The original intent of the *Tinkering Together* conference was to offer seventy-five stakeholders (speakers, advisors, participants), an opportunity to meet in person at the Exploratorium in San Francisco to share knowledge and open communication channels regarding potential future work at the intersection of tinkering, making¹, STEAM, and early learning. The COVID-19 pandemic precluded this type of in-person engagement, but it offered instead an important opportunity to evaluate our thinking against the critical real-world challenge of broadening participation to include diverse early learning providers in a meaningful yet accessible way.

The crisis of the COVID-19 pandemic deteriorated an already fragile education service and care system for young children, families, and providers. It escalated risks to the community of early educators and care providers, who represent some of our nation's most marginalized intersecting groups-lowincome, under-employed, women, BIPOC, immigrant, and English learning communities. The U.S. Department of the Treasury found marginalization of early educators-rooted in race, class, and gender-that is reflected in their wages and in the level of public investment

(2021). According to scholar Elliot Haspel, author of Crawling Behind: America's Childcare Crisis and How to Fix It, "Women of color have been subsidizing the entire system by taking very low wages. We've long exploited their labor" (as reported in Carr, 2021). In the same reporting, Maurice Sykes of the Early Childhood Leadership Institute notes that, "K-12 is seen as part of the public good whereas child care is seen as part of the service industry." COVID-19 precipitated a realworld reckoning of a vulnerable field and offered a glimpse of potential long-lasting systemic repercussions.

While challenges to the early learning and care field are clearly much broader in scope than could be addressed within the programmatic goals of the event, the significance of the cultural moment is profound and needs to be taken into consideration in the context of the conceptualization, design, and execution of *Tinkering Together.* It is for this reason that we provide a brief overview of the effects of the pandemic visà-vis the early care and learning ecosystem.

¹Making and tinkering are related but separate practices (Brahms & Wardrip, 2014.) The conference intentionally included practitioners and researchers with experience and interest in both.

Covid Breaking Points

Inequities and Unsustainability of the Early Learning Field

The global COVID pandemic illuminated and intensified chronic structural problems in early care and education.



Poverty Level Wages

According to the Early Childhood *Workforce Index 2020*, published by the Center for the Study of Child Care Employment, economic insecurity was widespread among the early learning workforce even before the COVID-19 pandemic struck because jobs in the field consistently failed "to generate sufficient wages that would allow early educators to meet their basic needs" (McLean et al., 2021). This report compared state-level wage data, and found that early care workers are in economic distress and continue to be the lowest-paid occupation nationwide-child care workers make an average of \$11.65 per hour and preschool teachers (in centers or schools) about \$14.67 (McLean et al., 2021). Even before the pandemic, fifty-three percent of child-care workers received public assistance, compared with twenty-one percent of the U.S. workforce as a whole (Whitebook et al., 2018). Depressed wages have been a long-standing trend in the United States. Longitudinal, comparative analyses of data drawn between 1988 and 1992 and data drawn in 1997 show a decade-long stagnation in wages for most child care teaching staff (Whitebrook et al, 2014).

Definitions of Public Good

In the Early Care and Education Programs During COVID-19: Persistent Inequities and Emerging Challenges report, researchers from the Center for the Study of Child Employment explain that the business model of the childcare field, which is typically subsidized by a combination of funding streams from the federal, state, and local levels, creates disparities and economic challenges because it places the burden on parents to fund the type of care they can afford (Kim et al., 2022). According to a recent U.S. Department of the Treasury report, The Economics of Childcare Supply in The United States, the lack of public investment in the early care and education system contributes to an unsustainable funding model for parents and the early learning and care field (2021). This report also explains that public investment in care before children enter school is significantly less than in other developed countries stating that "France invests \$7,400 per infant to 5-year-old child, the average country in the European Union invests \$4,700, and the United States invests only \$2,400" (2021). Other experts agree that the early childhood education and care system in the United States has long been dysfunctional. **Treasury Secretary Janet Yellen** has characterized it as a "textbook example of a broken market" (Miller, 2021). Maurice Sykes, a senior associate at the Early Childhood Leadership Institute in Washington, D.C supports this

by saying that "every 'civilized' country has some system of early care and education regardless of [family] income, we do not have that commitment" (Carr, 2021).

Closures

Even before the pandemic, childcare services were not able to provide care for everyone who needed them (U.S. Department of Treasury, 2021). According to reporting from The New York Times, the pandemic was a tipping point that ended up "increasing the cost of childcare by half" in part due to regulations related to testing and implementation of safety protocols (Miller, 2021). For these and other reasons, children's play spaces and early care centers experienced widespread closures during the initial stages of the pandemic. As reported in the The Hechinger Report, one estimate is that about 20,000 programsroughly 10 percent of the nation's total-closed permanently (Carr, 2021). In a recent article published in The Atlantic, early childhood policy expert and author Elliot Haspell explains that the impact of the closures have continued well into 2022 with families reporting ongoing challenges finding childcare due to low availability despite high demand (2022). The New York Times reporting supports this notion, claiming that "child care-for children too young for school, and for the hours before and after school-is operating at 88 percent of its prepandemic capacity" (Miller, 2021).

Personal Cost

The National Association for the Education of Young Children (NAEYC) conducted a national survey across thousands of early childcare programs in November 2020 to assess the impacts of the COVID-19 pandemic on their operations (2020). The study found that ninety-three percent of respondents that had managed to stay open during the pandemic did so at great personal and professional cost, including losing money, and resorting to desperate measures such as using personal credit cards or dipping into personal savings accounts.

Emotional Labor

In addition to the financial strain caused by the pandemic, care providers were also under emotional duress from the added demands of supporting children and families in a time of crisis. Scholars explain that "the need for early educators to engage in emotional labor² is significant as they provide supervision and care, respond to behavioral challenges, resolve conflict, and work in tandem with other professionals and parents" (Purper, et al., 2022). According to an article by New America, children and parents alike exhibited behavioral challenges rooted in the pressures of the pandemic (Sproul, 2022). Across the country, more than 175,000 children have recently experienced an adverse childhood experience associated with losing a parent, grandparent, or caretaker to the pandemic. For

those who work with children, additional training is required to respond to any childhood trauma, including those associated with the pandemic.

Not only are early childhood educators dealing with the emotional wellbeing of children and parents, they also have to manage the impact of the pandemic on their own emotional lives. According to scholars, research conducted since the start of the pandemic suggests that the work of early educators has become more challenging and is taking a greater emotional toll on early educators (Purper et. al., 2022). Although there is a lot more research needed to understand the impact of the pandemic on early childhood educators emotional wellbeing, recent studies seem to indicate a concern for early childhood educators mental health. A report on the impact of the pandemic in Massachusetts included personal wellbeing measures-defined as overall mental and physical health-in their survey of early learning educators across the state. This survey found that early learning educators "were more likely to report that the pandemic had adverse impacts on their mental health than on their physical health" and that the pandemic had caused moderate

levels of stress (Hanno et al., 2020). Another nationwide survey asked early educators about the impact of COVID-19 and ninety one percent of early childhood educators indicated that they were "somewhat to very concerned" about the increase in their overall stress levels (Jones, 2020).

Workforce Development

Recovery in the early learning and care field continues to be challenging given the lack of opportunities to make a living wage. In terms of staffing shortages, sixty-nine percent of providers surveyed in November of 2020 by the National Association for the Education of Young Children (NAEYC) reported that recruitment and retention of staff was harder than before the pandemic (2020). Another survey conducted by NAEYC in July, 2021 completed by more than 7,500 early learning educators found that "four out of every five child care centers said that they had a staffing shortage, and seventy eight percent of respondents identified low wages as the main obstacle to recruitment of educators". Not surprisingly, low wages are cited by eighty one percent of respondents in this survey as the reason they leave the profession (2021). The New York Times reports that low pay and lack of job stability, a

challenge faced by many in other service sectors, also affects child care providers (Miller, 2021). This reporting points out that unlike restaurants or stores that pay more and have minimum conditions for employment, the early learning field requires that workers have more qualifications that can include background checks, certifications and even college degrees (Miller, 2021). The New York Times forecasts that staffing shortages are likely to continue for the foreseeable future, as workers migrate to other sectors of the economy offering more competitive wages (Miller, 2021).

Given the strain on the early care and learning ecosystem and our commitment to reach diverse providers working in varied settings, the format of an on-demand multimedia online event was both pragmatic and rooted in our commitment to racial, gender, and economic justice. We also understood that, particularly in this time of challenge, many of the people who work with young children see the world as discounting and undervaluing them and their work. Seeing themselves reflected back in the programming became an anchoring feature of design. Representation would communicate welcome, respect, and a seat at the table.

² According to Purper et al. 2022, "The term emotional labor was coined by Hochschild (1983) and is defined as work that "requires one to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind of others" (2012, p. 7). Engagement in emotional labor is often required from service employees like nurses and teachers, who need to restrict or limit their emotional displays in order to provide an expected high level of customer service."

