Public Interest and Program Growth in Social Emotional Learning: Long-Term Trends and the Impact of COVID-19

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Public interest in Social Emotional Learning (SEL) has grown over the past two decades, accompanied by increased program adoption. This study examines long-term trends in public interest and program growth in SEL, focusing on changes before and after COVID-19. To gauge the evolution of public interest, we use Google Trends data to compare the frequency of search keywords related to SEL, mental health, DEI, LGBTQ, and extracurricular activities. Additionally, we analyze information on 115 SEL programs across all 50 states, sampled from publicly accessible websites, to understand their establishment patterns and adopted SEL frameworks. Our findings show a clear rise in public interest in SEL before COVID-19. During specific phases of the pandemic, interest in SEL experienced sharp but temporary spikes. However, after COVID-19, public interest in SEL declined sharply and unexpectedly. This decline mirrors decreasing interest in LGBTQ but contrasts sharply with rising interest in mental health and DEI—a surprising and notable divergence. In terms of SEL program growth, adoption accelerated significantly during the pandemic but slowed markedly afterward. Overall, this research offers a novel and comprehensive perspective on SEL trends, emphasizing the complex societal forces influencing its trajectory. Given the ongoing public debate linking SEL to DEI, we recommend that policymakers design implementation strategies that safeguard students' consistent access to essential social and emotional learning by decoupling SEL curricula from fluctuating political climates.

1 Introduction

As educational institutions increasingly emphasize the critical role of social and emotional development alongside academic achievement [1–3], the past few decades have seen a notable surge in the adoption of Social Emotional Learning (SEL) curricula. SEL focuses on developing students' ability to understand and manage emotions, build positive relationships, and make responsible decisions—fostering vital lifelong skills. The widespread implementation of SEL is supported by recent data [4]: the Collaborative for Academic, Social, and Emotional Learning (CASEL) reported that by the 2023-2024 school year, 83% of school principals indicated their schools used an SEL curriculum—a substantial increase from 76% in 2021-2022 and just 46% six years earlier.

Among the many SEL frameworks developed, the CASEL framework [5] has emerged as the most widely recognized. It is built upon five core competencies: self-awareness, self-management, responsible decision-making, relationship skills, and social awareness. CASEL's reach is substantial, particularly through its Collaborating States Initiative (CSI) [6], launched in 2016, which now represents the majority of U.S. districts, schools, teachers, and students. What sets the CASEL SEL framework apart is its explicit acknowledgment of the multiple layers and contexts in which SEL operates, encompassing classrooms, schools, families, caregivers, and broader communities. Beyond the CASEL framework, several other influential SEL frameworks exist, including RULER [7], Positive Behavioral Interventions and Supports (PBIS) [8], Multi-Tiered System of Supports (MTSS), Organisation for Economic Co-operation and Development (OECD) [9], and Devereux Student Strengths Assessment (DESSA) [10].

Government policies and legislation significantly shape SEL's trajectory. On one hand, there have been supportive policies for SEL. For instance, the U.S. Senate's bipartisan resolution designated March 4-8, 2024, as National Social and Emotional Learning Week [11]. Another example is that, in 2017, the California State Department of Education developed its "California SEL Guiding Principles," notably including a "Commit to Equity" principle that deeply influenced subsequent state SEL initiatives [12].

On the other hand, as Diversity, Equity, and Inclusion (DEI) and SEL have intricate relationships, the debates around DEI may impact SEL. In recent years, conservative groups have expressed growing concern that SEL programs may be used to promote progressive ideologies in schools. As a result, legislation against DEI can affect SEL. For example, in 2024, Kansas passed a bill that prohibits the use of diversity statements or commitments in hiring and admission processes [13]. Finally, in

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2025, President Trump signed a series of executive orders ending government DEI programs [14].

In sharp contrast to recent political shifts against DEI, CASEL revised its definition of SEL in 2020 to place greater emphasis on equity. This divergence prompts the question of how such opposing forces are reflected in longitudinal trends in public interest and program growth related to SEL. Despite extensive research on SEL's positive impact [1–3], these trends remain largely unexplored. In addition, the effects of the COVID-19 pandemic on SEL have received limited attention. This study addresses these gaps by exploring the following research questions:

1. Over the past two decades, how has public interest in SEL evolved, and how does this trajectory compare to that of other non-academic educational topics, such as mental health, extracurricular activities, and DEI?

2. What is the nationwide long-term trend in the establishment of new SEL programs—accelerating or slowing—and does it align with the evolution of public interest in SEL?

3. To what extent did the COVID-19 pandemic affect SEL initiatives, and what new trends have emerged in the post-pandemic period?

4. What are the prevailing SEL frameworks adopted in SEL programs?

Diverging from conventional research that often relies on direct surveys of specific individuals or SEL programs within a limited scope, this study takes a novel approach to achieve broader coverage of both population and SEL programs over two decades by sampling and analyzing publicly accessible data on the internet. Specifically, we use Google Trends [15] to evaluate the evolution of public interest in topics such as SEL, mental health, LGBTQ, DEI, and extracurricular activities, based on the frequency of keyword searches conducted by general internet users. In addition, we analyze 115 SEL programs across all 50 U.S. states—sampled from publicly accessible websites—to examine trends in program establishment and the SEL frameworks they adopted.

2 Literature Review

2.1 Success of SEL

Decades of research, including numerous meta-analyses, consistently show that SEL significantly improves youth social-emotional skills, fosters positive attitudes, and reduces antisocial behaviors [16–18]. Several studies highlight SEL's positive impact on academic outcomes [19–22], while others demonstrate its strong benefits for mental health and well-being [23–29].

2.2 Criticism of SEL

While most studies emphasize the success of SEL, it has also faced criticism. Clark et al. examined concerns about the hegemonic and normative impacts of SEL, suggesting that it may exacerbate systemic oppression for multiply-marginalized students in schools [30]. Their critique of Ohio's K–12 SEL standards and CASEL's core competencies argues that such frameworks risk undermining or erasing the critically productive role of emotions in social justice movements. Similarly, Stearns contended that SEL promotes a cultural demand for "hegemonic positivity," promoting constant positive emotional display over authentic expression [31]. This "impossible curricular regime," they argued, suppresses genuine connection and essential aspects of human experience in the classroom. In contrast, Shriver and Weissberg responded to critics of the SEL movement by highlighting its widespread support and projecting continued growth [32]. However, Zhao countered that consensus around SEL is far less solid than advocates often suggest [33].

Our study contributes to this debate by showing that public interest in SEL shifted from steady growth prior to COVID-19 to a sharp decline afterward, providing evidence that challenges Shriver and Weissberg's assertion of SEL's continued growth [32].

2.3 Relationship between SEL, DEI, and LGBTQ

This study, which examines the correlation between public interest in SEL, DEI, and LGBTQ topics, builds on prior research in this area. Woodruff investigated how SEL supports mental health among lesbian, gay, and bisexual individuals [34]. Varner emphasized that integrating SEL and DEI in the music classroom can foster knowledge, beliefs, practices, and relationships that positively impact communities [35]. Murray-Larrier explored the role of social-emotional competencies in nurturing healthy relationships and advancing DEI within institutions and communities [36]. Gagnier et al. argued that applying an equity and inclusion lens to the implementation and evaluation of SEL programs is essential to realizing their full potential [37].

Our study extends prior work by analyzing long-term trends in public interest in SEL, LGBTQ, and DEI. We find a strong positive correlation between SEL and LGBTQ, but not with DEI. Notably, the correlation between SEL and DEI has reversed—from positive to negative—since the onset of COVID-19, although this shift may not be directly attributable to the pandemic.

2.4 Trends in Establishing of New SEL Programs

This study analyzes the adoption of SEL programs, which was significantly accelerated by CASEL's launch of the Collaborating Districts Initiative (CDI) [38]. The CDI promotes the systemic implementation of SEL across large urban school districts in the United States. Unlike earlier approaches that focused mainly on

classroom lessons, the CDI emphasizes integrating SEL into all aspects of a school district's operations.

Although some reports suggest an expansion of SEL programs[4], our sample of 115 SEL programs shows a slowdown in the establishment of new programs after COVID-19.

2.5 COVID-19's Impact on SEL

Grazzani et al. investigated the impact of SEL and resilience skills on adolescent mental health during the COVID-19 pandemic, finding a positive and significant association between SEL and resilience, as well as a positive relationship with prosocial behavior[39]. Cooper et al. examined how the shift to online schooling during the pandemic influenced teachers' perceptions of their ability to implement SEL. They found that teachers felt neutral to comfortable with SEL and perceived their school culture as providing neutral to moderate support for SEL during this period[40].

Our study of COVID-19's impact on SEL differs from prior work by analyzing shifts in public interest before and after the pandemic, as well as its effects on the creation of new SEL programs.

2.6 Comparison of SEL Frameworks

Among the various SEL frameworks developed, the CASEL framework[5] is the most widely recognized. It emphasizes five core competencies: self-awareness, self-management, responsible decision-making, relationship skills, and social awareness.

Several other SEL frameworks also exist. The evidence-based RULER approach focuses on five core emotional intelligence skills: Recognizing, Understanding, Labeling, Expressing, and Regulating emotions[7]. It adopts a systemic, whole-school strategy to embed these principles across the entire school community—including leaders, teachers, staff, students, and families—to enhance learning, teaching, and leadership.

Positive Behavioral Interventions and Supports (PBIS) is an evidence-based, tiered framework designed to promote positive behavior and improve overall school climate[8]. Operating proactively, PBIS explicitly teaches and reinforces expected behaviors, aiming to reduce reliance on reactive disciplinary measures. While distinct from SEL, PBIS is closely related and often complements SEL initiatives. In this relationship, SEL provides the foundational skills, and PBIS offers a systematic process for recognizing, supporting, and rewarding the application of those skills in practice.

The Multi-Tiered System of Supports (MTSS) is designed to identify students' academic, behavioral, and social-emotional strengths and challenges early, providing differentiated support tailored to their unique needs[?]. It typically consists of three tiers: universal support for all students (Tier 1), targeted interventions for students with specific skill gaps (Tier 2), and intensive, individualized support for those requiring additional assistance (Tier 3). Data-driven decision-making and ongoing progress monitoring are integral components of the MTSS framework.

The Organisation for Economic Co-operation and Development (OECD) framework offers an international perspective on SEL[9]. It is organized around the Big Five personality traits: task performance, emotional regulation, collaboration, engagement, and open-mindedness. It highlights the critical role of families, schools, communities, culture, policies, and institutions in shaping these skills.

The Devereux Student Strengths Assessment (DESSA) is a standardized, norm-referenced behavior rating scale designed to assess children's social and emotional competencies[10]. Grounded in applied developmental psychology—particularly resilience theory—DESSA aims to promote social-emotional competence and the ability to adapt positively in the face of adversity.

Our study compares the adoption of different frameworks across the 115 sampled SEL programs and finds that the CASEL framework is the most widely adopted.

2.7 Using Google Trends to Analyze Public Interest

This study uses Google Trends[15] to analyze and compare public interest in various topics such as SEL, DEI, LGBTQ, mental health, and extracurricular activities. Jun et al. conducted a holistic analysis of research using Google Trends and found it applied across diverse fields, including IT, communications, medicine, health, business, and economics[41]. They also observed a dramatic increase in its use in research. To understand the impact of Google Trends in the medical field, Mavragani and Tsagarakis analyzed all articles in the Scopus and PubMed databases from 2006 to 2016 to understand the methods, tools, and statistical approaches for analyzing data from Google Trends[42]. They concluded that monitoring online queries can provide insight into human behavior and is essential for assessing behavioral changes and providing a foundation for research using data that would not have been accessible otherwise.

Our study is the first to apply Google Trends data to the analysis of SEL, offering a novel approach to understanding public interest in the field.

3 Methods

Unlike prior research, which often surveys specific individuals or SEL programs within a limited scope, this study employs a novel method. We analyze publicly accessible internet data to achieve a much broader, decade-long coverage of both public interest in SEL and the growth of SEL programs. Specifically, we use two distinct methods: one to quantify public interest in topics like SEL and DEI, and another to gather information about over 100 SEL programs.

We employed data from Google Trends[15] to compare public interest in SEL with related topics such as DEI and mental health. Using Google Search's historical traces, Google Trends provides data on how frequently a specific keyword has been searched since 2004. The data is presented as a time series with one data point per month, representing the keyword's relative search frequency during that month. Figure 1 shows one example. For this study, we configured Google Trends to include only searches conducted in the United States and related to the Education category (it supports various topic categories such as Entertainment, Business, Hobbies, Sports, etc.).

Google Trends properly filters and normalizes the data. First, if the same keyword is searched repeatedly by a person or bot within a short timeframe, it is counted only once. Second, a keyword's search frequency is normalized relative to the total search volume. Therefore, if a topic is not gaining popularity but its search volume increases merely due to a growing internet user base, Google Trends will show the frequency as flat rather than increasing. In addition to tracking the evolution of a keyword's search frequency over time, Google Trends can also compare multiple keywords to indicate which is more popular during a given period.

We postprocessed the Google Trends data by optionally applying moving averages, when appropriate, to better highlight longer-term trends. We also computed the standard deviation of the moving averages to assess the stability of the data. Additionally, we computed Pearson correlation coefficients and corresponding p-values to identify correlated trends in public interest across topics such as SEL, DEI, LGBTQ, and mental health. All results were plotted using Microsoft Excel.

While using Google Trends to survey public interest may be uncommon in SEL research, similar methods have been widely used across many other fields, such as IT, communications, medicine, health, business, and economics[41,42]. Its primary advantage lies in broad population reach and extended temporal coverage. However, it does not provide data on specific SEL programs, which motivates our use of a second dataset described below.

In addition to Google Trends data, we collected information on over 100 SEL programs to analyze trends in their establishment and underlying frameworks. To ensure broad geographic coverage across all 50 U.S. states, we targeted over 100 programs—exceeding the typical sample size of 30—to enable multiple samples per state.

To gather this information, we used internet search engines (e.g., Google Search) to locate websites containing information about SEL programs. We experimented with various keywords to cover all 50 U.S. states and different education levels: K–12, higher education, and adult education. Examples of search queries include: "K–12 Social Emotional Learning programs in California," "Higher Education Social Emotional Learning programs in Texas" (to identify SEL-related higher education programs), and "Social Emotional Training in California" (to identify SEL-related adult education programs). Since these basic queries sometimes failed to return websites with the desired information, we iteratively experimented with alternative search keywords until sufficient results were obtained.

To ensure diverse data coverage, we aimed to sample three SEL programs from each of the 50 U.S. states, for a total of 150 programs. Ultimately, only 115 of these had sufficient details about their curricula and were included in the study. Two common patterns in the missing data are: (1) no sampled SEL programs for higher or adult education in certain states (Colorado, Illinois, Indiana, Iowa, Minnesota, Mississippi, North Carolina, North Dakota, South Dakota, and Tennessee), and (2) absence of data from certain states with policies opposing DEI and/or SEL, which limits the availability of related programs.

While sampling program information from the internet may be uncommon in SEL research, similar approaches have been used in other social science fields—for example, in studies of extracurricular activities[43]. The main advantage of this method is its broad coverage; otherwise, conducting in-person surveys of over 100 SEL programs across 50 states would be far more difficult. A key challenge is filtering out online data that lack sufficient detail. We include only programs with comprehensive descriptions of their curricula and objectives, excluding those with merely brief announcements. Despite our efforts, limitations remain—most notably, the inability to interview stakeholders to obtain additional information, such as the successes or challenges of program implementation. These limitations will be discussed further in a later section.

The three authors partitioned the work to analyze the detailed description of the 115 sampled SEL programs and further investigated their public information available on the internet. For each program, we documented information as follows:

1. Name of program.
2. Websites with detailed information of the program.
3. The U.S. state to which the program belongs.
4. A brief description of the program, most importantly, extracting keywords from the program. Below is an example of keywords extracted for a program: "*healthy identities, manage emotions, achieve personal & collective goals, feel & show empathy for others, establish and maintain supportive relationships, make responsible and caring decisions, self-awareness, self-management, social awareness, relationship skills, responsible decision-making.*"
5. School type (public, charter, private, magnet, or boarding) if the program is implemented in a school setting.
6. Education setting: K-12, higher education, or adult education.

7. Level of hosting institution (i.e., the organization hosting the program): school-level, district-level, after-school, enrichment, special education, or adult education program.

8. Scale of the program.

9. Year of program establishment.

10. Dates of implementation.

11. Historical context, e.g., whether the program refers to a Local Control and Accountability Plan.

12. SEL framework adopted: If no specific framework is explicitly referenced, extract framework-like keywords from the program description to enable manual classification.

To improve inter-rater consistency, the authors first aligned on how to document each category of information. Upon completing the initial data acquisition, each author cross-checked all sampled programs—including those they did not originally document—to identify and resolve inconsistencies. This process led to the exclusion of some programs, resulting in a final dataset of 115 programs for analysis.

When linking a SEL program to a specific SEL framework, we require either the program explicitly mention the name of a framework, or the program explicitly emphasize multiple keywords that are directly associated with a framework. For example, to align a program with the PBIS/MTSS framework, we expect it to emphasize components such as a multi-tiered system of support, school-wide expectations, positive reinforcement, a focus on prevention, and behavior intervention planning, etc.

To align a program with the CASEL framework, we expect it to emphasize multiple components of CASEL—for example, by directly quoting CASEL's definition of SEL or explicitly citing several of its five core competencies. For example, the Anchorage School District's Program directly references CASEL: "Research and literature on effective social and emotional learning identifies three critical ways in which SEL skills are learned (CASEL, ASD)." The program also explicitly identifies CASEL's core competencies in its plan. In another example, the G.U.I.D.E. for Life Curriculum does not directly reference CASEL, but its description—"Each unit contains 8-10 lessons based on the principles of GROWTH (Manage Yourself), UNDERSTANDING (Know Yourself), INTERACTION (Build Relationships), DECISIONS (Make Responsible Choices), and EMPATHY (Be Aware of Others)"—closely mirrors CASEL's five core competencies: self-awareness, self-management, responsible decision-making, relationship skills, and social awareness. Therefore, we consider it to be based on the CASEL framework.

4 Results

4.1 Evolution of Public Interest in SEL

We first present the results of our Google Trends analysis to understand how public interest in SEL has evolved over time. Figure 1 shows the relative search frequency of the keyword "Social Emotional Learning" since 2004.

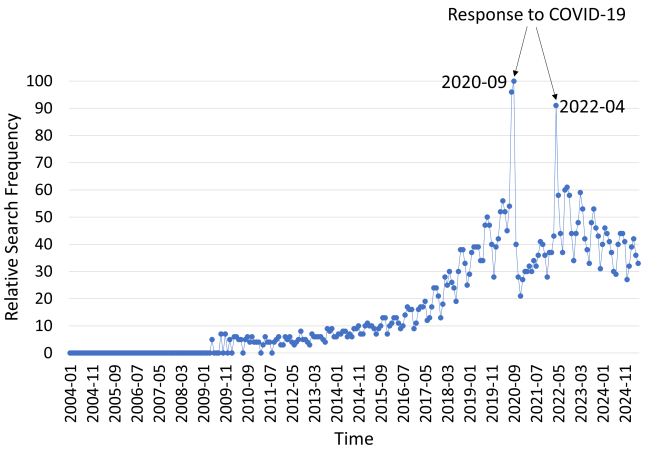

Fig. 1 Relative search frequency for SEL since 2004. Each data point represents searches in one month.

The overall trend in Figure 1 is clearly partitioned into different phases:

1. **Prior to COVID-19,** the public showed a clear and growing interest in SEL. As a result, people searched on Google to learn more about it.

2. **In September 2020,** COVID-19 was at its peak, and the new school semester had just started. The search frequency for SEL doubled within a single month, creating the first spike in the figure. Our hypothesis is that people were looking for information to help them cope with the drastic changes caused by COVID-19. As many schools were establishing new SEL programs in response (Figure 8), parents, students, and school staff likely were searching for information about SEL.

3. **Between October 2020 and March 2022,** COVID-19 entered a relatively steady state, and the search frequency for SEL dropped to as low as 40% of the pre-COVID-19 level. This is surprising, as we would have expected SEL to continue playing a key role in helping people navigate the ongoing pandemic. One hypothesis is that, once the new SEL programs were in place and people had accessed the initial information, attention shifted to other major COVID-19-related news. Note that the reported search

frequency for SEL is relative to overall search activity, not the absolute search volume.

4. **In April 2022,** as COVID-19 was nearing its end and social activities were largely returning to normal, the search frequency for SEL spiked for the second time. One hypothesis is that people were seeking guidance on re-engaging in normal social activities in post-pandemic social life.

5. **Finally, post-COVID-19,** the search frequency for SEL has steadily declined to a level approximately 40% lower than before the pandemic. One hypothesis is that public interest has shifted toward other topics, such as long-term mental health challenges following COVID-19, as shown in Figure 3. Additionally, the broader political climate has grown increasingly critical of DEI, which is often perceived as linked to SEL, potentially contributing further to the decline.

To better visualize the trend in Figure 1, we replot its 12-month moving average in Figure 2. Each data point in Figure 2 represents the average of the 12 preceding data points from Figure 1, whereas in Figure 1, each point corresponds to one month. The error bars in Figure 2 indicate the standard deviation over that 12-month window. Figure 2 clearly highlights the rising trend in SEL interest before COVID-19 and the declining trend afterward.

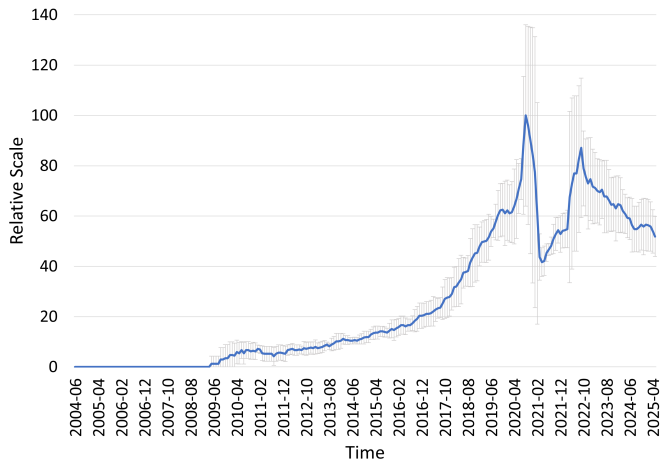

Fig. 2 12-month moving average of the SEL search trend in Figure 1.

A key observation is that the COVID-19 period marked a complete reversal in public interest in SEL. While the timing suggests a strong correlation, COVID-19 may not be the sole cause. For example, growing opposition to DEI—closely associated with SEL—during the same period may have also contributed to the decline. Further research is needed to identify the underlying drivers of reduced interest in SEL.

4.1.1 Comparing SEl with Other Factors

To better understand the shift in public interest in SEL, it is important to compare it with related topics to assess whether the changes are driven by SEL itself or by broader environmental factors. In the following analysis, we compare public interest in SEL with that in LGBTQ, mental health, DEI, and extracurricular activities. When presenting moving-average curves, we remove error bars to avoid cluttering the figures.

Figure 3 compares SEL with LGBTQ. We experimented with several variants of keywords (e.g., LGBT and LGBTIQA+) to search for content related to LGBTQ, and found that LGBTQ yields the most data in Google Trends and is representative of the broader category. Using the search frequency for LGBTQ as a baseline, we observe that SEL's spikes in September 2020 and April 2022 are unique to SEL. Moreover, in the post-COVID-19 period, both SEL and LGBTQ reversed their previously rising trends and began to decline. This suggests that SEL's decline may be less about COVID-19 itself and more about broader societal shifts affecting both SEL and LGBTQ. Figure 4 shows the corresponding moving averages, which make the post-pandemic downward trend even clearer.

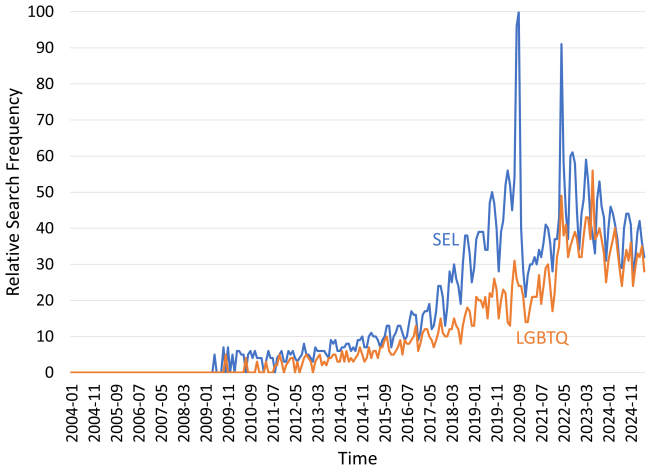

Fig. 3 Comparing SEL and LGBTQ using their monthly relative search frequency.

Figure 5 compares public interest in SEL and mental health. Over the long period from 2004 to 2018, interest in mental health remained relatively stable, while interest in SEL increased more rapidly. In the early phase of the COVID-19 pandemic (September 2020), interest in SEL spiked sharply. In contrast, surprisingly, interest in mental health declined significantly until about a year later, in September 2021. Since then, public interest in mental health has risen sharply and steadily, reaching a level approximately 80% higher than during the pandemic and 50% higher than before the pandemic. Although SEL has

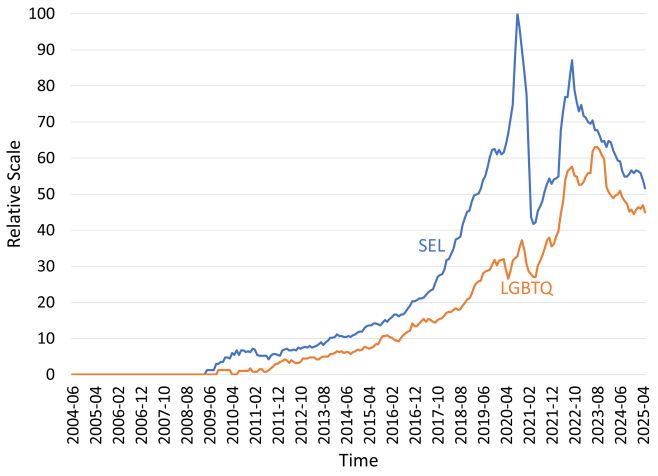

Fig. 4 Comparing SEL and LGBTQ using their 12-month moving averages.

been reported to help address mental health issues, the divergence between SEL and mental health trends post-pandemic further suggests that SEL's decline might be less a direct effect of COVID-19 and more reflective of broader societal shifts. This divergence is concerning, as it may suggest that, at least in public perception, SEL is shifting away from its direct role in supporting students' mental health—one of its commonly cited benefits[23–29].

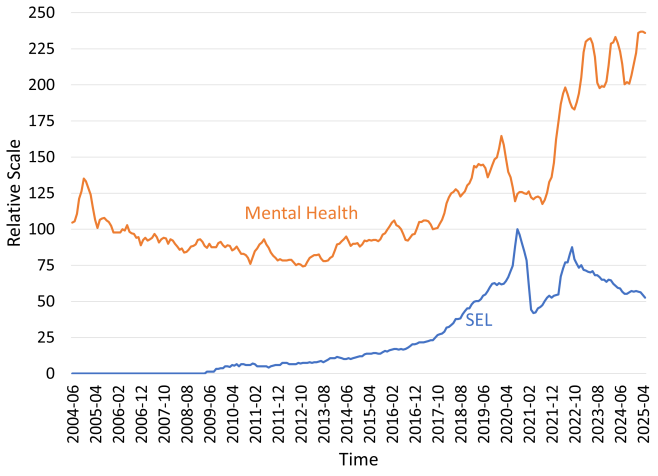

Fig. 5 Comparing SEL and mental health using their 12-month moving averages.

Although DEI, LGBTQ, and SEL are intricately connected, Figure 6 shows that public interest in DEI has risen sharply and steadily since 2021, contrasting with the post-pandemic decline in SEL and LGBTQ. This is likely because DEI remains at the forefront of public debate, and its outcomes may have negative implications for both SEL and LGBTQ.

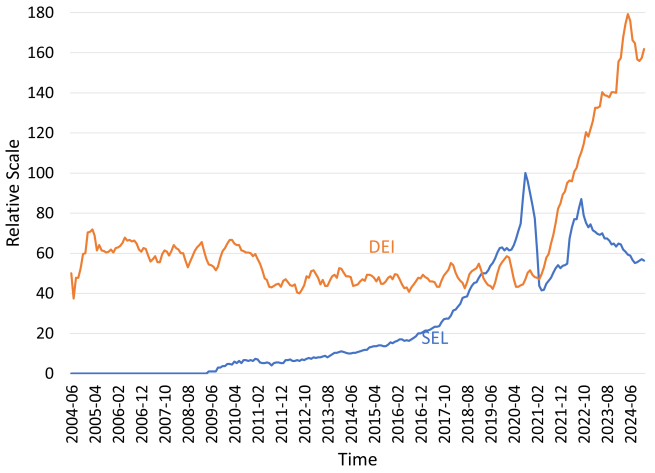

Fig. 6 Comparing SEL and DEI using their 12-month moving averages.

Finally, to gain greater confidence in whether the shifts in interest in SEL are related to the pandemic, we seek a steady baseline for comparison. This baseline should be relevant to education but, unlike topics such as DEI, LGBTQ, and mental health, should not be closely correlated with SEL. We chose extracurricular activities as this baseline for several reasons: (1) like SEL, it is recognized as a non-academic factor that significantly shapes youth development[43,44]; and (2) it is not closely correlated with SEL and has no expected major changes due to the pandemic. Figure 7 shows the results. Indeed, public interest in extracurricular activities was largely unaffected by the pandemic and has continued its upward trend since. This strengthens our confidence that the post-pandemic decline in public interest in SEL is less likely to be directly caused by the pandemic.

4.1.2 Statistical Significance of the Correlation between SEL and Other Factors

To quantify the correlation between public interest in SEL and LGBTQ, we compute the Pearson correlation coefficient between the 12-month moving-average time series of SEL and LGBTQ, and report their coefficient in the second column of Table 1. Correlations are calculated for two time periods—pre-COVID-19 (2015–2019) and post-COVID-19 (2023–2025)—which are shown as separate rows in the table. We exclude the COVID-19 period (2020–2022) because the pandemic, as the single most influential factor during that time, may have significantly skewed the data. Similarly, we compute SEL's correlations with mental health, DEI, and extracurricu-

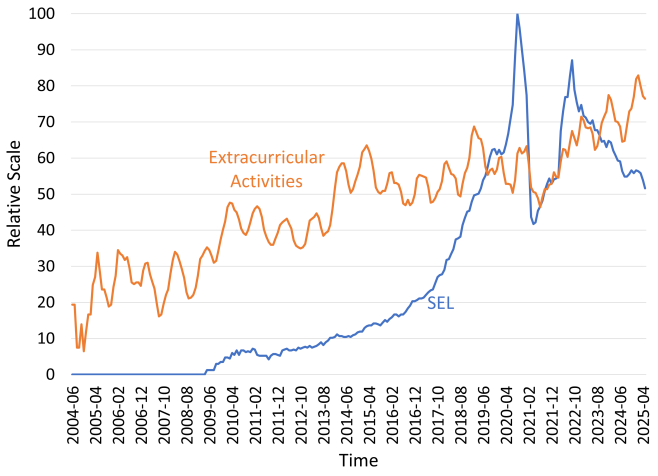

Fig. 7 Comparing SEL and extracurricular activities using their 12-month moving averages.

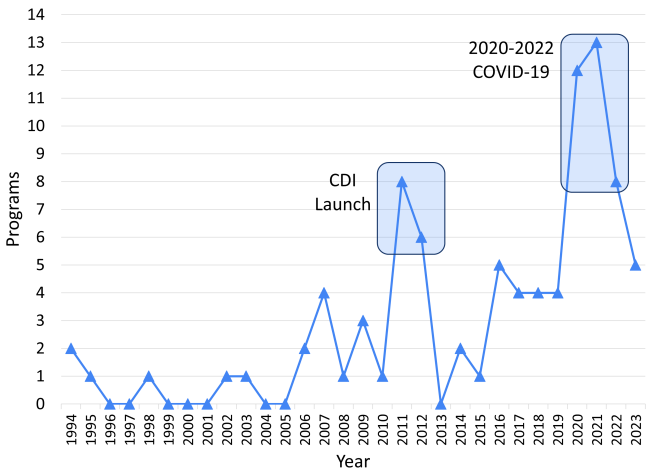

Fig. 8 The number of SEL programs (in our sample) established each year since 1994.

lar activities, with the corresponding coefficients presented in columns 3–5.

	LGBTQ	Mental Health	DEI	Extracurricular Activities
Pre-COVID-19	0.98	0.95	0.37	0.55
Post-COVID-19	0.86	-0.36 (*p-value=0.09*)	-0.66	-0.42 (*p-value=0.04*)

Table. 1 Pearson correlation coefficients between SEL and different factors shown in the columns. The p-value for each correlation indicates the probability of observing such a coefficient if the true correlation were zero. A low p-value (e.g., $<$ 0.05) suggests that the calculated correlation is unlikely to have occurred by random chance. Except for the two explicitly listed p-values, other p-values associated with the coefficients in the table are below 0.01, indicating likely true correlations.

4.2 Establishment of New SEL Programs

Out of the 115 SEL programs identified through internet search, only 101 clearly indicate their establishment dates; these are used in our analysis. Among them, 11 were founded before 1993, with the oldest being the Workplace Inclusion Network (`https://inclusiveva.org/programs/businesses/win/`), established in 1935. Although WIN does not explicitly mention SEL—since the term did not exist then—its framework and values closely align with those of modern SEL programs.

In Figure 8, we plot the number of SEL programs established each year since 1994, the year CASEL was founded. To avoid clutter, we omit the 11 SEL programs established between 1935 and 1993.

The figure shows two noticeable spikes. The first, in 2011-2012, coincides with CASEL's launch of the Collaborating Districts Initiative (CDI)[38]. Launched in 2011, CDI promotes systemic SEL implementation in large urban school districts across the United States. Many educational institutions nationwide began SEL pilot programs during this period, many of which remain active today.

The second spike in SEL program establishment occurred during the pandemic, from 2020 to 2022. Over 65% of programs launched in this period mention mental health support. This surge in SEL program establishment aligns with the increased public interest in SEL during the early phase of COVID-19, as shown in Figure 1.

Following the pandemic, SEL program establishment returned to pre-pandemic levels, consistent with the decline in public interest in SEL shown in Figure 1. Additionally, since 2023, several states—including Utah, Kansas, Iowa, and South Carolina—have passed legislation against DEI and/or SEL, which may also have contributed to the decline in new SEL initiatives.

4.3 Adoption of SEL Frameworks

Next, we evaluate the SEL frameworks adopted by the sampled SEL programs. While the details of SEL curricula vary, we find that the majority of them are either directly based on CASEL or are significantly influenced by the CASEL framework.

Figure 9 presents the number of sampled programs that adopt various SEL frameworks. The "Individual Framework" bar represents programs whose approaches do not fall into any of the other listed categories. The "Department of Education" bar represents programs that explicitly state they follow the guidelines of their respective Departments of Education. The

"MTSS/PBIS" bar includes programs using either the Multi-Tiered System of Supports (MTSS) framework[7] or the Positive Behavioral Interventions and Supports (PBIS) framework[8]. Note that both MTSS and PBIS use a tiered framework.

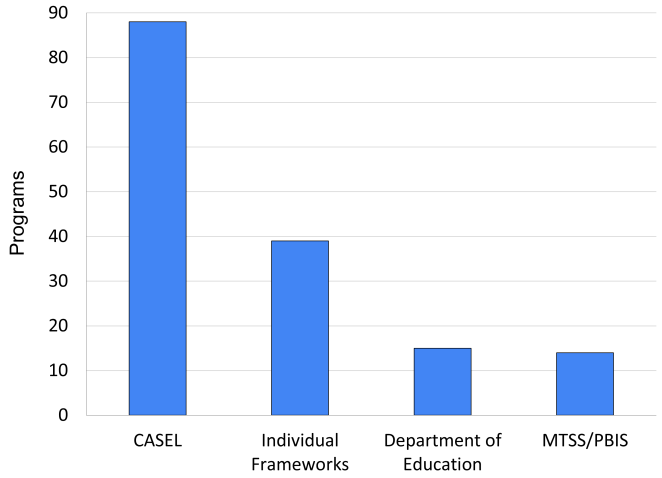

Fig. 9 Breakdown of SEL programs adopting different SEL frameworks.

The way individual programs reference SEL frameworks varies. Some programs explicitly name the framework guiding their curriculum, while others describe their content without directly citing any SEL framework. For example, the Washington School District SEL Plan explicitly adopts CASEL's definition of SEL. In contrast, the Louisiana 4-H Curriculum references CASEL's core competencies without naming the framework itself, illustrating a more implicit alignment.

Overall, 76.5% of the sampled SEL programs are heavily influenced by the CASEL framework: 40.0% explicitly cite CASEL, while 36.5% do not reference it directly but align closely with its core principles or reuse CASEL's definition of SEL. Additionally, an analysis of all extracted keywords from all sampled SEL programs shows that each of CASEL's five core competencies ranks among the top 15 most frequently used keywords out of 1,762 total.

4.4 SEL Programs by Education Level

Programs targeting different education levels leverage SEL for distinct purposes. For K–12 students, SEL is typically integrated into classroom instruction and formal curricula. In contrast, postsecondary students often encounter SEL through teacher education—for example, as part of lesson planning during teacher training. Adults may engage with SEL programs to enhance emotional intelligence in the workplace, helping them communicate more effectively and empathetically with colleagues and customers.

Figure 10 shows the distribution of sampled programs by target education level: 45.8% target K–12, 26.2% target postsecondary education, and 28.0% target adult education. While this aligns with the intuition that more programs focus on K-12, these proportions should not be interpreted as representative of the overall SEL program landscape. The true distribution is likely more skewed toward K-12, as we intentionally sampled a balanced number of postsecondary and adult education programs to ensure broad coverage. Nevertheless, the presence of a substantial number of programs for postsecondary reducation and adult education demonstrates that SEL is not exclusive to K-12, even if it is most commonly discussed in that context.

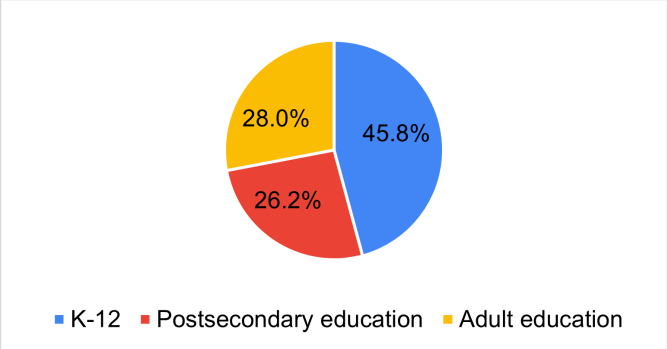

Fig. 10 Breakdown of sampled programs by target education level.

5 Discussion

5.1 Limitations

A novelty of this study is its use of publicly accessible internet data to examine various SEL-related issues, enabling broader coverage of populations and programs than traditional survey-based methods. For example, this approach provides insight into public interest in topics such as SEL, mental health, and LGBTQ across the entire U.S. internet user population. However, this approach also comes with several limitations.

First, our analysis assumes that public interest in a topic correlates with the frequency of internet keyword searches for that topic. However, as the public becomes more familiar with a topic, search frequency may decline even if interest may persist.

Second, even if search frequency reflects public interest, it does not distinguish between "positive" and "negative" interest. For example, after COVID-19, search frequency for SEL and LGBTQ topics declined sharply, while searches for DEI increased—likely not entirely driven by positive attention.

Third, we sampled over 100 SEL programs for analysis based on internet search results. This sampling process is inherently biased toward programs that are ranked highly by search engines,

making it more likely to include widely publicized or well-promoted programs.

Fourth, during the sampling process, it is difficult to precisely control how search engines return programs across different education levels (K-12, postsecondary, and adult education). Consequently, the data cannot reliably support conclusions about the distribution of programs across these levels.

Finally, unlike direct surveys where we can design specific questions, sampling program information from the internet does not allow for follow-up inquiries to gain deeper insights. For example, we would like to know each program's implementation effectiveness, but such detailed information is difficult to directly obtain online.

5.2 Recommendations for Policymakers

The sharp decline in public interest in SEL after COVID-19—reversing the steady rise seen before the pandemic—is concerning, especially since the root cause likely extends beyond the pandemic itself. A potential factor is the growing headwind against DEI and the perceived association between DEI and SEL. This is supported by the strong correlation between trends in SEL and LGBTQ interest (Figure 3), and the lack of a similar correlation between SEL and mental health (Figure 5). Note that LGBTQ is often considered related to DEI while mental health is not.

Of CASEL's five core competencies—self-awareness, self-management, responsible decision-making, relationship skills, and social awareness—most represent valuable lifelong skills that are largely orthogonal to progressive or conservative political ideologies. However, because SEL is often implemented as a bundled package, it can be influenced—and at times hindered—by political polarization. To address this, we recommend that policymakers intentionally unbundle SEL implementation, separating politically neutral components (e.g., support for mental health) from those more likely to be viewed through an ideological lens (e.g., explicitly advocating for the "equity" part of DEI). This approach may help ensure students have consistent access to essential social and emotional learning without disruption from constantly shifting political climates.

5.3 Future Work

Despite its limitations, using internet data is a powerful way to gauge public interest and sentiment about SEL and broader social science topics. Since Google Trends only shows search frequency without revealing the sentiment behind those searches, future research could apply natural language processing to analyze public posts on platforms like Twitter/X and Facebook to determine whether people support or oppose certain policies involving social issues. This method, previously applied in other fields[45], holds promise for advancing SEL research as well.

While this study manually attributes SEL programs to different frameworks, exploring automated classification using large language models (LLMs) like ChatGPT could be a worthwhile experiment. LLMs have demonstrated superior performance to humans in text understanding and classification tasks, potentially offering greater efficiency, consistency, and comprehensiveness. At the very least, it is worth examining their limitations when applied to social science research.

In terms of public interest, our study identified some surprising patterns. SEL shows a strong positive correlation with LGBTQ, while its correlations with mental health and DEI shifted from positive before COVID-19 to negative afterward. Further research is needed to validate this trend and uncover the underlying causes of the shift. Intuitively, SEL is expected to correlate positively with mental health, which is an important issue in both education and society at large. The absence of a positive correlation between them raises concerns about whether SEL is effectively achieving its intended goals, warranting further study.

Figures 1 and 8 suggest a directional positive correlation between public interest in SEL (the dataset from Google Trends) and the establishment of SEL programs (the program dataset sampled from the internet). Ideally, we would like to establish a statistically significant correlation between these two datasets. However, despite having data on over 100 programs, their establishment dates span three decades, leaving too few data points per year—let alone per month—for meaningful statistical analysis. Future work would require data on 1,000 or more SEL programs to yield statistically significant insights.

6 Conclusion

This study leveraged a novel approach—analyzing publicly accessible internet data—to investigate several issues related to SEL and found the following:

1. **Public interest in SEL:** Before COVID-19, public interest in SEL rose steadily over two decades. During the pandemic, it experienced two sharp spikes—one at the peak of the pandemic and another toward the end. After the pandemic, however, interest in SEL declined sharply, falling to a level roughly 40% lower than pre-pandemic levels. In contrast, public interest in mental health rose significantly post-COVID. Notably, the drop of public interest in SEL closely aligns with a decline in interest in LGBTQ, but not with other topics such as mental health, DEI, or extracurricular activities. This suggests the decline may stem not from the pandemic itself, but from broader societal forces impacting both SEL and LGBTQ issues.
2. **Establishment of SEL programs:** Before COVID-19, the number of new SEL programs grew steadily, mirroring rising public interest in SEL. A period of rapid growth appears

to coincide with the 2011 launch of CASEL's Collaborating Districts Initiative (CDI), which promotes systemic SEL implementation in large urban school districts. During the pandemic, there was a notable surge in program establishment in 2020 and 2021. Post-pandemic, however, the creation of new SEL programs has returned to pre-pandemic levels, correlating with the broader decline in public interest.

3. **Adoption of SEL frameworks:** Overall, CASEL has been the most influential SEL framework. 76.5% of the sampled SEL programs are heavily influenced by the CASEL framework: 40.0% explicitly cite CASEL, while 36.5% do not reference it directly but align closely with its core principles.

While using public internet data is a novel approach that produced the interesting findings above, it also has limitations in interpretability due to the lack of direct control over the type of data collected—unlike traditional surveys.

Given the sharp decline in public interest in SEL after COVID-19—potentially influenced by societal debates around topics like DEI and LGBTQ—we recommend unbundling SEL implementation. Specifically, politically neutral components (e.g., self-management and responsible decision-making) should be separated from those more likely to be viewed through an ideological lens, ensuring that students continue to benefit from SEL without disruption from constantly shifting political climates.

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