. 2020 "Our Futures: By the People, for the People," n.d., 72.

Rawnsley, David. 2000. "A Futures Perspective in the School Curriculum," n.d., 19.

Rittel, Horst WJ, and Melvin M. Webber. 1974. "Wicked problems." Man-made Futures 26, no. 1: 272-280.

Sanders, Elizabeth B-N., and Pieter Jan Stappers. 2012. Convivial toolbox: Generative research for the front end of design. Amsterdam: BIS.

Seixas, Peter. 2017. "A Model of Historical Thinking." *Educational Philosophy and Theory* 49, no. 6: 593–605. https://doi.org/10.1080/00131857.2015.1101363.

Seixas, Peter. 1993. Historical understanding among adolescents in a multicultural setting. Curriculum Inquiry, 23(3), 301-327

Shemilt, D. 2009. Drinking an ocean and pissing a cupful: How adolescents make sense of history. In L. Symcox & A. Wilschut (Eds.), National history standards. The problem of the canon and the future of teaching history (pp. 141–211). Charlotte, NC: Information Age.

Slaughter, Richard A. 1995. "Futures Studies: From Individual to Social Capacity,".

Spinuzzi, Clay. 2005. "The Methodology of Participatory Design." Technical Communication (Washington) 52, no. 2: 163–74

Stickdorn, Marc, Markus Edgar Hormess, Adam Lawrence, and Jakob Schneider. 2018. This Is Service Design Doing: Applying Service Design Thinking in the Real World. " O'Reilly Media, Inc.,".

Stockdill, Darin, B., and Elizabeth Moje B. 2013. "Adolescents as Readers of Social Studies: Examining the Relationship between Youth's Everyday and Social Studies Literacies and Learning." *Berkeley Review of Education* 4. https://doi.org/10.5070/B84110015.

Straaten, Dick van, A. Wilschut, and Ron Oostdam. 2018. "Exploring Pedagogical Approaches for Connecting the Past, the Present and the Future in History Teaching." *Historical Encounters* 5: 46–67.

Straaten, Dick Van, Arie Wilschut, and Ron Oostdam. 2016. "Making History Relevant to Students by Connecting Past, Present and Future: A Framework for Research." *Journal of Curriculum Studies* 48, no. 4: 479–502. https://doi.org/10.1080/00220272.2015.1089938.

"The College, Career, and Civic Life (C3) Framework for Social Studies State Standards: Guidance for Enhancing the Rigor of K-12 Civics, Economics, Geography, and History," n.d., 110.

Tharp, Bruce M., and Tharp, Stephanie. 2018. "Discursive Design : Critical, Speculative, and Alternative Things." Book. Design Thinking, Design Theory. Cambridge, Massachusetts: The MIT Press.

Tsai, M. Y. 2016. "The Effect of Future Thinking Curriculum on Future Thinking and Creativity of Junior High School Students. https://doi.org/10.15341/jmer(2155-7993)/03.06.2016/004.

Zimmerman, M. A. 1995. "Psychological empowerment: Issues and illustrations. American Journal of Community Psychology,".