Development and Validation of a Mobile, Web-based Coaching Tool to Improve Pre-K Classroom Practices to Enhance Learning

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INTRODUCTION

Children from low-income backgrounds enter school with less knowledge in critical content areas such as language and math (e.g., Jordan et al., 2009). Pre-K teachers need valid information about their classroom practices before they can take steps to improve these practices. Instructional coaches are in the position to be able to provide this type of feedback. In order to do so, coaches need to know when to observe in a classroom, what to look for, a systematic way to collect information on what they see, and an understanding of how to use the observation data to inform their coaching with teachers.

The goal of our work is to create a user-friendly web-based coaching tool that will 1) guide instructional coaches to collect specific data targeting classroom practices that are linked to student gains, 2) visualize data in real-time, and 3) connect what they see in the classroom to specific coaching strategies.

The focal classroom practices that serve as the foundation for our coaching tool were identified over the course of a four-year partnership between education researchers and a southeastern metropolitan school district (Farran et al., 2017). The same 8 practices were replicated in the subsequent years of the partnership and again with a sample of kindergarten classrooms (Christopher & Farran, 2021).

We have named our process **CHALK Coaching**: Coaching to Help Activate Learning for Kids.

PREVIOUS RESEARCH

CHALK coaching is rooted in four years of research in preschool classrooms. Beginning in 2014, observers conducted day-long classroom (N = 26 classrooms) observations using the Child Observation Protocol (COP; Farran & Anthony, 2014) and Teacher Observation Protocol (TOP; Bilbrey, Vorhaus & Farran, 2007). These measures require the observer to collect data across nine dimensions of student and teacher behaviors.

Assessors collected individual child assessments (N = 407) in the fall and spring. Multi-level models were used to examine the relationship between behavioral indicators of instructional practices and students gains. This data collected in the first year of the partnership led us to identify eight clusters of classroom practices that were linked to children's gains across a number of different domains (Farran et al., 2017). We subsequently added a ninth practice, a focus on literacy instruction, which is a state priority in Tennessee.

The CHALK tool focuses on **classroom practices** that are predictive of children's academic and self-regulatory gains across the Pre-K year.

- TRANSITION TIME
- CLASSROOM CLIMATE
- MATH INSTRUCTION
- LEVEL of INSTRUCTION
- STUDENT ENGAGEMENT
- LISTENING to CHILDREN
- SEQUENTIAL ACTIVITIES
- LITERACY INSTRUCTION
- ASSOCIATIVE and COOPERATIVE INTERACTIONS

CHALK Coaching Cycle

1. Observe key classroom practices in action
2. View instant results
3. Engage in data-driven coaching conversations
4. Co-create action plan
5. Track progress over time

PROCESS

In order to create the CHALK coaching tool, we have engaged the following partners:
- Instructional coaches and teachers based in public schools, United Way, and a university lab school
- An elementary school principal
- Computer science undergraduate and graduate students
- Education researchers
- Early education policy groups
- Independent evaluator
- External school district for pilot work

Logistics:
- Weekly internal team meetings
- Bi-weekly meetings with partner coaches/instructional leaders
- Bi-weekly progress meetings with programmers
- Teacher focus groups
- Annual advisory board meeting

NEXT STEPS

Validation Study (2021-22):
Partner with University of Dayton (UD) and Preschool Promise

External Evaluator will:
- Enroll 8 coaches in the study
- Randomly assign 4 to use CHALK and 4 to conduct business-as-usual coaching
- Collect interviews and tool usage information
- Analyze data to determine CHALK tool efficacy

UD Research partners will:
- Conduct classroom observations and child assessments in the fall and spring

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The observation tools are designed to be simple and intuitive for the user. The goal is that the tool will guide the coach to collect **objective behavioral data**.

Next, coaches **see instant user-friendly results**, regardless of WIFI access, with prompts to help guide them through the data.
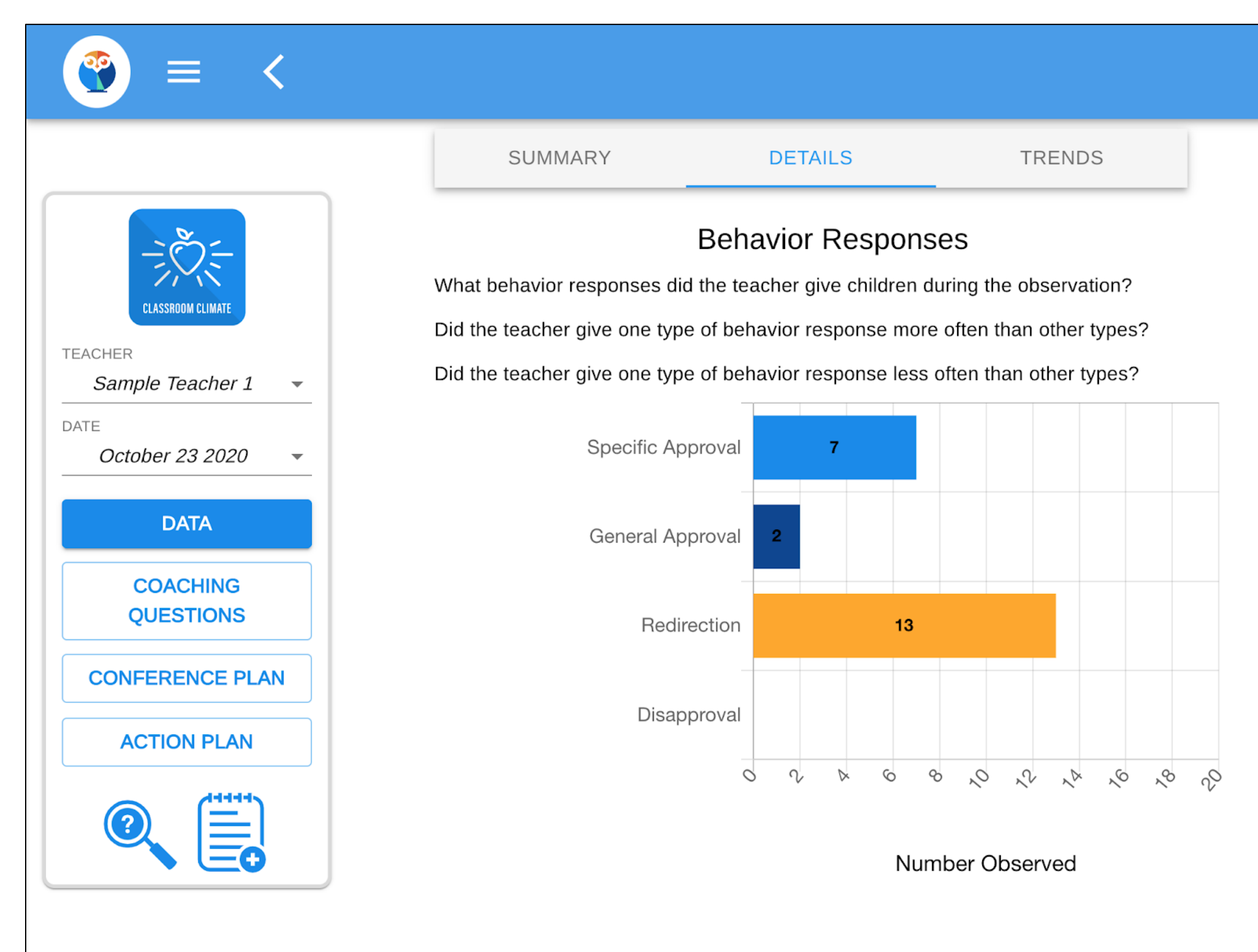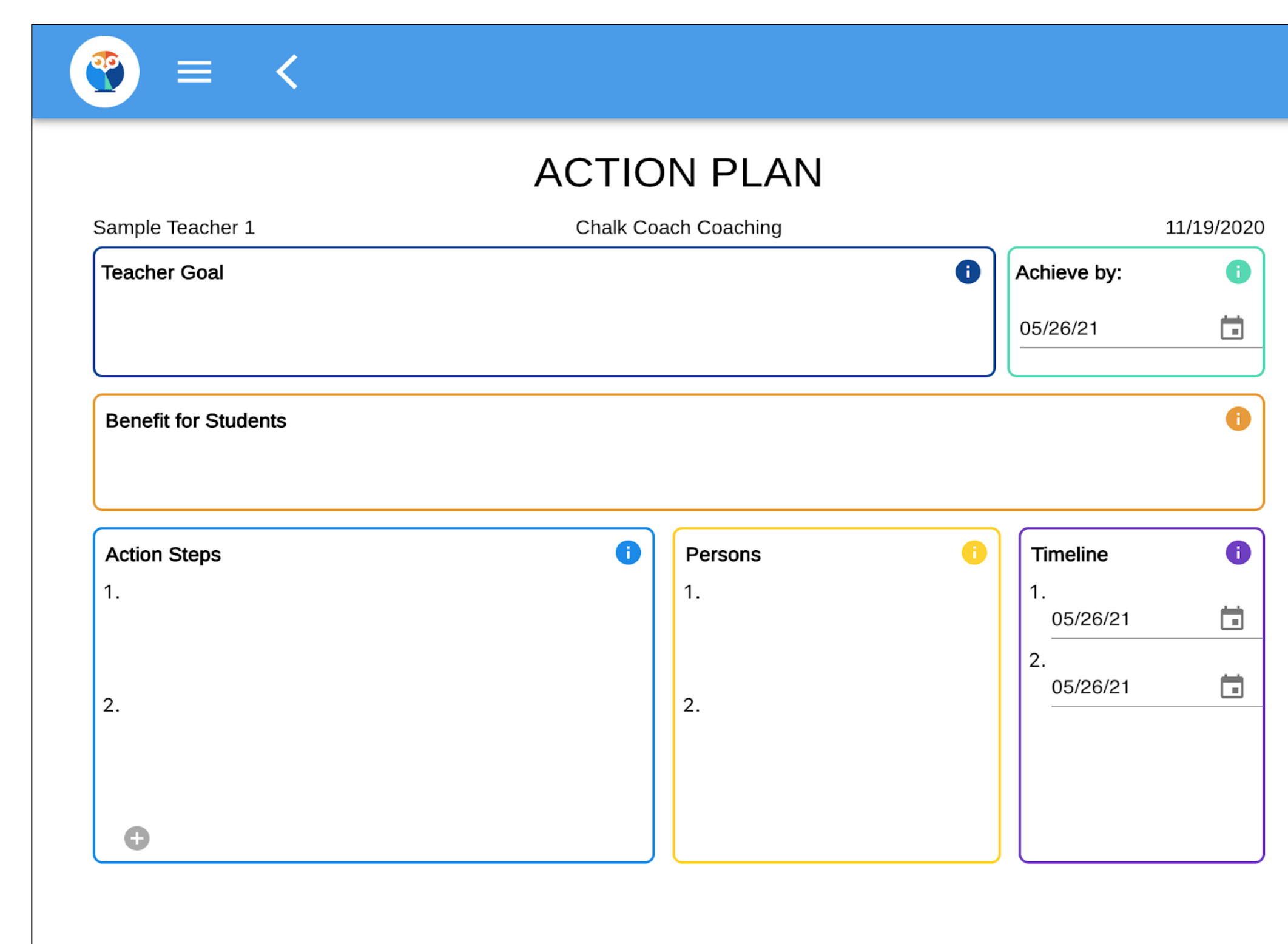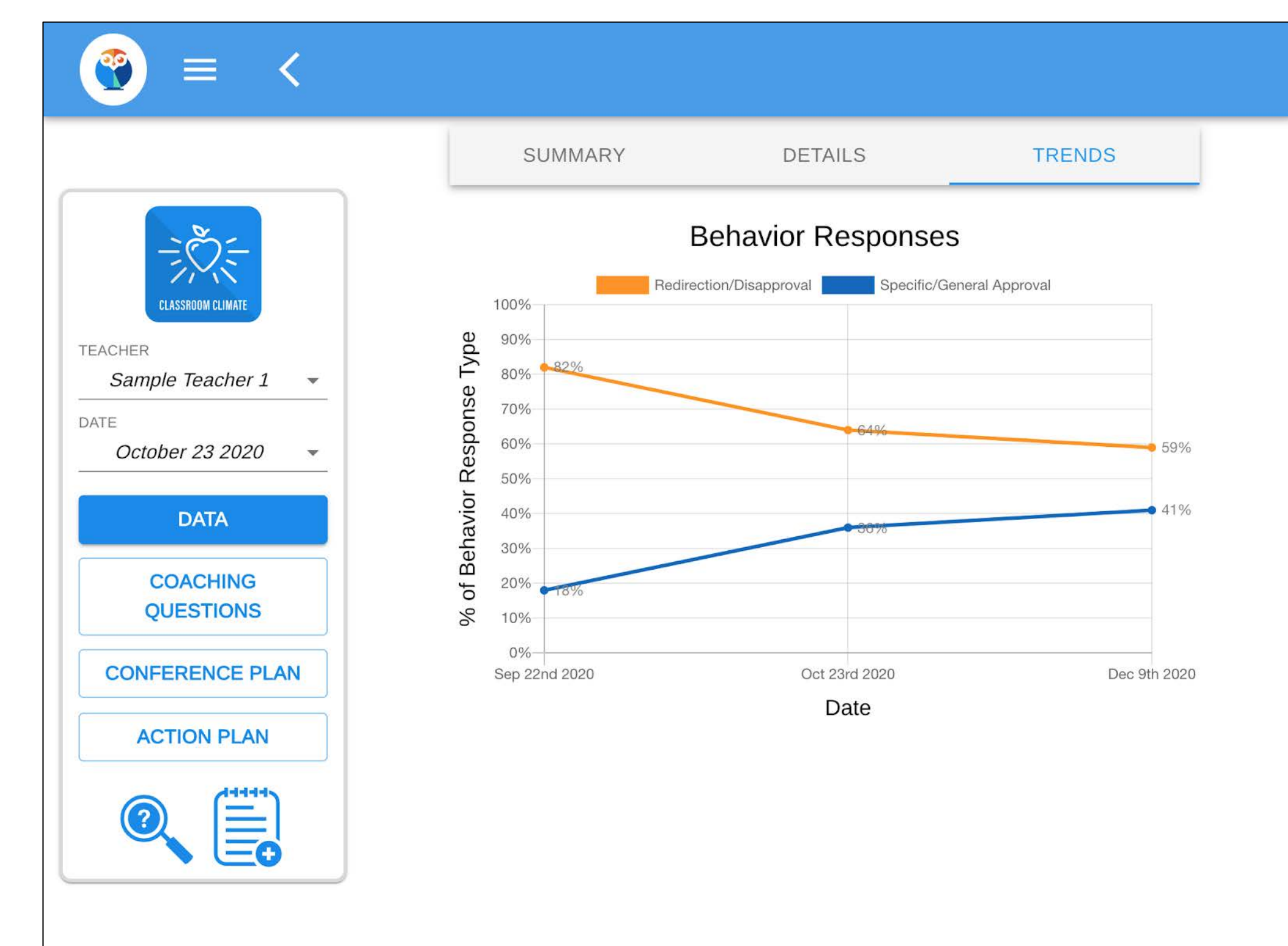
Figure 1. Use Data to Drive Decisions

SUMMARY | DETAILS | TRENDS

Behavior Responses
What behavior responses did the teacher give children during the observation?
Did the teacher give one type of behavior response more often than other types?
Did the teacher give one type of behavior response less often than other types?

TEACHER: Sample Teacher 1
DATE: October 23 2020

DATA
COACHING QUESTIONS
CONFERENCE PLAN
ACTION PLAN

Specific Approval: 7
General Approval: 2
Redirection: 13
Disapproval

Number Observed

Figure 2. Co-create an Action Plan

ACTION PLAN
Sample Teacher 1 | Chalk Coach Coaching | 11/19/2020
Teacher Goal — Achieve by: 05/26/21
Benefit for Students
Action Steps | Persons | Timeline
1. | 1. | 1. 05/26/21
2. | 2. | 2. 05/26/21

To help bridge the gap between the **what** and the **what next**, we link the results from each observation to coaching prompts and questions that can be used to guide data reflection and goal setting. A tool-embedded **Action Plan** encourages coaches and teachers to co-construct plans for what is next.

Figure 3. Track Progress over Time

SUMMARY | DETAILS | TRENDS

Behavior Responses
Redirection/Disapproval | Specific/General Approval

TEACHER: Sample Teacher 1
DATE: October 23 2020

DATA
COACHING QUESTIONS
CONFERENCE PLAN
ACTION PLAN

% of Behavior Response Type: 100% 90% 80% 70% 60% 50% 40% 30% 20% 10%
Sep 22nd 2020 | Oct 23rd 2020 | Dec 9th 2020
Date
59%
41%