UNIVERSITY of VIRGINIA | FRANK BATTEN SCHOOL of LEADERSHIP and PUBLIC POLICY

IMPROVING YOUTH MENTAL HEALTH USING SOCIAL AND EMOTIONAL LEARNING TOOLS

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Note: Reprinted from iThrive Games (2021).

ithrive GAMES

PREPARED FOR:
iTHRIVE GAMES FOUNDATION

Table of Contents

Acknowledgements **3**
Disclaimer **3**
Honor Code **3**
Executive Summary **4**
Glossary **5**
Acronyms **5**
Introduction **6**
Defining the Problem **6**
Client Overview **7**
Background **9**
The State of Youth Mental Health 9
Social and Emotional Learning 11
The Implementation Problem 12
Criteria **13**
Cost 13
Effectiveness 13
Administrative Feasibility 14
Equity 15
Alternatives **16**
Alternative 1: School-Based Interventions 16
Alternative 2: Community-Based Interventions 20
Alternative 3: Consumer-Based Interventions 23
Recommendation **27**
Trade-Offs 27
Implementation **29**
Relevant Stakeholders 29
Next Steps 31
Risks 32
Conclusion **33**
References **34**
Appendix A **41**
Appendix B **42**
Appendix C **43**
Appendix D **45**

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Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

Honor Code

On my honor as a student, I have neither given nor accepted unauthorized aid on this assignment.

Dominique Monserrat

Executive Summary

Since the onset of the COVID-19 pandemic, youth mental health has suffered such that rates of mental illness are increasing and levels of resilience are declining (Racine et al., 2021; Sandra & Muqtadir, 2021). Over one-third of high schoolers report experiencing poor mental health since the pandemic, with around 25% of youth suffering from depressive symptoms and 20% from anxiety ("New CDC data", 2022; Racine et al., 2021). The prevalence is so severe that the US Surgeon General declared the state of youth mental health a public health crisis in 2021 (Office of the Surgeon General, 2021).

By age 14, 50% of lifetime mental illness is estimated to begin, but significant evidence in the literature suggests that early intervention and prevention methods can improve mental health outcomes ("Mental Health", 2022; Durlak & Wells, 1998). One such preventative method is social and emotional learning (SEL), which consistently yields improved academic, social, and mental/emotional outcomes in teens (Payton et al., 2000). Organizations such as iThrive Games Foundation use research practices to develop SEL interventions. ***Despite widespread availability of evidence based SEL tools, too many organizations fail to effectively implement these interventions to maximize the benefits on youth mental health.***

This report aims to reduce this evidence-to-practice gap by providing iThrive with three policy alternatives to improve their implementation process for SEL interventions. I examine the literature to provide a background to the youth mental health crisis, an understanding of social and emotional learning interventions, and an introduction to the implementation failure. Then, I propose and evaluate three policy alternatives for iThrive to consider using to improve the implementation process of their social and emotional learning interventions:

1. School-based interventions
2. Community-based interventions
3. Consumer-based interventions

I evaluate each alternative using the following criteria: cost, effectiveness, administrative feasibility, and equity. The analysis is done via a case study, wherein iThrive would localize their implementation to Charlottesville, VA, to keep the scope of the implementation manageable and increase the likelihood of a successful process.

Ultimately, I recommend that iThrive pursue Alternative 1: School Based Interventions. Alternative 1 incurs few costs and administrative burdens to iThrive while having a high likelihood of success based on significant evidence from the literature. It also has strong implications for equity, a key organizational goal for iThrive.

Finally, I provide a recommended implementation process for iThrive to partner with Charlottesville High School (CHS). Implementing Alternative 1 is a key first step in improving the evidence-to-practice gap so that mental health interventions are more accessible to the youth who need them.

Glossary

Resilience: A psychological term defined as a positive adaptation to experiencing adversity (Herrmann et al., 2011).

Social and emotional learning: A skills-based system through which learners develop core competencies in five key areas: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making ("Fundamentals of SEL", n.d.).

Evidence-to-practice gap: A disparity between what is known from research to be best practice and what is practiced (Ringeisen et al., 2003).

Knowledge mobilization: The efforts to bring together research findings, policy, and practice to produce effective outcomes via improved implementation (Cooper & Shewchuk, 2015).

Acronyms

SEL: Social and emotional learning

CHS: Charlottesville High School

DTC: Direct-to-consumer

CASEL: Collaborative for Academic, Social, and Emotional Learning

Introduction

After defining the problem of interest and providing a client overview, this report includes an overview of the youth mental health crisis as well as the implications and costs to society of not addressing it. Then, I explain the significance of the implementation gap in the context of improving youth mental health outcomes.

Using literature and the body of research on intervention mechanisms for evidence-based mental health interventions, I propose three policy alternatives for iThrive to consider in improving their implementation strategies. After defining four evaluative criteria – cost, effectiveness, administrative feasibility, and equity – I analyze the proposed alternatives using these criteria and ultimately recommend one for iThrive to consider.

Finally, I recommend an implementation process for iThrive. This includes a timeline of the next steps, an overview of relevant stakeholders, and an analysis of risks associated with implementation.

Defining the Problem

In the wake of the COVID-19 pandemic, youth mental health is suffering enough that the US Surgeon General calls it a public health crisis (Office of the Surgeon General, 2021). Over one-third of high schoolers report experiencing poor mental health since the pandemic ("New CDC Data", 2021). Around 25% of youth are estimated to have experienced depressive symptoms since the pandemic's onset, while 20% have experienced anxiety symptoms (Racine et al., 2021). Emerging research finds that the mental health effects of the pandemic, including symptoms of depression and anxiety, are likely to be long-lasting, and must be addressed (Galea et al., 2020; Kathirvel, 2020).

By age 14, 50% of lifetime mental illness is estimated to begin despite significant evidence that early intervention and prevention methods can reduce the severity of such illnesses ("Mental Health", 2022; Durlak & Wells, 1998). Social and emotional learning (SEL) is consistently lauded in the literature as an effective method for improving academic, social, and mental/emotional outcomes in teens (Payton et al., 2000).

iThrive Games Foundation is one of many mental health-focused research organizations with developed SEL tools that are not currently being implemented in ways that yield their intended positive outcomes in youth. ***Despite widespread availability of evidence-based SEL tools, too many organizations fail to effectively implement these interventions to maximize the benefits on youth mental health.***

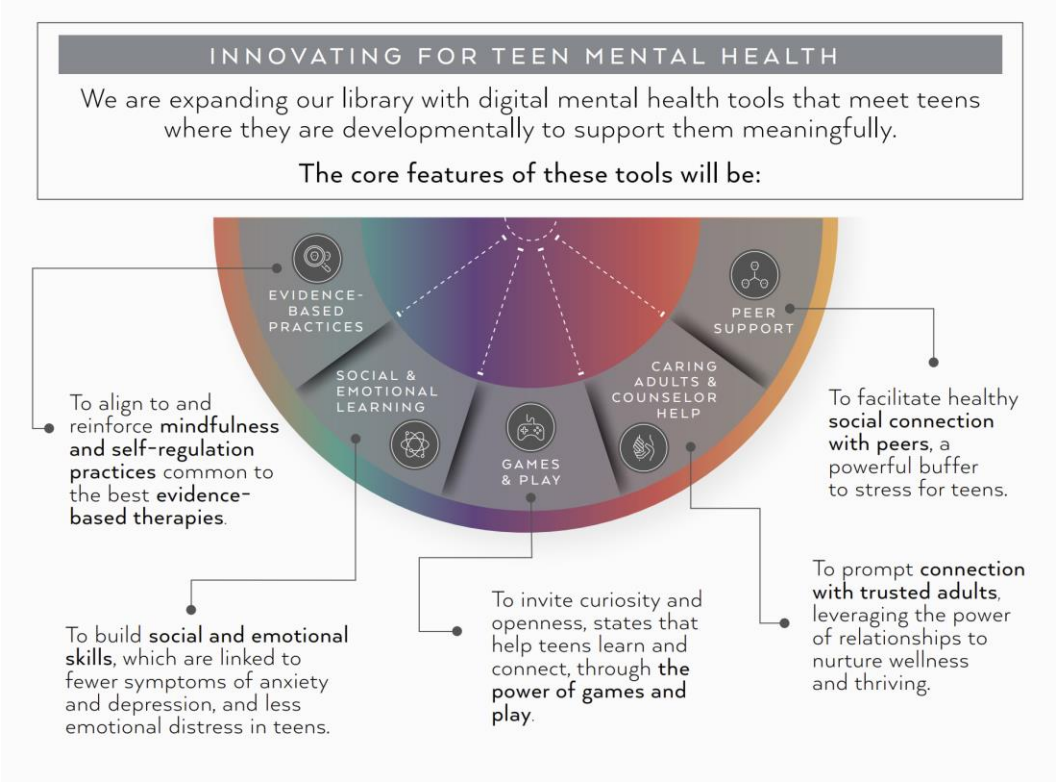
Client Overview

iThrive Games Foundation ("iThrive") is a nonprofit organization dedicated to improving youth wellbeing using game-based SEL interventions. The organization's mission statement is:

> iThrive Games prepares teens to thrive by meeting them where they are, and by working in partnership towards a world where all have the voice, choice, and agency to reach their full potential. We use games and game design to equip teens with the social and emotional skills they need to be healthy and resilient, the tools that support and protect their mental health and well-being, and the systems thinking they need to recognize inequity along with meaningful opportunities to imagine and design a better world ("About Us", n.d.).

iThrive has several evidence-based interventions designed to support teen thriving, but one main area of focus for the organization is the implementation of a digital suite of SEL tools designed to improve mental health outcomes in teens. Figure 1, below, outlines the core features and purposes of these tools. The first two core features, Evidence-Based Practices and Social and Emotional Learning, are of most interest to this analysis since they relate directly to the identified policy problem.

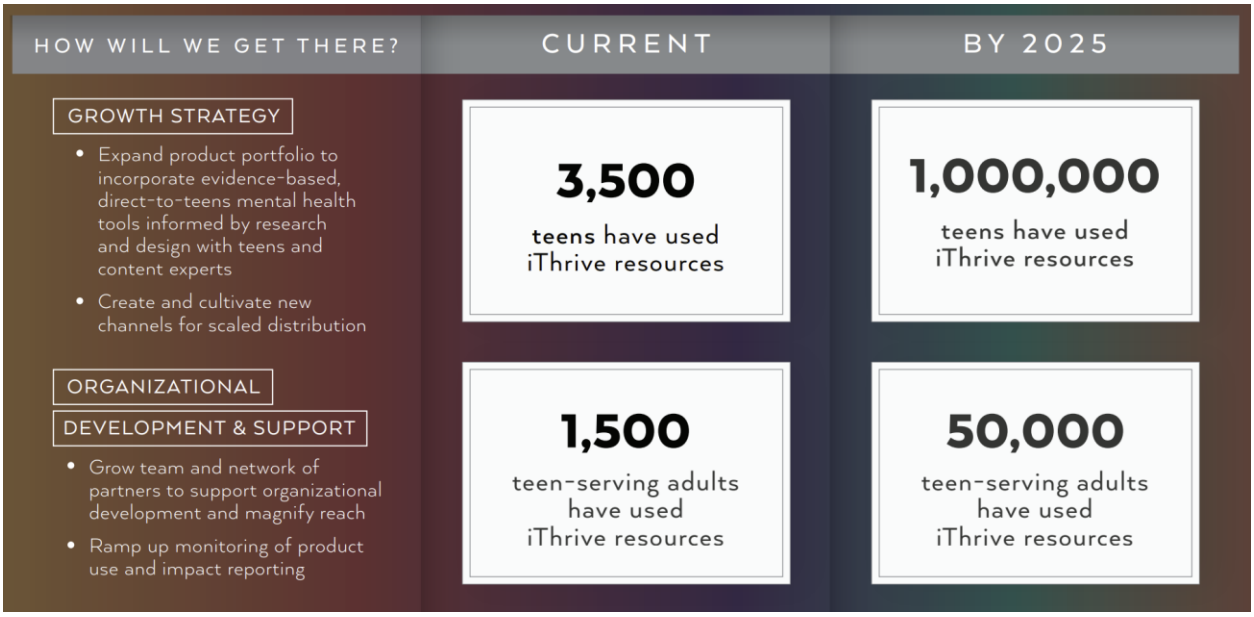
Figure 1: Innovating for Teen Mental Health



Note: Reprinted from "Innovating for teen thriving" (2022).

Like other research-based organizations that design mental health interventions, iThrive struggles to effectively implement their SEL interventions. Currently, the tools have served approximately 3,500 teens. Figure 2, below, documents iThrive's implementation goals.

Figure 2: Growth Plan for iThrive



Note: Reprinted from "Innovating for teen thriving" (2022).

As noted in Figure 2, iThrive is searching for new channels for scaled distribution of their SEL interventions. With this goal in mind, I focused my analysis on their implementation problem to identify policy options for iThrive to consider.

Background

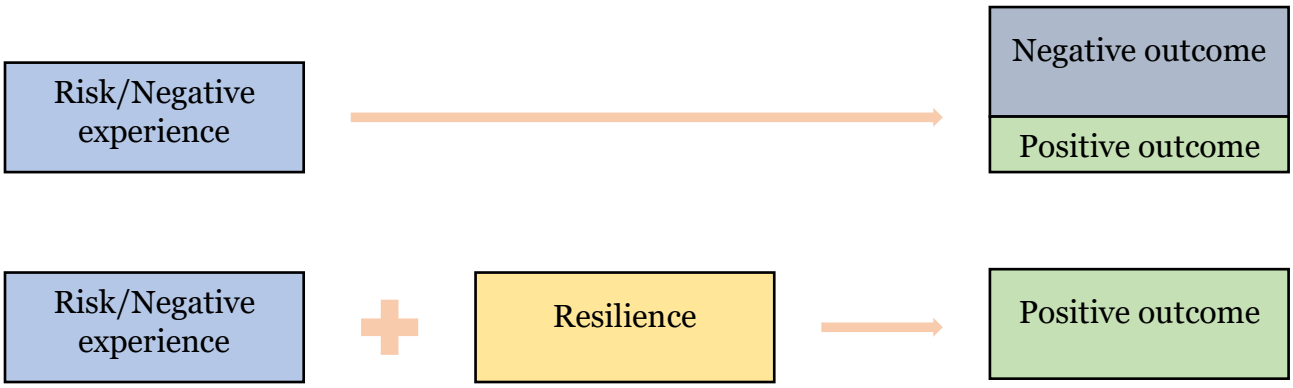
The State of Youth Mental Health

Youth today experience stressors unlike any generation before, including higher-than-ever school stress and the lingering effects of the COVID-19 pandemic (Office of the Surgeon General, 2021). Even before the pandemic, the state of youth mental health was declining; the pandemic has worsened the rate of this decline, such that over one-third of high schoolers reported experiencing poor mental health in 2021 ("New CDC data", 2022). Specifically, the transition to online learning, decreased in-person interactions, and general instability and uncertainty during the pandemic impacted the development of resiliency in youth (Sandra & Muqtadir, 2021).

Resilience

Resilience is a psychological term defined as a positive adaptation to experiencing adversity; in other words, being able to face negative experiences while maintaining good mental health (Herrman et al., 2011). Figure 3, below, conceptualizes resilience and its importance. While resilience manifests in a variety of ways, a resilient individual is less likely to experience negative outcomes following exposure to a risk or negative experience than is an individual who has not developed resilience (Reyes et al., 2013). These negative outcomes can include poor mental health outcomes, including the development of anxiety and depression (Sandra & Muqtadir, 2021).

Figure 3: Conceptualizing Resilience



Note: Adapted from Reyes et al. (2013).

Per Figure 3, when an individual has a negative experience and has not developed resilience, they may experience some positive outcomes but will overwhelmingly experience negative outcomes (Reyes et al., 2013). In this model, 'experiences' are external, whereas 'outcomes' are internal (e.g., mental health). When an individual has developed resilience, they will still have negative experiences, but they maintain positive internal outcomes, including good mental health.

The decrease in resilience among youth following the pandemic has been correlated with increases in prevalence of mental health disorders, most commonly anxiety and

depression (Sandra & Muqtadir, 2021). Since the onset of the pandemic in 2020, an estimated 25% of teens have experienced depression symptoms, while 20% have experienced anxiety symptoms (Racine et al., 2021). The decrease in development of resilience means that youth might be unable to recover from these mental health disorders without effective intervention. Furthermore, research suggests that these negative mental health outcomes may be long-lasting (Galea et al., 2020; Kathirvel, 2020). Thus, there is a significant need for evidence-based intervention mechanisms to be implemented effectively to yield improved mental health outcomes.

Costs to Society

The youth mental health crisis incurs many direct and indirect costs to society. The Substance Abuse and Mental Health Services Association (SAMHSA) reports that $125M was spent in 2022 on children and youth mental health services ("Substance Abuse", 2022). Additionally, teens who suffer from anxiety and/or depression – the two most common mental illnesses – may grow into adults who suffer from the same disorders. Research indicates that teens with mental illness are less likely to contribute to the labor force later in life ("Reducing the Economic Burden", 2022). Lost productivity resulting from mental illness costs the global economy approximately $1 trillion, a cost expected to rise to $6 trillion by 2030 if left unaddressed (Health, 2020). The disparity between what mental health problems cost society relative to what is being spent on them speaks to the importance of reducing the prevalence of mental illnesses.

In addition to direct costs, opportunity costs of the youth mental health crisis speak to the need for improved intervention implementation processes. Opportunity costs include lower rates of school attendance, lower test scores, and high dropout rates among high schoolers (Currie & Stabile, 2006). These externalities accumulate a cost to society of lower human capital once students become part of the labor force ("Reducing the Economic Burden", 2022). Findings indicate that depression diagnoses alone cost about $44B to workplaces in the US due to lower workforce participation and decreased productivity of employees suffering from depression ("High Cost", n.d.). Further, adolescent mental health issues have been associated with higher likelihood of criminal behaviors and increased homelessness and incarceration rates ("High Cost", n.d.).

Other opportunity costs are at the individual level: teens with mental health struggles suffer from damaged relationships with family, friends, and significant others, poor school and work performance, increased likelihood of abusing substances, and poor physical health (Ellis, 2019). Mental illness symptoms can significantly impact an individual's ability to connect with friends, family, and partners, causing relationship distress and decreasing social well-being. Youth with mental illnesses also miss more school than those without and perform worse in classes.

Finally, individuals with one or more mental illnesses die, on average, 25 years earlier than those without (Ellis, 2019). Approximately 50% of individuals who experience mental illness will also have a substance use disorder and are more at risk of having a second – or even third – mental illness relative to healthy individuals. These significant

costs to both society and individuals warrant improved implementation of interventions known to improve youth mental health outcomes.

Social and Emotional Learning

SEL is a skills-based system through which learners develop core competencies in five key areas: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making ("Fundamentals of SEL", n.d.). Figure 4, below, outlines and defines the core competencies SEL develops in youth. According to a meta-analysis on SEL outcomes, SEL programming yields positive short- and long-term mental health outcomes via these core competencies (Weissberg et al., 2015). Furthermore, these positive outcomes help develop resilience in youth, decreasing the likelihood that youth exposed to negative experiences later in life will have negative mental health outcomes (Domitrovich et al., 2017).

Figure 4: SEL Core Competencies

Note: Reprinted from Yasmeen (2023).

There are a variety of SEL curricula available, but all of them aim to improve skills in these five competency areas. It is not restricted to school curriculum, though that is the most popular mechanism for intervention implementation. SEL is not limited to school

settings because it relies on integrating skill development at a variety of levels, including the community and family levels (Berg & Moroney, n.d.).

SEL programming is typically considered a preventative or early intervention mechanism for improving mental health outcomes. These types of interventions are most effective prior to onset of mental health disorders or at an early stage of symptom development to reduce the severity of the disorder later (Gutman & Schoon, 2015; Domitrovich et al., 2017). SEL interventions consistently result in improved academic performance and social behaviors while reducing behavioral and mental health struggles in youth (Elias, 2014; Jones & Kahn, 2017). iThrive's digital SEL interventions are developed for teens, and I constructed policy alternatives with the goal of maximizing their reach to this target population.

The Implementation Problem

SEL interventions are frequently implemented for elementary and middle school-aged children, yet high school-aged children remain less exposed to these learning strategies (Prothero, 2021). Teenagers grapple with important questions about how to interact with the world and are increasingly exposed to risky situations; thus, building resilience in teens is essential to help this population avoid negative mental health outcomes (Prothero, 2021; "Innovating for teen thriving", 2022).

The lack of implementation of SEL interventions is part of a broader problem in the mental health policy space: the evidence-to-practice gap. The *evidence-to-practice gap* is a disparity between what is known from research to be best practice and what is practiced (Ringeisen et al., 2003). As a result of this gap, organizations have started practicing knowledge mobilization. *Knowledge mobilization* refers to the efforts to bring together research findings, policy, and practice to produce effective outcomes via improved implementation (Cooper & Shewchuk, 2015). Although evidence-based practices to improve mental health outcomes exist in droves, this "evidence-to-practice gap" highlights the main barrier to accessing these interventions (Clarke & Barwick, 2021). The implications of this gap are such that even though research-based tools exist, they are not implemented in ways that maximize their potential benefits.

Current research on reducing the gap between evidence-based mental health interventions and implementation recommends engaging with community organizations, consumers, clinicians, and other stakeholders (Clarke & Barwick, 2021). Doing so will help ensure that implementation is grounded, as one of the underlying causes of the evidence-to-practice gap is that the research and development process for interventions fails to consider the context in which the interventions will be implemented (Clarke & Barwick, 2021). As such, in devising policy alternatives for iThrive, considerations of stakeholders involved in implementation was a key part of my process.

Criteria

I will use the following criteria to evaluate my policy alternatives and issue a final recommendation to iThrive.

To evaluate each alternative, I made several key assumptions. First, while iThrive's SEL interventions are currently available free-of-charge, for them to realistically scale up to their implementation goals – and to stay on pace with similar organizations – I estimated a recommended rate for iThrive to use in each alternative's implementation.

Additionally, research indicates that successful implementation of SEL programming requires collaboration across stakeholder groups and the integration process is, as a result, complex (Mahoney et al., 2021). Furthermore, outcomes from SEL interventions are most positive when the implementation process involves coordination across the systems involved (Payton et al., 2000). Ensuring that the implementation process will have enough time to allow for this coordination effort is essential. Finally, positive outcomes from SEL on mental health are seen more in the long- than short-term; follow-up studies have found positive effects on mental health for 1 to 4 years post-intervention (Mahoney et al., 2018). Therefore, this analysis assumes that the implementation of any alternative will be for an initial period of 5 years.

Lastly, while theoretically there are no bounds to where iThrive could implement their SEL interventions, to keep the scope of this analysis manageable, I chose to use a case study style of analysis. This will enable them to use this report as a scaffold for an improved implementation process; starting on a small scale will likely yield more positive outcomes than attempting too large of an implementation too fast. To conduct this case study, each alternative has been localized to Charlottesville, VA. iThrive has existing relationships with organizations in the area, making it a reasonable first step for them to consider in creating a new implementation process.

Cost

As a nonprofit organization, iThrive is primarily reliant on research grants and donors for funding. Furthermore, the stakeholders involved in the implementation of each of my alternatives are constrained by costs, thus the cost of each alternative is an essential piece in the analysis. Cost will be evaluated by estimating the total cost to the primary stakeholders involved in the implementation process, including but not limited to iThrive.

Effectiveness

As the primary problem identified in this analysis is a lack of effective implementation, effectiveness is a key criterion. Using estimates from the literature, each alternative will be evaluated based on the likelihood that the implementation will result in the desired mental health outcomes.

Effectiveness will be graded on a 1-3 scale (1-low to 3-high). For an alternative to have a high effectiveness there must be substantial evidence in the literature that this type of

implementation will yield positive mental health outcomes. This evidence will be drawn from past research on similar types of interventions and the extent to which positive mental health outcomes were achieved. Table 1 provides a rubric by which each alternative will be graded for this criterion.

Table 1: Effectiveness Evaluative Rubric

	1 – low	2 – medium	3 – high
To what extent has this been tried before?	Never	At least a few times	Frequently enough that its impact has been studied
To what extent has this or similar interventions led to improved youth mental health outcomes?	Not at all	Some evidence suggests it has	Multiple studies finding success in the literature

The rubric uses generic language (e.g., "a few") to delineate between scores because the three alternatives vary widely in the degree to which they have been used before. To avoid favoring alternatives with higher rates of prior implementation, I generalized the rubric and conducted more specific analysis in each alternative's evaluation.

For the second rubric item, I am interested in frequency (i.e., how often has this alternative found some positive outcome on youth mental health?).

If an alternative receives a score of 3 for both rubric criteria, then it is ranked 'high' in effectiveness. If it scores a 2 and a 3, a 2 and a 2, or a 1 and a 2, then it is ranked 'medium', and if it scores 1 for both then it is ranked 'low'.

Administrative Feasibility

As one key component of any implementation process is having sufficient resources to support the program, administrative feasibility must be assessed in the evaluation process. The following rubric (Table 2) outlines the process for determining an administrative feasibility ranking for each alternative.

Table 2: Administrative Feasibility Evaluative Rubric

	1 – low	2 – medium	3 – high
Can the relevant parties handle additional administrative/financial burdens?	No	One but not all organizations can	All organizations can
Do the relevant organizations have enough staff to handle the implementation process?	No	One but not all organizations do	All organizations do

To determine whether an organization could handle additional administrative burdens, I examined their current organizational workload and employee force using available information. Based on the degree of difficulty associated with an alternative, I then estimated the likelihood that that, realistically, the organization could handle the implementation process associated with each alternative.

If an alternative receives a score of 3 for both rubric criteria, then it is ranked 'high' in administrative feasibility. If it scores a 2 and a 3, a 2 and a 2, or a 1 and a 2, then it is ranked 'medium', and if it scores 1 for both then it is ranked 'low'.

Equity

As iThrive aims to help all teens, but especially those groups who have historically been marginalized ("About Us", n.d.), equity is an essential criterion to evaluate for each policy alternative. As 'marginalized populations' primarily refers to youth of color, which often encompasses those who are low-income and at-risk, I decided that access was the most critical component of equity for this analysis (Murphey et al., 2018). Equity was assessed on a 1-2 scale (1-low, 2-high) using the rubric outlined in Table 3.

Table 3: Equity Evaluative Rubric

	1 – low	**2 – high**
Does this alternative incur any additional costs for marginalized youth?	Yes	No
Is there evidence that this alternative will specifically reach marginalized youth?	No	Yes

If an alternative receives a score of 2 for both rubric criteria, then it is ranked 'high' in equity, if it scores a 1 and a 2, it is ranked 'medium', and if it scores a 1 for both, it is ranked 'low'.

Alternatives

Alternative 1: School-Based Interventions

The most common mechanism by which SEL is implemented is through school curriculums. Research on SEL interventions finds that when schools implement SEL into coursework, students see improved outcomes across a variety of factors, including academic performance, behavioral tendencies, and, crucially, mental health (Durlak et al., 2011). Increasingly, policymakers at all levels – federal, state, and local – are recognizing the importance of SEL programming in schools (Gabriel et al., 2019). Almost 80% of states incorporate elements of SEL into required academic curricula, and 38 states include mental and emotional health as part of this requirement (Gabriel et al., 2019).

In school settings, research finds that SEL programming is most effective as a universal preventative intervention (Greenberg et al., 2017; Gutman & Schoon, 2015). Considering SEL as a public health intervention given the state of youth mental health, makes the universal model, which targets all students (as opposed to those already diagnosed with a mental health disorder), appealing. Universal models of intervention improve resilience across a range of contexts, reduce stigma since they are positively framed and do not isolate individual students, and improve positive outcomes after risk exposure for a variety of common risks (Greenberg et al., 2017).

Findings also indicate that SEL programming is most effective when implemented from elementary school through high school (Berman et al., 2018; Jones & Kahn, 2017; Weissberg et al., 2015); yet, high schools are the least likely of K-12 schools to incorporate SEL curriculum (Prothero, 2021). iThrive's tools, designed for teens in high school, stand to improve on this implementation gap.

While it would ultimately be worthwhile for iThrive to pursue partnering with a multitude of school districts to increase the reach of their interventions, I took a scaled-down, case study approach to this analysis to provide iThrive with a reasonable first step in improving their implementation process. Therefore, the scope of this analysis is limited to implementing iThrive's SEL interventions at Charlottesville High School (CHS).

Cost

CHS would have to purchase the licensing from iThrive to use their SEL tools in the curriculum. Seven of the most popular SEL curriculums used in school districts, per a Classcraft report, have publicly available pricing information (Crawley, 2022). These SEL curriculums are comparable to iThrive's, in that they are primarily digital resources and typically the price includes an SEL coach or comparable personnel resource for the school to use. Appendix A contains a table with the pricing breakdown for these programs as well as the calculation process for determining that it would cost CHS approximately $14,000 over the course of five years to incorporate iThrive's curriculum.

This analysis was conducted under the assumption that iThrive currently has the employee bandwidth to provide logistical support for one school's implementation. Logistical support and teacher training are conducted remotely by iThrive, incurring no further direct costs to the organization. It is worth noting that, should this alternative be used, iThrive would eventually aim to partner with multiple school districts, at which point they may need to hire more support personnel and expand the training processes, adding additional costs.

Effectiveness

One meta-analysis of 213 school-based SEL programs found that when SEL programs are operated by teachers and school staff, there are consistently positive results, including bolstered academic performance, more positive social behavior, and lower levels of emotional distress (Durlak, et al., 2011). These findings have been echoed in the literature, including three meta-analyses, which is indicative of the strength of the results (Sklad, et al., 2012; Taylor et al., 2017; Wiglesworth et al., 2016).

For adolescents, SEL is more effective when it is tailored to their unique life stage (Yeager, 2017). When SEL programs are integrated into school curriculums, difference-in-difference analysis finds that students show improved social behavior (24 percentage point difference) and reduced emotional distress (24 percentage point difference) (Durlak & Mahoney, 2019). Additionally, research finds that school-based SEL programming can improve resiliency significantly and that these results are maintained in follow-up studies, suggesting that SEL can have long-term impacts on youth resilience (Cramer & Castro-Olivio, 2016). Table 4 outlines the projected effectiveness of Alternative 1 based on this analysis.

Table 4: Projected Effectiveness of Alternative 1

	1 – low	2 – medium	3 – high
To what extent has this been tried before?	Never	At least a few times	**Frequently enough that its impact has been studied**
To what extent has this or similar interventions led to improved youth mental health outcomes?	Not at all	Some evidence suggests it has	**Multiple studies finding success in the literature**

The prevalence of school-based SEL interventions combined with many findings that these interventions improve youth mental health means that Alternative 1 is ranked high in effectiveness.

Administrative Feasibility

Charlottesville City Schools budgeted $36,000 in FY22 for Positive Behavioral Intervention and Support, an area of the budget that has, in general, seen an upward trend since FY19 ("Annual Budget, n.d.). Assuming that the cost is just under $3,000 per year for the next five years to implement iThrive's curriculum (see Appendix A), it is reasonable to assume that this option is affordable for CHS.

Additionally, CHS would have to invest in some additional training for the teachers prior to the implementation of the programming in school. CHS employs 97 teachers and research has shown that SEL outcomes are strongest when all teachers are trained in SEL. iThrive recommends two hours of training prior to using their curriculum which could be incorporated as part of professional development over the summer.

Charlottesville City Schools Office of Equity and Engagement already oversees professional development pertaining to outcomes aligned with desired SEL outcomes, so it is reasonable to assume that these trainings could fall within this program. Choosing to use some of the summer professional development time for iThrive's training presents an opportunity cost; however, as VA teachers are already required to do professional development to maintain their teaching license, and the hours required for iThrive's training are minimal relative to the total requirement (McPherson, n.d.). Therefore, despite the small opportunity cost, this alternative does not impost a significant administrative burden to schools.

iThrive already has staff who handle the training for organizations who use their interventions, either for similar purposes or for research. As CHS is only one additional organization, it is reasonable to assume that they have sufficient staff to handle the additional administrative burden. Furthermore, it would therefore not incur administrative or financial burdens that iThrive is not already equipped to handle. Table 5 outlines the projected administrative feasibility of Alternative 1, based on this analysis.

Table 5: Projected Administrative Feasibility of Alternative 1

	1 – low	2 – medium	3 – high
Can the relevant parties handle additional administrative/financial burdens?	No	One but not all organizations can	**All organizations can**
Do the relevant organizations have enough staff to handle the implementation process?	No	One but not all organizations do	**All organizations do**

Since both iThrive and CHS are likely to handle the projected administrative and financial burdens of this alternative and have enough staff who are well-equipped to

handle the implementation process, this alternative ranks high in administrative feasibility.

Equity

School-based SEL programming is a universal, preventative method by which to improve mental health. Research indicates that universal SEL programming is most effective for vulnerable student populations (i.e., students with demonstrated mental health needs), but this is partly because most SEL research has focused on SEL as an intervention rather than a preventative measure (Thayer et al., 2019). Research on SEL in a prevention model is still a significant gap in the literature, but what there is suggests that positive outcomes are seen across student populations, albeit to varying degrees of effectiveness.

However, given that minority populations are often underdiagnosed in the mental health space despite experiencing poorer mental health outcomes relative to the white population (Center for Behavioral Health, 2021), a universal model of SEL may result in more equitable outcomes since it exposes all students to the curriculum. CHS is an ideal school for this model, too, because it is racially diverse. Almost 30% of the student population is Black, 14% are Hispanic, and 13% are biracial, meaning that over 55% of the student body is not white ("Charlottesville High School", n.d.).

According to the Census Bureau, almost 70% of Virginia's population is white; only 20% are Black, and 10.2% are Hispanic ("Quick Facts", n.d.). Thus, Alternative 1 serves more marginalized youth than expected based on state demographics.[1] Additionally, as it is being implemented in school, it incurs no additional costs to these underserved populations. Table 6 outlines the projected equity of Alternative 1.

Table 6: Projected Equity of Alternative 1

	1 – low	**2 – high**
Does this alternative incur any additional costs for marginalized youth?	Yes	**No**
Is there evidence that this alternative will specifically reach marginalized youth?	No	**Yes**

Since Alternative 1 reaches the marginalized populations that iThrive aims to serve without incurring costs to them, Alternative 1 ranks high in equity.

[1] It would be outside the scope of this analysis to confirm that the socioeconomic and racial demographics of Virginia or Charlottesville match the ones identified in the Center for Behavioral Health (2021) breakdown. For this analysis, I assume that by serving a higher percentage of youth of color than the state average, it is likely to be serving marginalized youth.

Alternative 2: Community-Based Interventions

While few (if any) community-based youth mental health interventions have specifically followed social and emotional learning frameworks, the youth mental health crisis as a public health problem justifies a need for interventions beyond those in the classroom (Greenberg et al., 2017). SEL is most effective when its skills are taught at a variety of levels, including the family and community levels (Yeager, 2017). Therefore, using SEL interventions in a community setting is another implementation mechanism for iThrive to consider.

To evaluate the costs, administrative feasibility, and equity of this alternative within a reasonable scope that is comparable to the scope of the first alternative, I propose that iThrive partner with Region Ten Community Services Board's Child and Adolescent Case Management (henceforth "Region Ten") located in Charlottesville, VA. This service assists children and families in need of mental healthcare, acting as a hub to find and navigate services.

Cost

Based on calculations influenced by market research, I determined that iThrive should sell licenses on a per-user basis. Using pricing information for similar interventions, I estimated that iThrive should sell per-user licenses at $3/user. Therefore, for Region Ten to purchase enough licenses for the approximately 1,230 youth they serve, it would cost them $3,690. See Appendix B for more information on the cost analysis for this alternative.

Effectiveness

While the literature is more limited for this alternative due to its novelty, initial evidence suggests that preventative mental health interventions may produce positive outcomes in users. Specifically, a meta-analysis of 28 studies found that skills-based interventions (a pool of interventions that SEL falls into) significantly improve youth mental health (Clark, Kuosmanen, & Barry, 2015). Furthermore, a more recent meta-analysis found that community-based interventions targeting youth have positive effects on their behavior and mental attitudes (Das et al., 2016).

Research finds that while SEL can be effective for approximately 85% of students at the universal level of implementation (e.g., in school curriculums), the remaining 15% of students – many of whom suffer from higher levels of emotional distress – require more intensive intervention (Weist et al., 2018; Young et al., 2012). While past research has focused on school psychologists as the primary sources for this level of intervention (Weist et al., 2018; Young et al., 2012), community organizations for youth who are already seeking mental health care may be a different access point.

When school psychologists act as the access point for SEL interventions, students report a significant improvement in mental health (Caldarella et al., 2019). Further, a meta-analysis of 33 studies found that community-based mental health interventions for youth consistently see significant improvement in outcomes (Farahmand et al., 2012). Notably, this meta-analysis did not find differences in outcomes when interventions

were implemented at the universal or targeted level, suggesting that Region Ten and iThrive have flexibility in how they might go about using iThrive's curriculum. Using this information, Table 7 outlines the projected effectiveness of Alternative 2.

Table 7: Projected Effectiveness of Alternative 2

	1 – low	2 – medium	3 – high
To what extent has this been tried before?	**Never**	At least a few times	Frequently enough that its impact has been studied
To what extent has this or similar interventions led to improved youth mental health outcomes?	Not at all	**Some evidence suggests it has**	Multiple studies finding success in the literature

While SEL interventions have not been tried yet at the community level, evidence from implementing SEL programming via school psychologists as well as evidence for the success of community-based mental health interventions for youth mean that Alternative 2 ranks medium for effectiveness.

Administrative Feasibility

Region Ten, as one of the top employers in the local planning district, employs over 500 staff to provide services, including mental health services. Based on the broad range of services offered by Region Ten, as well as the vast network of partners in the area that they have, it seems like this alternative would be feasible for them to implement. However, there is no information available on the caseload of these employees, which is a limiting factor for determining feasibility. Therefore, it cannot be assumed that this alternative has high feasibility, only medium or low.

Furthermore, as part of the organization's strategic plan, they emphasize the importance of increasing the percentage of evidence-based interventions and improving the cultural awareness of the services they provide; they are constantly seeking innovative preventative methods to improve youth mental health ("Prevention Services", n.d.). iThrive's interventions align with these goals, suggesting that Region Ten may be willing to handle the administrative burdens, even if there is not enough information about their ability to do so.

For iThrive to implement this alternative, they must restructure the mechanisms by which they provide their services to a small degree. Typically, iThrive uses its interventions in coordination with one organization at a time, for one group of users at a time. To work with Region Ten, they must be prepared to support Region Ten as Region Ten introduces the interventions to youth in a staggered way. It is unrealistic to assume that Region Ten could implement their interventions to all the youth in need at once, as youth do not all seek assistance at once. Therefore, there is a new administrative burden

for iThrive. However, given their dedication to improving the implementation mechanisms of their interventions, it is likely that they would be able to handle this alternative, since it is still on a small scale (only one community organization).

Region Ten does not have publicly available information for their spending breakdown; therefore, it is unclear whether they could handle the additional financial burden of this alternative. iThrive, however, could handle the financial burden of this alternative. Table 8 outlines the projected administrative feasibility of Alternative 2 based on this analysis.

Table 8: Projected Administrative Feasibility of Alternative 2

	1 – low	2 – medium	3 – high
Can the relevant parties handle additional administrative/financial burdens?	No	**One but not all organizations can**	All organizations can
Do the relevant organizations have enough staff to handle the implementation process?	No	**One but not all organizations do**	All organizations do

While it is possible – and even likely – that Region Ten has sufficient staff and funding for the implementation of this alternative, the lack of available information means that I cannot assume that this is true. iThrive, on the other hand, can handle the additional burdens and has the staff available for implementation. Therefore, this alternative ranks medium for administrative feasibility.

Equity

In FY21, almost 40% of the youth they served identified as white, and another 40% did not provide information on their race. Only 13% identified as Black. As a result, this alternative might not be reaching the most vulnerable and at-risk populations that iThrive serves. As the served demographics are less diverse than the demographics of Virginia, this alternative is not specifically reaching the populations iThrive intends to serve. However, it does not incur costs for users. Table 9 outlines the projected equity of Alternative 2 based on this analysis.

Table 9: Projected Equity of Alternative 2

	1 – low	2 – high
Does this alternative incur any additional costs for marginalized youth?	Yes	**No**
Is there evidence that this alternative will specifically reach marginalized youth?	**No**	Yes

Despite not having as broad of a reach as iThrive might want, Alternative 2 does not incur costs for marginalized youth populations. Therefore, it ranks medium for equity.

Alternative 3: Consumer-Based Interventions

The third alternative involves implementing a direct-to-consumer (DTC) telehealth model of intervention. In this model, iThrive's tools would be directly available to users via iThrive's website. For this alternative, I propose that they develop an app to aid in accessibility. It is a less localized alternative than the first two; however, to maintain a similar scope for analysis, I assume in the cost analysis that it is serving approximately the same population of youth as the first two alternatives.

Cost

An analysis of similar, research-based but non-therapeutic apps aiming to mitigate mental health struggles found that most of these programs are free-to-use. Half of them contain in-app or in-website purchases once downloaded. Appendix C contains a breakdown of the surveyed apps as well as the process for reaching an estimated cost per user. Assuming that every user opts-in to the subscription version, the total cost would be $360,000. As noted in Appendix C, though, this is likely a high estimate. The cost per user would be about $300 over 5 years.

Since iThrive's current tools are already in a direct-to-consumer format, they could maintain that and just add a paywall. However, to provide the best user experience, they should develop an app. Costs to iThrive for this process are estimated at about $40,000 (see Appendix C for detailed cost breakdown). Therefore, the total cost of this alternative is estimated at $400,000.

Effectiveness

The DTC model for implementing the interventions has significant basis in the literature for success in achieving improved mental health outcomes for users. Individuals who make use of DTC mental health interventions interact more frequently with mental health treatments and resources and improve mental health outcomes, specifically in users with ADHD or anxiety (Gallo et al., 2015; Norman et al., 2022).

Several meta-analyses (Six et al., 2021; Weisel et al., 2019) and a meta-review (Lecomte et al., 2020) find that mental health apps have consistent positive, small or moderate effects on anxiety and depression symptoms. That there is enough literature to warrant multiple meta-analyses suggests that mental health apps have been tried significantly; in fact, there are estimated to be between 10,000 and 20,000 mental health apps currently available (Lecomte et al., 2020). Using the findings surrounding mental health apps, Table 10 outlines the projected effectiveness of Alternative 3.

Table 10: Projected Effectiveness of Alternative 3

	1 – low	2 – medium	3 – high
To what extent has this been tried before?	Never	At least a few times	**Frequently enough that its impact has been studied**
To what extent has this or similar interventions led to improved youth mental health outcomes?	Not at all	**Some evidence suggests it has**	Multiple studies finding success in the literature

While many mental health apps exist, most research only finds small-to-moderate effects on mental health. Therefore, Alternative 3 receives a medium ranking for effectiveness.

Administrative Feasibility

To implement this alternative, iThrive would need to pay for the services of an app development team. Given the nature of nonprofit funding, this would likely be difficult, if not impossible at this stage. After the app's development, iThrive would need to dedicate current employees to monitor the usage statistics and user experience of their app and website. They could dedicate current employees to this task or hire a contractor; either option incurs costs that might be overburdening the organization in its current iteration.

While developing an app or hiring a contractor is not a requirement to implement this alternative, it is certainly a consideration because, while the interventions are usable in an as-is situation, there is room for significant improvement to best adapt to the direct-to-consumer market.

However, given iThrive's current priorities and funding capabilities, it is unlikely that they would be able to support the hiring of a new employee, nor would they be likely to divert too much current employee bandwidth to this endeavor. Based on this analysis, Table 11 outlines the projected administrative feasibility of Alternative 3.

Table 11: Projected Administrative Feasibility of Alternative 3

	1 – low	2 – medium	3 – high
Can the relevant parties handle additional administrative/financial burdens?	**No**	One but not all organizations can	All organizations can
Do the relevant organizations have enough staff to handle the implementation process?	**No**	One but not all organizations do	All organizations do

As a result of iThrive's limited bandwidth and funding availability, it is unlikely that they could handle the additional burdens imposed by this alternative. Thus, it ranks low in administrative feasibility.

Equity

Recent literature suggests that DTC mental health apps are an opportunity to increase equity in mental health awareness and resource access. Research finds that the best way to use such apps are to ensure that they are designed for those struggling with mental health as well as those in underserved populations (Friis-Healy et al., 2021). When apps are specifically designed with vulnerable and/or minority populations in mind, they stand to improve outcomes for those populations the most (Ramos et al., 2021; Friis-Healy et al, 2021).

iThrive's tools are designed with marginalized populations of youth in mind ("About Us", n.d.). Ramos et al. (2021) find that when apps keep these populations in mind during the development process, and take care to consider their unique life experiences, the apps are more likely to be effective for these groups. As such, there is evidence for that this alternative will specifically reach marginalized youth.

However, as noted in Appendix C, users would be expected to pay some subscription rate, depending on their chosen subscription length. Additionally, accessing iThrive's interventions via an app would require internet access and a phone, tablet or computer. If an individual did not already have access to these tools, the alternative would incur additional costs. Table 12 outlines the projected equity of Alternative 3 based on this analysis.

Table 12: Projected Equity of Alternative 3

	1 – low	2 – high
Does this alternative incur any additional costs for marginalized youth?	**Yes**	No
Is there evidence that this alternative will specifically reach marginalized youth?	No	**Yes**

Even though Alternative 3 reaches the populations of interest to iThrive, it incurs costs for these youth; thus, it ranks medium in equity.

Recommendation

I recommend that iThrive implement their SEL interventions in a school-based environment. While it is not the lowest-cost alternative, the high likelihood of effectiveness, high administrative feasibility, and high equity make it the best policy option. Table 13, below, contains an outcomes matrix summarizing the findings from my analysis.

Table 13: Outcomes Matrix

	Cost	Effectiveness	Administrative Feasibility	Equity
Alternative 1: *School based interventions*	$14,000	**High**	**High**	**High**
Alternative 2: *Community based interventions*	**$3,690**	Medium	Medium	Medium
Alternative 3: *Direct-to-consumer interventions*	$400,000	Medium	Low	Medium

Alternative 1 is likely to be highly effective, feasible and equitable, especially relative to Alternatives 2 and 3. Therefore, it meets iThrive's organizational goals of improving youth mental health and targeting marginalized populations specifically, while also not incurring too much additional burden on the organization. While it is a higher cost than Alternative 2, much of that cost is borne by CHS, who very likely can afford it. Additionally, school-based SEL interventions have been well-established in the literature, which would provide iThrive with models to use as they expand the services they offer, and help persuade stakeholders to invest in this new direction for the organization.

Trade-Offs

While implementing school-based interventions is the best course of action for iThrive to begin accomplishing their organizational goals, it does come with trade-offs. Most notably, this alternative does not have the reach that Alternative 3 has – an app is accessible to anyone with a smartphone and internet access, and thus potentially stands to help the most youth. However, the process for iThrive of scaling up that rapidly is infeasible; the organization is not large enough to handle that administrative burden.

By starting at a smaller level, in one school, iThrive can iterate on its implementation process and improve it as they continue to partner with more and more schools. As they do this, their revenue and size will grow, and they can consider the other alternatives as they become more realistic. As such, I recommend that iThrive consider these alternatives in a tiered approach: start with schools, as this is the most practiced way of implementing SEL, and as they gain more traction and improve their implementation process, integrate into community organizations and, ultimately, develop a direct-to-consumer mechanisms to reach the most youth possible.

Implementation

To recommend a process for iThrive to consider in the implementation of my recommended alternative, I will offer them insight into relevant stakeholders, important next steps, and potential risks involved.

Relevant Stakeholders

The stakeholders invested in the implementation process include: iThrive, the Charlottesville City school board and city council, CHS administrators, CHS teachers, and CHS parents. To organize the discussion of stakeholders, I grouped them into the following categories using the implementation framework by Weimer and Vining (2017): fixers, managers, and doers.

Fixers: iThrive

As the fixers, iThrive's task is to provide the tools that will address the underlying negative outcomes of the implementation problem – the mental health crisis. Initially, their role functions more as a doer since they have to do the groundwork to get the program started, but as their long-term role is the fixer, that is how I categorized them.

iThrive's involvement begins in the proposal stage, where they would have to submit their curriculum to the school board and city council to get their SEL interventions into school programming. To overcome any hesitancy the school board may have about their curriculum, iThrive should provide in-depth cost analysis, market analysis, and evidence supporting the positive outcomes from their interventions. They should also emphasize the flexibility of their curriculum to both stand on its own in a class when necessary and to be integrated into other courses, like civics.

Finally, they would be responsible for orchestrating administrator and teacher training, likely over the summer, as well as continuing to offer support during the school year as their interventions are put into practice. As SEL curriculum is most effective when included in the school environment, iThrive should invest some time into creating trainings that teach SEL frameworks in addition to focusing on their specific curriculum (Niemi, 2020).

Managers: School Board & School Administrators

The school board and city council would be responsible for considering and, hopefully, approving the inclusion of iThrive's interventions in CHS curriculum. The role of administrators is to communicate the importance of SEL to teachers, families, and students while supporting teachers through the process of using a new curriculum. Given the support that the Charlottesville City school board and city council have shown for SEL interventions already, I anticipate that they will likely be supportive of iThrive throughout this process, though the expected hesitancy and potential resistance that accompanies any financial investment is to be expected.

Per evidence-based strategies for implementing SEL curriculum in schools, I recommend that CHS create a committee within the school to handle the

implementation process (Button-Ervin & Ervin, 2022). The committee should include teachers and administrators, counselors, special education teachers, and school psychologists and social workers. The role of this committee would be to monitor student outcomes throughout the five-year implementation period and to communicate with iThrive. As there are approximately 100 teachers at CHS, I recommend the committee have approximately 10 members, to support a roughly 1-to-10 committee member to teacher ratio.

Not all teachers will be incorporating iThrive's curriculum into their courses. However, best practices in SEL implementation involve all teachers and administrators to incorporate SEL competencies into their curriculum and building these skills into the school climate through their interactions with students (Yeager, 2017). Appendix D contains the SEL competencies, developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL). These include relationship skills, social awareness, self-awareness, self-management, and responsible decision-making ("What Is the CASEL Framework?", n.d.). SEL is most effective when it is incorporated into the school's functioning, from coursework to disciplinary practices to teacher-student interaction (Niemi, 2020). Therefore, even if not all teachers learn iThrive's curriculum specifically, they should all be supported through the process of understanding SEL best practices.

Therefore, committee members would be responsible for learning SEL competencies, to the extent that they can then support teachers who are incorporating them, and determining how they will measure outcomes at CHS specifically. Using their desired outcomes, they will, over the course of the five years, be able to ensure that iThrive's curriculum is having its intended impact. Button-Ervin and Ervin (2022) recommend that this progress monitoring take place at regular increments, perhaps through SEL 'report cards' that the committee could create using CASEL guidelines for SEL core competencies and distribute to teachers.

Additionally, teachers need support to successfully implement SEL curriculum. According to research, some key ways that the committee could support teachers are by ensuring that administrators have a long-term plan for desired outcomes that includes a vision statement ("Ready to Lead", 2019) as well as advocating for teachers so that they have sufficient time to dedicate to the implementation process ("Emotion and Cognition", 2019). This is particularly important, as 71% of teachers report believing that changes in mechanisms to address student well-being must start at the leadership level ("Emotion and Cognition", 2019).

Doers: Teachers, Parents, & Students

Teachers are the primary group responsible for using iThrive's SEL interventions in their classrooms. Research suggests that the integration of SEL into most coursework as well as day-to-day interactions between teachers and students yields the most positive mental health outcomes from these interventions (Jones & Bouffards, 2012). Teachers will have to attend professional development sessions to learn how to best use the

curriculum. Given the current teacher shortage in Virginia, largely due to poor compensation and feelings of being overworked, it is possible that teachers will be resistant to including more work in their course planning (Pauly, 2023). However, teachers are overwhelmingly in support of SEL curriculum; as long as administrators provide appropriate support and resources, it is likely that teachers will be supportive of these interventions ("What does the research say?", n.d.).

Parents are doers in this alternative as well, especially with the rise of interest in parent involvement in schools in Virginia (Wolf, 2023). Parents, especially in the current political climate, can be skeptical of new educational interventions. There may be some resistance to implementing an SEL curriculum. However, transparency and a clear presentation of the goals and desired outcomes from the interventions from both iThrive and the CHS administrators may be a way to generate support for this initiative.

Also, SEL curriculum is most effective when parents are involved, too. Evidence from a randomized-control trial finds that when parents provide an example for their children of how to adhere to the behaviors in the SEL framework, SEL outcomes on academic performance and behavioral outcomes improve relative to those whose parents do not ascribe to the framework (McCormick et al., 2016).

Finally, students are doers because they are the recipients of the curriculum. Since iThrive's interventions are game-based, it is likely that students will enjoy the interventions and will be supportive of the implementation process.

Next Steps

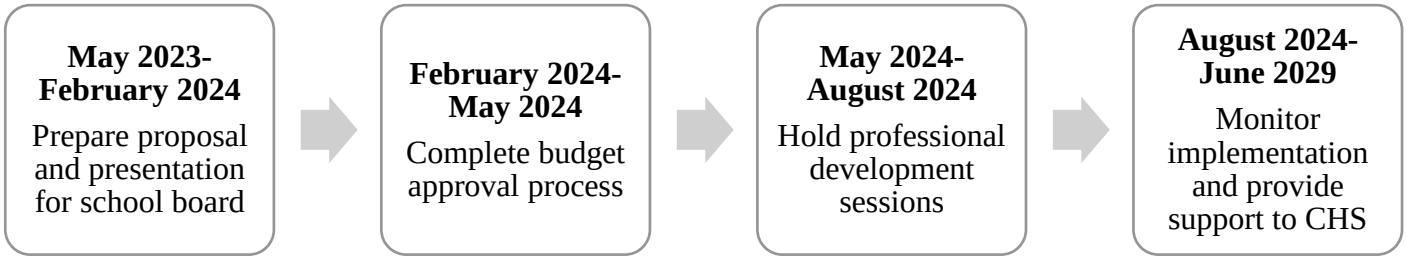
First, iThrive will have to prepare a proposal and presentation to provide to the Charlottesville City school board and city council. This proposal must highlight the need for their curriculum in CHS as well as provide evidence for the effectiveness of their interventions and make the case for the utilization of their curriculum over other available SEL curriculums. This process typically happens throughout the spring semester preceding the upcoming school year. Assuming iThrive is interested in implementing their curriculum in the 2024-2025 school year, they will have approximately 8 months from the time of receiving this report to prepare their proposal, as the first budget meeting typically takes place in February ("Budget", n.d.).

Assuming that they are successful in convincing Charlottesville City to implement their SEL interventions, the next step will be preparing for the professional development sessions they will need to offer over the summer before the start of the 2024-2025 school year. They should approach the professional development sessions similarly to the way they approach training facilitators for the short-term interventions they typically offer. Teachers should leave the sessions feeling equipped to utilize iThrive's tools.

Throughout the first semester of implementation, iThrive should expect to field questions and problems from CHS as they arise. It is expected that these will decrease in frequency as teachers and administrators become more comfortable with the

interventions and curriculum design. Figure 5 provides an overview of a recommended implementation timeline for iThrive.

Figure 5: Implementation Timeline



Risks

There are not many risks involved in the implementation of this alternative, which is part of its appeal. The worst-case scenario would be that schools fail to use the curriculum or somehow misuse it, but there is not much that can be done to prevent that from happening besides iThrive taking an active role in engaging with school administrators and teachers to answer questions and mitigate concerns that arise. Also, iThrive should determine whether they may be liable for any negative outcomes of the implementation process and ensure that they have a plan in place to mitigate their own liability.

The other potential risk is parental resistance to the implementation of SEL curriculum in CHS. School choice and parental involvement in education are hot political topics in Virginia and implementing a new curriculum could lead to some parental backlash. As I discuss above, ensuring transparency of the goals of SEL as well as involving parents to the greatest extent possible may be mitigation techniques. Furthermore, pointing out that SEL develops 'soft skills' that make students more desirable to colleges and future employers may also help minimize the risk of parental backlash (Sambursky, 2021).

Conclusion

Youth mental health is undoubtedly suffering, and teens need support more than ever. To improve mental health outcomes for youth, effective implementation of evidence-based practices is essential. Social and emotional learning tools are one pathway proven to be effective in developing the resilience necessary in youth to help them avoid mental health struggles as they grow up. For the tools to have their desired impact, a thoughtful implementation process is necessary; otherwise, the evidence-to-practice gap will continue to negatively impact the positive outcomes that evidence-based practices could and should have.

The three alternatives I propose for iThrive in this analysis all have the potential to make progress on this long-term goal, but the relatively low cost, low risk, and potential for significant benefit make implementing Alternative 1: School-Based Interventions appealing for all relevant parties. iThrive should carefully consider their proposal for the school board and city council, as well as ensure that their current teacher and administrator trainings are tailored to a school rather than the smaller organizations with whom they currently partner. CHS is a prime candidate for a first case study to implement this alternative, and should they find success, will provide a strong framework for future collaborations with school districts.

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Appendix A

Cost Analysis for Alternative 1

In the 2022-2023 school year, CHS is serving 1,194 students, so pricing was determined assuming an approximately 1,200 student school. For a school this size, the average price for a five-year license for SEL curriculum is $13,782.50, with the lowest price being $4,995 and the highest price being $29,820. Table 14 contains pricing information from the assessed interventions.

Table 14

Pricing Information for School Based SEL Programs

	1 Year License	5 Year License
Everyday Speech	$ 7,455.00	$ 29,820.00
Empowering Education	$ 1,490.00	$ 7,450.00
Character Strong	$ 8,495.00	$ 24,479.00
Second Step	$ 3,199.00	$ 11,996.00
Positive Action	$ 2,160.00	$ 10,800.00
PATHS	$ 1,850.00	$ 6,937.50
CATCH	$ 999.00	$ 4,995.00
Average Price	$ 3,664.00	$ 13,782.50

Note. Links to websites are included in the table.

Appendix B

Cost Analysis for Alternative 2

In order to develop a model by which to determine the cost of iThrive's tools for community service providers, I utilized market research of comparable tools that are sold via a business-to-business process, which is essentially what I am proposing iThrive do in this alternative. Based on the structure of iThrive's tools, they have two options available: sell licenses to Region Ten, who would then provide access to users, or sell to users directly.

There are not many similar SEL or mental health interventions that adopt a per-user licensing model. The one comparable organization that does this charges $3/user ("Pricing", n.d.). iThrive could adopt a similar model and sell licenses to Region Ten based on expected number of users. Region Ten served 1,230 children (ages 0-18) in Charlottesville FY21 (FY22 data is not available yet). Assuming an expected 1,230 users, it would cost Region Ten $3,690 to purchase iThrive licenses, should iThrive also charge $3/user.

Alternatively, they could adopt a model where Region Ten serves only as an information access point to direct users to iThrive's tools. Most similar tools that are currently available are free to download but contain in-app purchases. While this route would cost Region Ten nothing, it would also likely be less effective in increasing take-up rates, since it would incur a cost to the user. Thus, I am going to assume for the analysis of this alternative that iThrive would pursue the licensing route.

Appendix C

Cost Analysis for Alternative 3

To conduct cost analysis for Alternative 3, a direct-to-consumer model, market research was conducted to examine similar products. All of these mental health apps and games were free to download, but half of them contained in-app purchases. Table 15 contains this breakdown. First, though, iThrive must adapt their current tools to be in an app-like format, which incurs a cost.

iThrive would have to spend time restructuring their digital tools to be more accessible to direct consumers. This would likely require them to hire a part-time or full-time contractor who could improve their website and develop an app for them. According to a recent report, an app of medium complexity costs approximately $32,000-$48,000 to create when using an outside development team (Dogtiev, 2023). I estimate that the total cost for iThrive, then, will be approximately $40,000. I use this middle point because their tools are somewhat complex and can require online connectivity but are already created in a web-based format so they only have to be adapted and not created from scratch.

In-app purchase information was not readily available for comparable apps, but average in-app purchases on Google Play and the Apple Store (the two most popular app stores) range from $0.43 to $1.08 (Tafradzhiyski, 2023). However, iThrive would likely want to make use of a subscription service rather than one-time purchases, as SEL interventions see better outcomes over time (Jones, 2012). Average subscription prices, broken down by time period, are noted in Table 16. The average subscription price is $10/month but given the fact that this is a new product, and any price is higher than the current free nature of iThrive's interventions, I propose that they only charge $5/month for any subscription.

iThrive has a combination of group and individual interventions. The base – free – version of their tools should provide unlimited access to the individual ones, and the premium – paid – subscription should provide access to the group ones, because there is an additional level of commitment required of the user when agreeing to participate with others. Requiring a paid subscription to do so might increase the likelihood that they will participate fully with their group.

For the purposes of this analysis, I assume that iThrive adopts a monthly subscription model. Thus, the cost per user is assumed to be $5 per month. Over the course of five years, this would total $300/user. Unfortunately, due to the new nature of mental health apps, there is not sufficient data to estimate how many youth might download the app.

Therefore, I propose that, to scope this alternative to the same community as Alternatives 1 and 2, iThrive create an information campaign that they give to CHS and Region Ten to pass along to students and community members. iThrive already has

compelling materials promoting the use of their interventions to improve mental health outcomes, so they would not incur costs to create new ones.

To calculate costs for this alternative, then, I assume that the knowledge campaign reaches 50% of the targeted population at each location (CHS and Region Ten). Extremely successful knowledge campaigns can influence up to 80% of the targeted population (Feldmann, 2022), thus 50% seems like a safe estimate. Since both CHS and Region Ten each serve about 1,200 youth, if the knowledge campaign reaches half the youth at each location, it will still serve about 1,200 youth.

At approximately $300/user over five years, this would result in a total cost to all users of $360,000. However, it is important to note that no user is required to purchase a subscription, so this is a high estimate of total cost. Table 15 contains the cost breakdown of existing apps with similar purposes to iThrive's interventions and Table 16 contains a breakdown of average subscription prices for apps.

Table 15

Pricing Information for Direct-to-Consumer Mental Health Apps

	Cost	Notes
A Part of Me	Free	
Bloom CBT	Free	In-app purchases
Catch It	Free	
MoodMission	Free	In-app purchases
notOK	Free	
PTSD Coach	Free	
Reflection - Mood tracker	Free	In-app purchases
Thought Challenger	Free	In-app purchases

Table 16

Subscription Prices by Time Period of Subscription

	Monthly	3 Months	6 Months	Annual
Average Price	$10	$29	$49	$61

Note: Adapted from Curry (2023).

Combining the costs for iThrive ($40,000) and for users ($360,000), this alternative costs $400,000 for the five year scope of this analysis.

Appendix D

CASEL Core Competencies for SEL

Figure 6: CASEL Wheel for SEL Core Competencies

Note: Reprinted from "What is the CASEL Framework?" (n.d.).

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April 2023

BATTEN