

Nonverbal expressions of distress under task pressure: adult responses in a Shanghai preschool classroom

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Abstract. Preschool children may communicate difficulty or possible distress without explicit emotion labels or direct requests to stop. This focused qualitative observational case study examined observable verbal, embodied, vocal, and feeding-related signals, together with adults' responses, in one mixed-age preschool classroom in Shanghai. Data were collected over three days in a class of 17 children aged 3–5 years. Six bounded interactional episodes were selected from drawing, mealtime, snack, transition, peer-interaction, and self-care contexts and analyzed through descriptive coding and reflexive thematic analysis. Signals generally appeared in combinations rather than as isolated behaviors, and their configurations varied across contexts. The drawing episode included crying, postural withdrawal, and a somatic complaint; the mealtime episode combined refusal, food holding, tearfulness, and spitting; and the remaining episodes showed briefer combinations of avoidance, compliance, help-seeking, or feeding-related behavior. Adult directives sometimes co-occurred with task completion while visible distress continued, whereas lower-pressure assistance or redirection co-occurred with low-intensity resolution in two cases. The findings distinguish task compliance from affective recovery and show the value of episode-based, context-sensitive observation. Because the study is descriptive and case-bound, it does not support diagnostic, medical, motivational, causal, or population-level claims.

Keywords: preschool children, embodied signals, task demands, adult responses, qualitative observation

1. Introduction

1.1. Opening vignette and research problem

On the second day of fieldwork, a four-year-old girl, C1, participated in a drawing task based on a picture book about summer water safety. Teacher S gave the class approximately 9-10 minutes to complete the activity. C1, who had produced little or no drawing in two previous sessions, began crying softly after being prompted to continue. She covered her face, folded forward, and rested her head on her knees. Her crying became louder and developed into shouted sobs. Teacher S moved the materials to a separate table and instructed C1 to sit there. C1 then sat on the floor, held her stomach, and repeatedly shouted, "My stomach hurts." Two teachers and a peer approached at different points; the field notes recorded louder crying after each approach. Teacher S told the other adults, "Don't pay attention to her. She needs cold treatment," using a

local term for a deliberate non-response strategy. Later, while C1 was still crying, Teacher S asked the class, "Whose problem do you think this is?" The children answered, "C1's." C1 subsequently called repeatedly for her mother. Her crying decreased after she was allowed to drink water, and she left with the group.

This episode raises the central problem of the study. When a preschool child does not say "I am anxious," "I cannot manage this," or "I want to stop," adults and researchers still have to interpret what is happening. Yet observation alone cannot establish whether a behavior reflects emotion, physical discomfort, task difficulty, resistance, fatigue, preference, or several processes at once. The analytic task is therefore not to decode a single behavior as proof of a hidden state, but to document how observable signals, adult responses, and subsequent changes unfold together [1, 2].

1.2. Conceptual boundaries and research positioning

The study concerns observable emotional communication under task-related demands in a naturalistic preschool setting. The phrase possible distress-related signals is used cautiously to identify behaviors selected for analysis, not to diagnose distress as an internal state. The study does not determine whether a physical complaint was medically explained, whether refusal was intentional, or whether an adult's response was motivated by a particular belief.

Three categories of child signals are distinguished. Somatic complaints are verbal statements of bodily discomfort, such as "My stomach hurts." Embodied or postural behaviors are observable changes in body position or movement, such as covering the face, folding forward, or sitting on the floor. Oral and feeding behaviors involve food or the mouth, such as holding food without swallowing or spitting it out. These categories may co-occur, but they are not interchangeable. A stomach complaint is a verbal report; stomach clutching is a motor action; food holding is a feeding behavior.

Context is also separated into analytically distinct dimensions. Activity context identifies where the episode occurred, such as drawing, mealtime, snack, transition, peer interaction, or self-care. Demand conditions identify explicit instructions, correction, time pressure, waiting, or completion requirements. Adult prompting refers to the timing and content of directives addressed to a child. This separation avoids treating all classroom difficulty as a single undifferentiated form of "task pressure" [3].

The theoretical anchor is Halberstadt, Denham, and Dunsmore's [4] model of affective social competence. The model describes three dynamically integrated components: sending affective messages, receiving affective messages, and experiencing affect. Within these components, awareness, identification, attention to social context, and management or regulation are interconnected abilities. The present study draws on the model's transactional emphasis rather than treating these abilities as a simple developmental ladder. Children's observable signals, adults' orientations and responses, and later changes in the interaction are analyzed as parts of the same evolving sequence.

1.3. Established findings in developmental and relational research

Developmental research shows that emotion understanding, language, and regulation change substantially during the preschool years, while remaining variable across children and situations. Kopp [5] emphasized that young children's regulation develops within relationships and that caregiver support remains important as self-directed strategies emerge. Laboratory research has also shown that children's behavior under frustration varies by context. Grolnick, Bridges, and Connell [6], for example, found context-related differences in two-year-olds' regulatory strategies, while Chan, Shum, Downs, and Sonuga-Barke [7] documented behavioral and affective responses to unexpected waiting in preschoolers. These studies support attention to context and temporal change, but their structured tasks do not reproduce the complexity of ordinary classroom routines.

Research on emotion socialization similarly treats adult responses as consequential parts of children's emotional environments. Morris, Silk, Steinberg, Myers, and Robinson [8] described family influences through modeling, emotion-related practices, and emotional climate. Eisenberg, Cumberland, and Spinrad [9] reviewed parental reactions, emotion discussion, and emotional expression as socialization processes. These family frameworks cannot be transferred directly to classrooms, where teachers distribute attention across a group and manage institutional routines. However, they establish that adult responses are not neutral background events.

In preschool settings, teachers also communicate norms about acceptable emotional conduct. Denham, Bassett, and Zinsser [10] positioned teachers as potential socializers of emotional competence, while noting the need for stronger direct evidence. Cekaite and Ekström's [11] multimodal study showed that Swedish preschool teachers often responded to negatively charged expressions as normatively evaluable social acts and prioritized conduct and institutional rules over explicit discussion of feelings. This interactional perspective is relevant to the present study because several observed responses were public and involved peers as witnesses or participants [12].

1.4. Research gaps

Three gaps motivate the study. First, much research on frustration and regulation uses standardized tasks, rating scales, or predefined emotion categories. These approaches provide control and comparability but offer less detail about how signals arise during ordinary classroom activities, where adult availability, peer presence, materials, routines, and time constraints shift together [7, 12].

Second, crying, somatic complaints, postural withdrawal, refusal, and feeding behaviors are often treated as separate variables. In natural interactions, however, several behaviors may appear within one episode and may change in sequence. An episode-based approach can preserve these configurations without assuming that all component behaviors have the same meaning [1, 2].

Third, studies may focus on either children's behavior or adults' strategies. The present study instead examines the relationship among context, child signals, adult responses, and event trajectories. Its contribution is not to estimate prevalence or identify causal mechanisms, but to provide a transparent, case-bound account of how six episodes unfolded.

1.5. Research questions and contributions

The study addresses three questions:

What directly observable verbal, embodied, vocal, feeding-related, avoidance, or help-seeking signals occurred during selected classroom episodes involving difficulty, dislike, prompting, correction, time pressure, or completion demands?

How did the configuration and sequence of these signals vary across the observed activity contexts?

What associations were observed between adults' expressed interpretations or response practices and subsequent affective, task, and interactional trajectories?

The study makes three bounded contributions. Descriptively, it documents signal combinations rather than reducing each episode to a single behavior. Methodologically, it uses bounded interactional episodes and separates descriptive codes from interpretive themes. Relationally, it analyzes adult responses and peer involvement as constitutive features of the event. Practically, it offers an observational lens that may reduce premature claims that a child is pretending, deliberately misbehaving, or displaying a clinical problem.

2. Literature review and conceptual framework

2.1. Emotional expression and emotion understanding in early childhood

The absence of explicit emotion vocabulary does not imply the absence of affective communication. Halberstadt et al.'s [4] affective social competence model is useful because it treats affective communication as dynamic and multichannel. Sending, receiving, and experiencing affect are integrated processes shaped by awareness, identification, social context, and regulation. For the present study, the key implication is transactional: the meaning of a signal is not located solely in the child but develops through how others orient to and respond to it.

Pons, Harris, and de Rosnay [13] identified nine components of emotion understanding and described broad developmental organization between ages 3 and 11. Their work concerns children's comprehension of emotions in structured tasks; it does not demonstrate why a particular child cries, reports pain, or withdraws in a classroom. It is therefore used only to support the general proposition that explicit emotion understanding develops during childhood, not to infer the meaning of the observed behaviors.

Nelson and Russell [14] found that children aged 3-5 recognized emotions from dynamic facial and bodily cues more accurately than most emotions presented through voice alone. This study concerns recognition of standardized expressions, not children's spontaneous production of signals or the diagnostic value of those signals. It supports the inclusion of facial, bodily, and vocal channels in observation, but it cannot establish that one channel is a more reliable indicator of distress in natural settings [1].

These distinctions are important because the present study examines behavior produced during ongoing activities, not responses to emotion-labeling tests. Observable signals may be communicative, regulatory, physical, task-related, or ambiguous. Their interpretation must therefore depend on the full episode rather than on developmental theory alone [1, 2].

2.2. Task frustration, emotional distress, and emotion regulation

Kopp's [5] developmental account emphasized that regulation begins in relationships and increasingly includes children's own actions, language, and attention. Co-regulation and self-regulation should not be treated as mutually exclusive stages: preschool children may use emerging independent strategies while still relying on adults to modify demands, organize attention, or provide reassurance.

Grolnick et al. [6] examined two-year-olds across laboratory delay and separation contexts and found that strategy use varied by situation. Because the sample was younger than the children in the present study, the specific strategy profile cannot be assumed to generalize. The study nevertheless illustrates why regulation should be examined in relation to context rather than treated as a stable response pattern.

Cole, Martin, and Dennis [2] identified four forms of evidence that strengthen inferences about emotion regulation: independent measures of emotion and regulatory processes, temporal analysis, contrasting conditions, and convergent measures. The present study preserves temporal order and compares several contexts, but it lacks independent emotion measures and convergent physiological, video, interview, or report data. It can therefore describe changes in observable affect and task behavior, but it cannot confidently identify a behavior as an emotion-regulation strategy.

Chan et al. [7] developed the Preschool Delay Frustration Task to examine behavioral and emotional responses during unexpected waits and after waiting ended. Their use of multiple indicators and temporal phases is relevant to this study's attention to configurations and trajectories. However, the laboratory task manipulated waiting and measured frustration under standardized conditions, whereas the present observations involved naturally occurring demands that were neither controlled nor equivalent across episodes.

Accordingly, the terms escalation, de-escalation, sustained intensity, compliance, withdrawal, and completion are used descriptively. De-escalation refers to a visible reduction in intensity; it does not establish successful internal regulation. Compliance refers to task behavior; it does not demonstrate emotional recovery [2].

2.3. Somatic complaints and embodied/behavioral indicators

The analysis distinguishes somatic complaints, embodied behaviors, and feeding behaviors because each has a different observational status. A somatic complaint is what a child says about bodily discomfort. An embodied behavior is an action or posture. A feeding behavior involves food handling, chewing, swallowing, refusal, or expulsion. Combining these categories too early would obscure whether an inference rests on speech, movement, or interaction with material objects.

Clinical and developmental studies show that children's physical complaints can be associated with multiple processes, including physical illness, stress, family factors, or broader emotional difficulties. Engel, Winiarski, Reidy, and Brennan [15], for example, reported associations between early somatic complaints and later difficulties in a high-risk sample. Such group-level findings cannot be used to diagnose a child in a typical preschool classroom. In the present study, "somatic complaint" remains a descriptive code [16].

The analytic rule is therefore conservative. No single complaint or posture confirms distress, deception, avoidance, or illness. Interpretation becomes more plausible only when the behavior is considered with preceding events, co-occurring signals, adult responses, duration, and subsequent change. This interpretive restraint does not remove the practical need to check physical safety. In educational practice, a child's report of pain warrants acknowledgment and an appropriate welfare check even when its cause is unknown [16].

2.4. Adult emotional socialization and co-regulation

Emotion socialization and co-regulation are related but distinct. Emotion socialization refers to the longer-term communication of norms and practices concerning emotional expression. Co-regulation refers to reciprocal, moment-to-moment interaction through which an adult and child influence the course of an episode. The present study observes brief sequences and is therefore better positioned to describe co-regulatory opportunities and socializing messages than long-term developmental effects [3].

Morris et al.'s [8] tripartite family model emphasizes modeling, emotion-related parenting practices, and emotional climate. Eisenberg et al. [9] likewise reviewed reactions to children's emotions, emotion-related discussion, and adult expression. In classrooms, comparable processes occur under different institutional conditions: teachers manage multiple children, transitions, schedules, and shared rules. Family models are therefore used as sensitizing concepts rather than direct explanatory templates [12, 17].

Denham et al. [10] argued that teachers may shape young children's emotional competence through their own expression, reactions, and instruction. Cekaite and Ekström [11] demonstrated how preschool teachers' responses can frame children's negative expressions as matters of conduct and morality. Their analysis also shows why publicness matters: a response addressed before peers may regulate the group and communicate norms while simultaneously changing the focal child's audience and participation status.

The present study therefore records both adult orientation and adult action. Orientation includes looking, approaching, or verbally addressing a child. Response includes directives, acknowledgment, comfort, task adjustment, credibility questioning, public evaluation, or deliberate non-response. This distinction allows the analysis to show that an adult may notice a signal yet choose a response that does not name or acknowledge it.

2.5. Integrated conceptual framework

The analytic framework contains four domains. The first is context: activity type, explicit demands, prompting, correction, time pressure, waiting, and completion expectations. Context is documented as part of the episode but not assumed to cause the child's behavior.

The second domain is child signals: verbal statements, postures, movements, vocalizations, facial actions, silence after prompting, feeding behaviors, avoidance, and help-seeking. Codes describe visible or audible conduct rather than inferred emotions or motives.

The third domain is adult orientation and response. The analysis records what signal the adult appeared to address and what the adult then did. Responses are described in behavioral terms, including repetition of instruction, task adjustment, comfort, redirection, evaluation, physical approach, or deliberate non-response.

The fourth domain is event trajectory. Affect trajectory records escalation, de-escalation, fluctuation, or sustained intensity. Task trajectory records continuation, refusal, withdrawal, assistance, or completion. Interactional closure records whether the episode ended through a directive, compliance, task adjustment, peer or adult intervention, departure, or no clear resolution. These dimensions are kept separate because a child can complete a task while remaining tearful, or stop crying without returning to the task.

The framework's central proposition is modest: interpretation should be based on the relationship among context, signal combinations, responses, and temporal change. It does not provide direct access to internal states or intentions [1, 2].

3. Method

3.1. Research design

The study employed a qualitative observational case study informed by focused ethnography. The classroom was the bounded case, and six interactional episodes were embedded units of analysis. Focused ethnography was treated as an orientation toward intensive observation of a delimited issue rather than as a claim of extended cultural immersion. The three-day field period was appropriate for documenting selected episodes but insufficient for a comprehensive ethnography of the preschool [18, 19].

The researcher observed naturally occurring activities and did not introduce experimental tasks. Data consisted of contemporaneous handwritten jottings and expanded field notes; no audio, video, interview, physiological, or self-report data were collected. The design therefore prioritizes contextual description and sequential reconstruction over precise microanalysis or claims about participants' subjective accounts.

The epistemological position is contextualist. Observable conduct can be described systematically, but its emotional meaning is interpreted within a particular interaction and cannot be treated as directly known. Analytic claims are grounded in recorded actions, sequence, co-occurrence, and subsequent trajectories. The study distinguishes descriptive codes from interpretive themes throughout.

3.2. Research setting and participants

The study took place in a mixed-age classroom in an urban preschool in Shanghai, China. The classroom included 17 children: 8 in the junior kindergarten cohort, generally aged 3-4, and 9 in the middle kindergarten cohort, generally aged 4-5. These labels refer to the first and second years of preschool education in the local system.

Two female lead teachers, Teacher S and Teacher Z, were present throughout the classroom day. Teacher G provided occasional assistance during activities such as meals and transitions. Teacher S had 12 years of

preschool teaching experience, Teacher Z had 8 years, and Teacher G had 4 years. Based on the two lead teachers, the usual child-teacher ratio was approximately 8.5:1; temporary assistance reduced the ratio during some routines.

The classroom included separate carpeted areas for active pretend play and quieter construction activities, open shelving accessible to children, an integrated bathroom, labeled drinking cups, and self-service stations for used towels and dishes. These features are described only where they clarify the observed episodes; no claim is made about the intentions behind the room design.

3.3. Researcher role and positionality

The researcher completed three consecutive observation sessions in July 2026, each lasting approximately 5 hours 20 minutes, from about 8:30 to 13:50. The primary role was observer, but participation varied by activity. The researcher interacted with children during free play, read picture books, and assisted with clothing changes after water play. Participation was lower during structured tasks and minimal during meals, snacks, and whole-group instruction.

This role increased access to routine activity but may also have influenced behavior. Children occasionally approached the researcher for attention or help, and brief researcher prompts could alter task engagement. For this reason, an episode in which the researcher prompted a hesitant child to begin coloring was excluded from formal analysis. The child began after the prompt, but the data could not establish whether the change resulted from the prompt or would have occurred independently [20].

Reflexive memos documented how the researcher's expectations and reactions could shape event selection and interpretation. In particular, discomfort during the public evaluation in E1 was recorded and later reviewed to ensure that the coding described observable actions before applying interpretive language. Following Finlay [21], positionality was treated as part of data production rather than a bias that could be fully removed.

3.4. Data collection

Each session covered arrival, play, outdoor or water activities, meals, transitions, group instruction, and early-afternoon departure. During observation, the researcher recorded timestamps, keywords, short descriptions, spatial positions, and direct quotations when possible. Notes were written during pauses or low-activity moments and expanded within two hours of leaving the field [22].

Expanded notes followed a consistent structure: time, location, participants, activity, sequence of actions and speech, peer presence, environmental conditions, and observable outcome. Because there was no audio recording, quotations were classified by evidentiary status. Wording recorded contemporaneously was labeled verbatim; short utterances recalled with high confidence were labeled reconstructed; longer exchanges remembered by content were summarized without quotation marks [22].

All classroom interaction occurred in Mandarin Chinese. The researcher, a native Mandarin speaker, translated quoted or reconstructed speech into English. Translation aimed to preserve pragmatic meaning rather than literal word order. Culturally specific terms were retained when needed. For example, the teacher's phrase "cold treatment" was explained as a locally recognizable deliberate non-response strategy rather than presented as a clinical term [23].

The notes also recorded nearby peers, their orientation to the focal interaction, and any response they made. Noise, seating, materials, and transitions were included when relevant. These records supported reconstruction of event sequence but did not provide the precision of video data.

3.5. Unit of analysis and event selection

The unit of analysis was a bounded interactional episode containing at least one prespecified signal. An episode began with either a child signal or an adult prompt and ended with a clear shift in activity, affective expression, task engagement, or participation structure. A pause shorter than 30 seconds did not end an episode if the same interaction resumed. Physical departure, explicit redirection to another activity, or a stable transition to a new participation arrangement marked closure.

Eligible contexts included drawing, meals, snacks, transitions, peer interactions, and self-care routines involving explicit demands or difficulty. Eligible signals included somatic complaints, crying, shouting, postural withdrawal, face covering, sustained food holding, repeated refusal, spitting, avoidance, silence after a direct prompt, and help-seeking. Operational thresholds, such as food held for more than 15 seconds or repeated refusal following at least two prompts, were used to make selection transparent rather than to establish clinical significance.

Episodes were excluded when preceding or following context was missing, when field notes were too incomplete for reconstruction, or when staff treated the event primarily as a known illness or injury. Ten candidate episodes were identified. Two lacked sufficient preceding context, one could not be reconstructed reliably, and one was managed as a known health or injury event. Six episodes remained. Repeated episodes involving the same child were retained as separate interactional units but were not treated as statistically independent.

3.6. Descriptive coding framework

The codebook was developed iteratively. Broad domains were derived from the research questions and conceptual framework, then refined while coding the first two episodes. Codes were split, merged, or clarified before being applied to all six episodes. This first-stage coding was descriptive and structured; it should not be confused with the later reflexive thematic analysis.

Context codes identified activity type and explicit demand conditions. Activity codes included drawing, main meal, snack, transition, peer interaction, self-care, and free play. Demand codes included instruction, correction, time pressure, waiting, and completion demand. A demand code was applied only when it was explicitly expressed or clearly enacted in the observed exchange.

Child-signal codes covered verbal, postural or motor, vocal-affective, and feeding behaviors. Verbal codes included explicit refusal, inability, dislike, somatic complaint, help-seeking, and silence for at least 10 seconds after a direct prompt. Postural or motor codes included face covering, stomach clutching, sitting or lying on the floor outside the activity, turning or moving away, slowed movement, and sustained repetitive movement. Vocal codes included crying, shouting, and whining. Feeding codes included food held without swallowing for more than 15 seconds, spitting, and repeated refusal following prompts.

Adult-response codes were defined by observable speech or action. They included questioning credibility, contradicting a complaint, redirecting without acknowledgment, acknowledging or naming the child's state, comforting, approaching, adjusting the task, repeating an instruction, prompting faster completion, public evaluation, physical separation, and deliberate non-response. These labels describe interactional practices and do not establish the adult's intention.

Trajectory codes were applied separately to affect, task engagement, and closure. Affect was coded as escalation, de-escalation, fluctuation, sustained low intensity, or sustained high intensity. Task engagement was coded as continuation, refusal, withdrawal, assisted completion, or independent completion. Closure was coded as adult directive, child compliance, task adjustment, third-party intervention, departure, peer repair, or unresolved ending. Rapid compliance was not treated as evidence of emotional de-escalation.

3.7. Analytical procedures

Analysis proceeded through six linked stages. First, jottings were expanded into chronological field-note narratives. Second, candidate episodes were segmented using the boundary rules. Third, the descriptive codebook was applied to context, child signals, adult responses, and trajectories. Fourth, episodes were compared within and across activity contexts. These comparisons were qualitative and did not estimate frequencies beyond the six selected cases.

Fifth, reflexive thematic analysis was used to develop higher-level patterns from the coded episodes and full narratives, following Braun and Clarke [24-28]. The analysis was primarily semantic and data-led within the boundaries set by the research questions; it was not purely inductive because event selection and descriptive coding were theoretically informed. Themes were understood as patterns of shared meaning organized around a central concept, not as summaries of code frequency.

The researcher moved repeatedly between codes, event narratives, and analytic memos. Alternative readings and discordant elements were recorded. Negative-case examination was used as an additional discipline, although it is not a defining requirement of reflexive thematic analysis. Interpretations supported only by a single isolated behavior were revised or removed.

Finally, all claims were reviewed for evidentiary level. Statements about what occurred were separated from interpretations of what a sequence might mean. Causal verbs, diagnostic labels, and claims about intention were removed unless directly supported, which observational field notes could rarely provide.

3.8. Trustworthiness and interpretive restraint

Trustworthiness was supported through detailed event narratives, explicit quotation-status labels, a documented codebook, analytic memos, and an audit trail linking raw jottings to expanded notes, coded episodes, and themes. These practices make the analytic process inspectable but do not make interpretation independent of the researcher [29].

Reflexive transparency replaced claims of confirmability. The researcher documented prior expectations, emotional reactions, and alternative interpretations. For example, an initial expectation that teacher responses would usually be supportive was reconsidered after public evaluative practices were observed. The researcher's discomfort with E1 was treated as information requiring scrutiny, not as evidence that the teacher's action had a particular effect.

Peer debriefing and independent coding were not conducted. This is a limitation, but inter-coder agreement was not adopted as a quality criterion for the reflexive thematic stage. The more important safeguards were conceptual coherence, transparent procedures, return to the full episodes, and restraint in claims. The study does not assert children's internal states, adult intentions, incidence rates, or causal relationships [27].

3.9. Ethical considerations

Written consent was obtained from the parents or legal guardians of all 17 children and from the three teachers. Information sheets described the observational, field-note-based design, the voluntary nature of participation, data handling, anonymization, and the possibility that anonymized statements would be reported. Participants could withdraw without consequence.

Children's assent was treated as ongoing. The researcher was introduced as someone observing and writing about classroom activity, and children were told that they did not have to interact. Turning away, moving away, avoiding engagement, or verbally declining contact was treated as a reason for the researcher to increase distance. No child withdrew assent during the three sessions [30, 31].

Names were replaced by child codes and teacher letters. The preschool, district, and exact fieldwork dates were generalized. Because detailed episodes in a small classroom can still create deductive-disclosure risk, contextual description was limited to information needed for analysis. Raw notes and identifiable information were stored securely and scheduled for destruction five years after study completion [32].

A safeguarding protocol prioritized welfare over observation. The researcher would alert the responsible teacher if significant distress, injury, or a physical complaint was not already noticed or managed, and would intervene directly only if an immediate safety risk arose or no responsible adult was available. In E1, Teacher S was present and actively managing the episode; the observer did not take over the teacher's role because no immediate physical danger was observed. When C1 later asked the observer for water, the observer sought Teacher S's permission before responding. The tension between non-intervention and child welfare was recorded reflexively and is acknowledged as an ethical limitation.

4. Findings

4.1. Multiple distress signals beyond explicit emotional vocabulary

Five of the six selected episodes contained more than one observable signal type. This pattern does not prove a shared internal state; it shows that the selected events were usually constituted by combinations that changed over time. E5, the post-water dressing episode, was the exception because the principal signal was verbalized inability without crying, postural withdrawal, or feeding behavior.

Figure 1 maps the descriptive codes across the six episodes. The display is case-based rather than frequency-based: a filled cell indicates that a code was recorded at least once in the episode, while a blank cell indicates only that the code was not recorded in the available notes. The concentration of child-signal codes in E1 and E2 is therefore a visual summary of within-case convergence, not evidence that drawing or mealtime contexts produce more distress.

The display also makes the counter-cases visible. E3-E6 contain narrower signal configurations, yet they differ in adult response, peer involvement, and closure. The contextual comparison below therefore treats code presence as an entry point into the episode sequence rather than as a stand-alone interpretation.

E1 contained the broadest configuration. Soft crying was followed by face covering, folding forward, loud sobbing, sitting on the floor, stomach clutching, and repeated statements that the child's stomach hurt. The somatic complaint occurred after crying and postural change, not at the beginning. The sequence supports coding the complaint as one element of an escalating event but does not determine whether it reflected physical discomfort, emotional experience, or both.

E2, a mealtime episode, began with expressed dislike or refusal and developed into prolonged food holding, tearful eyes, dribbling, sobbing, continued eating under repeated directives, and later spitting out food. E6, a snack episode, involved a narrower configuration: food was held without chewing for more than 15 seconds, after which a directive to eat faster was followed by accelerated eating and completion without visible escalation.

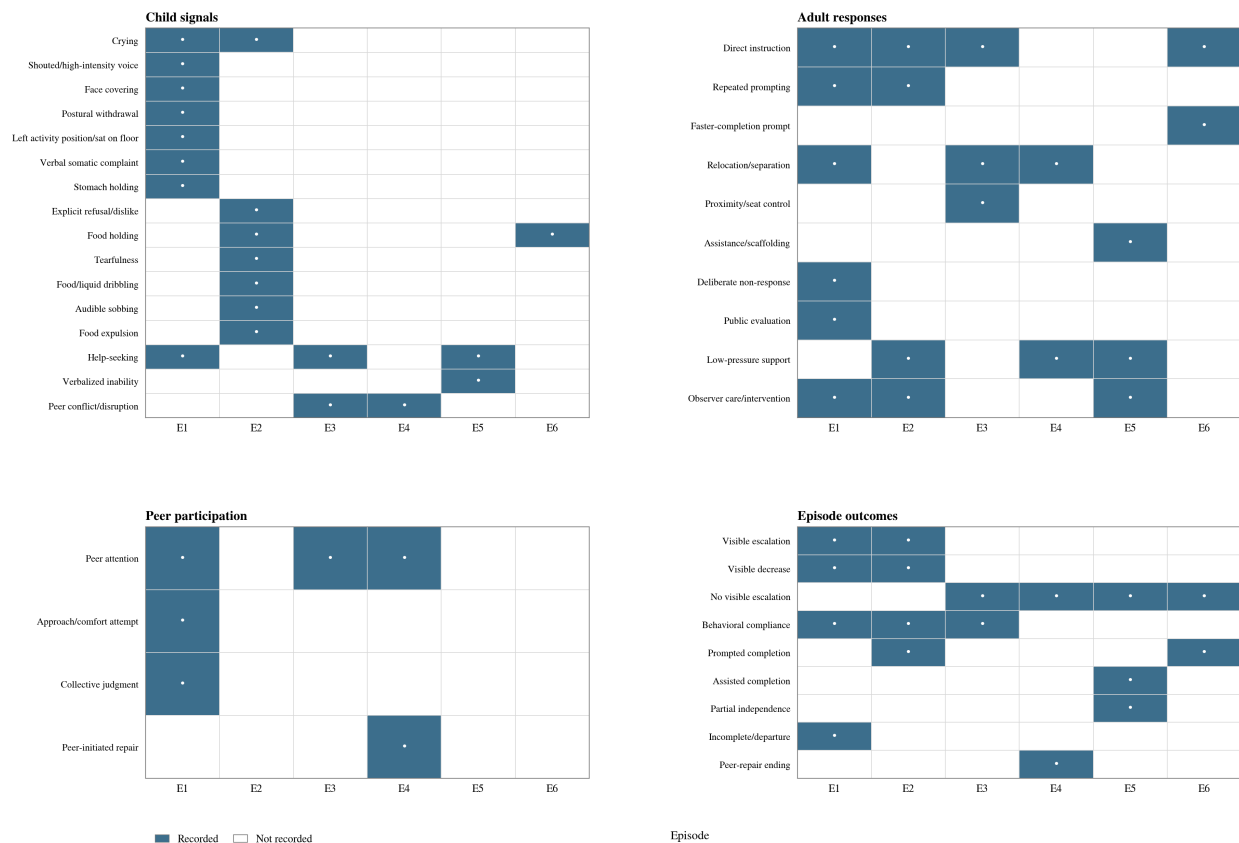


Figure 1. Episode-level configuration of descriptive codes

Codes are grouped into child signals, adult responses, peer participation, and episode outcomes. Blue cells mark recorded code presence; white cells mean not recorded, not confirmed absence. Each episode is one bounded case, so the display supports configurational comparison rather than prevalence estimates or statistical association.

The remaining episodes contained fewer and more ambiguous indicators. E3, involving a chair conflict, ended in rapid compliance after a direct instruction. E4 involved physical separation during peer disruption, followed by a whispered peer exchange and no visible escalation. E5 involved repeated statements of inability during dressing and task completion with varying levels of assistance.

4.2. Variation in observable indicators across task contexts

Signal configurations differed across the observed contexts, although one or two episodes per context cannot establish stable contextual effects. The drawing episode combined vocal, postural, motor, and verbal-somatic signals. Its trajectory occurred amid repeated completion prompting and a later public evaluation involving the peer group.

The mealtime episode combined verbal refusal, feeding behavior, and visible affect. Several explanations remain possible, including taste or texture dislike, satiety, swallowing difficulty, fatigue, or resistance to prompting. The notes cannot distinguish among them. The snack episode showed food holding followed by faster eating and completion, with no crying or postural withdrawal.

Transition, peer-interaction, and self-care episodes displayed lower-intensity or less convergent indicators. In E5, wet clothing, fatigue after water play, component-specific difficulty, and the availability of an unfamiliar adult could all have contributed to the statements of inability. One child completed part of the

drying task independently, while another needed help with specific body areas. The phrase "I can't" therefore cannot be interpreted uniformly as refusal or distress.

These differences are descriptive. They may reflect materials and activity structures, but they may also reflect individual children, episode selection, or unrecorded circumstances. The data support comparison, not causal attribution.

4.3. Adult response practices and subsequent event trajectories

Adult responses were grouped analytically as accommodating or low-pressure responses, directive responses, and evaluative or non-acknowledging responses. These categories organize the observed cases; they are not a comprehensive taxonomy and do not imply that one response type always produces a particular outcome.

Accommodating or low-pressure responses appeared in E4 and E5. In E4, Teacher S physically separated two children without a public verbal reprimand. The children later exchanged whispers and the interaction ended without further adult intervention. In E5, the researcher invited the children to try parts of the dressing task and provided assistance where needed. Both episodes remained at low visible intensity and ended through peer repair or task completion, but the design cannot show that the response caused these trajectories.

Directive responses had varied outcomes. In E3, a direct instruction to release a chair was followed by rapid compliance and no visible escalation. In E6, a prompt to eat faster was followed by accelerated eating and snack completion. In E2, repeated eating directives were followed by continued task performance but also tearfulness, sobbing, and later spitting. Thus, the same broad response class co-occurred with different affective trajectories.

E1 included repeated task prompting, physical relocation, deliberate non-response, and public attribution of responsibility. C1 was already crying before the public exchange and continued afterward, later calling for her mother. The temporal sequence supports describing continued escalation following these responses, but it cannot establish that any single response caused the escalation.

Across the cases, behavioral compliance and affective change were partly independent. E2 and E1 included compliance with adult directions alongside continued visible distress-related signals, whereas E3 and E6 included compliance without visible escalation. Task completion should therefore not be used as a proxy for emotional resolution.

Figure 2 plots visible affect intensity and task-position codes against the ordered steps of each episode. The two axes are descriptive coding scales, not commensurable measurements. Their divergence is clearest in E2, where prompted task completion occurs while visible intensity remains at level 2. E1 likewise combines compliance with continued high visible intensity before a later decrease. By contrast, E3 and E6 show task progression without recorded affective escalation.

The figure gives a visual form to the central analytical distinction: completing, continuing, or complying with a task does not by itself show that visible intensity declined, and the absence of escalation does not demonstrate the absence of internal discomfort.

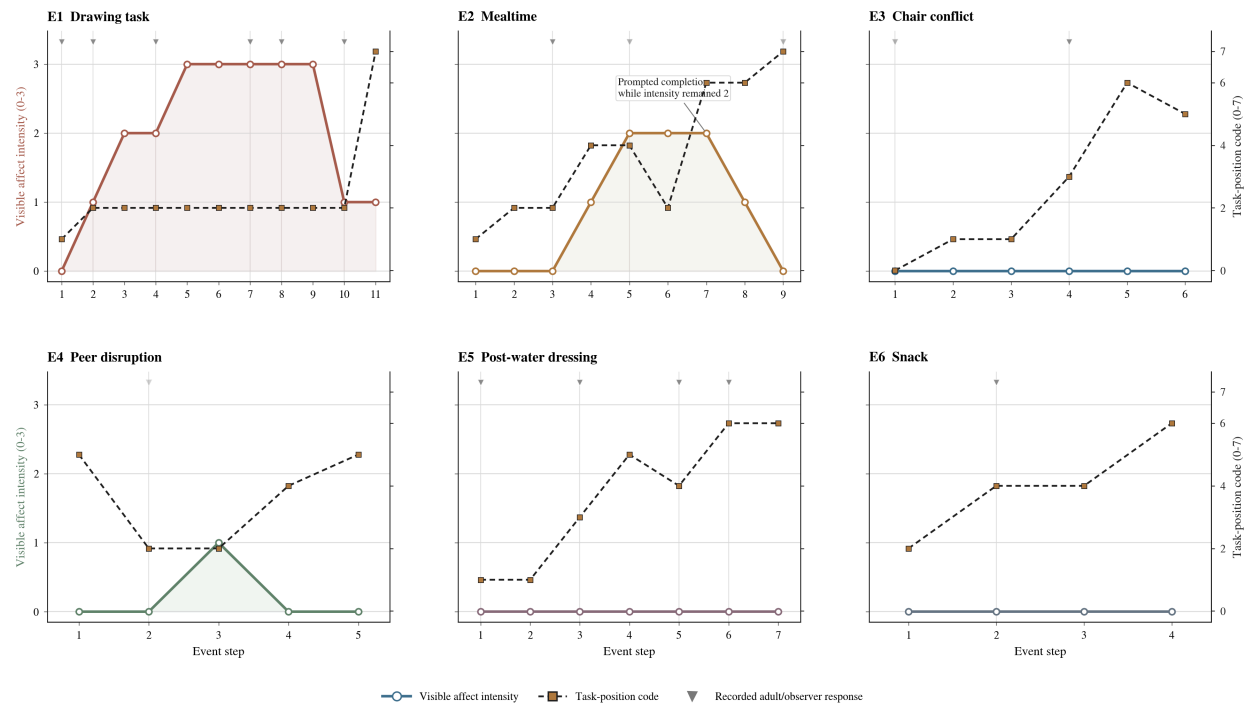


Figure 2. Visible affect and task trajectories across ordered event steps

Solid colored lines show coded visible affect intensity (0-3); dashed black lines show task-position codes (0-7). Task-position code 7 denotes closure through departure and is not a maximum-completion score. Grey triangles mark recorded adult or observer responses; their opacity reflects the evidence grade. Lines connect coded steps for visual comparison and do not estimate continuous emotion, interval-scale change, or causal effects.

4.4. Ambiguity, counter-examples, and interpretive boundaries

Two patterns illustrate the limits of behavioral interpretation. First, verbalized inability in E5 varied by child and task component. A child who initially said he could not dry himself completed part of the task when invited to try. Another required help with areas that were physically difficult to reach. These observations are compatible with help-seeking, fatigue, genuine difficulty, uncertainty, or preference for assistance. They do not establish strategic avoidance.

Second, spitting in E2 was preceded by refusal, food holding, tearfulness, and repeated directives, which makes it part of a convergent sequence. Even so, the act could reflect taste, texture, swallowing difficulty, motor control, or interactional resistance. The presence of other signals narrows but does not eliminate ambiguity.

These cases support the study's main interpretive principle: a behavior should be read through context, sequence, and converging evidence. Convergence can strengthen an interpretation, but it cannot transform field-note observation into direct knowledge of a child's internal state [1, 2].

Figure 3 integrates the event-analysis matrix as six categorical pathways from activity context through observed response configuration, visible affect trajectory, task trajectory, and interactional closure. The shared nodes make both similarity and divergence explicit. E1 and E2 converge on escalation followed by a visible decrease but separate in task outcome and closure; E3, E5, and E6 share no recorded escalation while ending through different forms of compliance or completion.

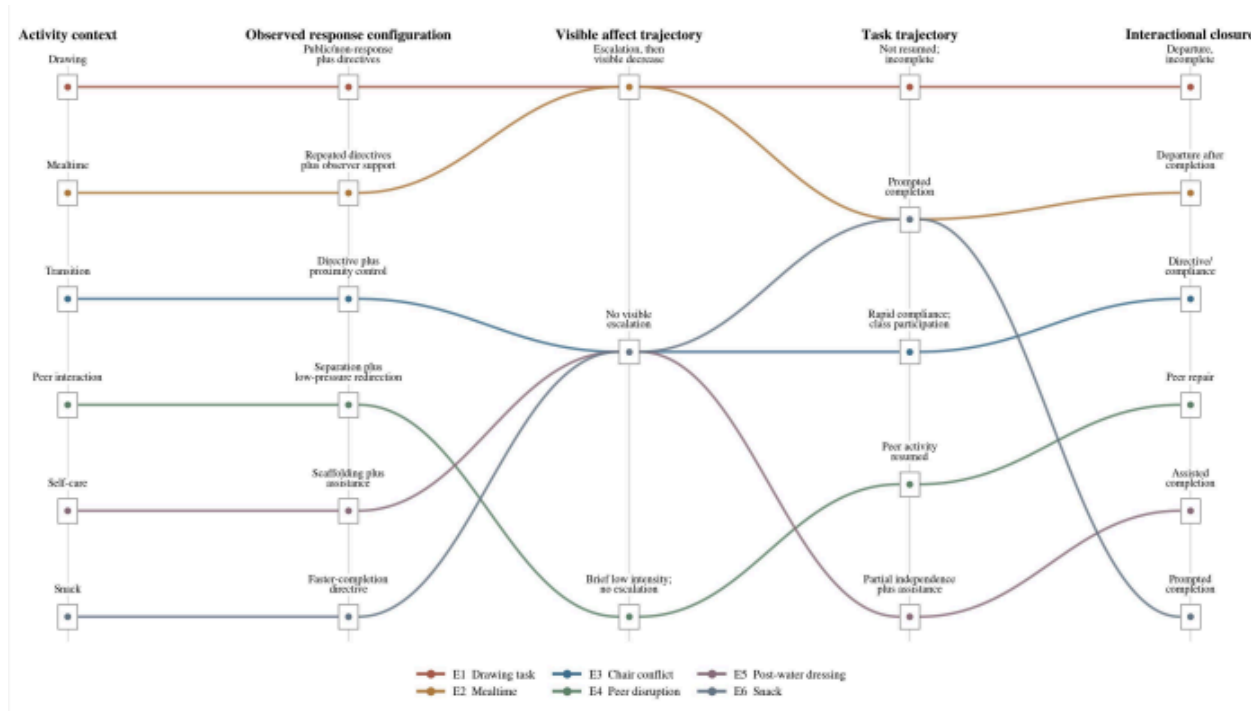


Figure 3. Configurational pathways across the six bounded episodes

Each colored path represents one case-level summary derived from the event-analysis matrix. Shared nodes indicate analytically similar coded trajectories; they do not imply equivalent subjective experience. Horizontal order follows the analytical sequence used in the study and should not be read as a causal model.

Taken together, the pathways reinforce that the defensible unit of inference is the episode configuration rather than an isolated behavior or response code. The summary below therefore returns to patterns that recur across configurations while retaining the limits of the six-case dataset.

5. Discussion

5.1. Summary of main findings

The first research question concerned observable signals. Five episodes contained combinations of verbal, postural, vocal, motor, or feeding-related indicators. Somatic complaint occurred in one episode and was embedded within a longer sequence of crying and postural withdrawal. One episode contained only verbalized inability, showing that not all selected events had the same evidentiary strength.

The second question concerned contextual variation. Drawing, mealtime, snack, peer-interaction, transition, and self-care episodes displayed different configurations. The drawing and meal episodes contained the most convergent signals; the snack and brief conflict episodes contained fewer visible-affective indicators. These differences are case-bound and may reflect children as much as activities.

The third question concerned adult response and trajectory. Low-pressure assistance or redirection co-occurred with low-intensity resolution in two cases. Directives co-occurred with rapid compliance in some episodes and compliance alongside tears or crying in others. Public evaluation and deliberate non-response occurred in the longest escalating episode. These are temporal associations, not causal effects.

The most consistent analytic finding was the separation between task and affective trajectories. A child may comply, complete, or sit where directed while continuing to cry or show other signals. Conversely, the absence of visible distress after compliance does not establish the absence of internal discomfort.

5.2. Somatic complaints as possible channels of distress communication

C1's statements that her stomach hurt were treated as a possible channel of affective communication because they occurred within a multichannel sequence, not because bodily complaints were assumed to be emotional. Halberstadt et al.'s [4] transactional framework supports attention to how affective information may be sent and interpreted through several channels. In E1, the complaint followed crying, face covering, postural withdrawal, and increased vocal intensity.

Developmental research on emotion understanding provides only indirect context. Pons et al. [13] showed that children's understanding of emotion becomes more differentiated with age, but their work does not show that a bodily complaint substitutes for an emotion label. The present data likewise cannot determine whether C1 lacked relevant vocabulary, experienced physical pain, used the statement communicatively, or experienced simultaneous bodily and emotional discomfort.

The defensible conclusion is narrower: somatic complaints should neither be ignored nor treated as diagnostic evidence. Their significance depends on sequence, co-occurring signals, and welfare assessment. Researchers can code the utterance and analyze its interactional placement; educators should acknowledge the report and check immediate physical needs without assuming deception or psychopathology.

5.3. Emotion regulation as a relational process

The findings are compatible with a relational view of regulation, but three levels must be distinguished. Observable regulation outcomes are changes in crying, posture, voice, or task engagement. Co-regulation concerns reciprocal influence within an episode. Emotion socialization concerns the broader norms conveyed by repeated adult practices. The present design can document sequences and socializing messages but cannot measure long-term regulation development.

In E1, the teacher's responses were embedded in group management. The public question invited peers to assign responsibility and changed the episode from a dyadic interaction into a group evaluation. This resembles Cekaite and Ekström's [11] finding that preschool responses may prioritize conduct and collective norms. Yet only one event in this dataset involved such a clear public evaluation, so publicness should be treated as a hypothesis-generating dimension rather than a general finding.

A plausible hypothesis is that public evaluation increases social exposure and reduces opportunities for private acknowledgment or task adjustment. E1 is consistent with that possibility because crying continued and the child later called for her mother. Alternative explanations remain equally possible, including the duration of the episode, prior task difficulty, repeated prompting, physical discomfort, or cumulative fatigue. Future research would need systematic comparison to test the role of publicness.

E4 provides a contrasting but not experimentally comparable case. After physical separation without a public reprimand, the children resumed a quiet peer exchange and the episode ended. This may represent peer repair, but the notes do not establish whether the exchange regulated emotion, repaired a relationship, or simply continued the interaction in a less visible form.

5.4. Distinguishing descriptive somatic-complaint codes from clinical interpretation

The somatic-complaint code identifies a verbal statement of bodily discomfort. It does not identify somatization, medically unexplained symptoms, anxiety, manipulation, or illness. Engel et al.'s [15] findings

from a high-risk sample demonstrate that somatic complaints can be relevant in developmental research, but they do not support individual diagnosis in this classroom.

For research, the appropriate boundary is to report the wording, timing, co-occurring behaviors, and response. For practice, the appropriate first step is acknowledgment and a proportionate welfare check. If pain persists, recurs, or is accompanied by other health indicators, established school health procedures should be followed. Emotional or motivational explanations should not replace physical assessment, and physical uncertainty should not prevent sensitive interaction [16].

5.5. Implications for early childhood education practice

The implications are reflective considerations rather than tested recommendations. First, educators may gain more information by observing configurations and sequences than by reacting to a single behavior. A shift from quiet refusal to food holding, tears, and sobbing carries different interactional information from brief refusal followed by calm completion [1].

Second, task behavior and emotional recovery should be assessed separately. Completion can coexist with crying or tearfulness. Reflective questions might include whether the child completed the task, whether visible intensity decreased, whether physical needs were checked, and whether the interaction ended with continued relational contact or withdrawal.

Third, brief acknowledgment and proportionate task adjustment may preserve information that is lost when an episode is framed immediately as disobedience. This does not require removing all expectations. It may involve naming the observed difficulty, checking safety, breaking a task into smaller parts, allowing limited time, or offering assistance while maintaining the routine [10, 12, 17].

Fourth, public evaluation of a visibly distressed child deserves caution. The present study cannot show that public blame causes escalation, but E1 illustrates how group participation can increase the social stakes of an already intense episode. When feasible, private inquiry and de-escalation may be preferable to asking peers to judge responsibility [11].

Finally, physical complaints should be taken seriously without being overinterpreted. A child can be checked for immediate needs while adults remain uncertain about cause. The practical goal is not to decide instantly whether a complaint is "real" or "emotional," but to respond safely and gather context [16].

5.6. Limitations

The study involved one classroom, 17 children, three days of observation, and six selected episodes. It supports analytic description, not population generalization. Activity patterns, staffing, cultural norms, and individual children may differ substantially in other classrooms.

The short field period limits claims about typicality. The episodes may reflect unusual days, observer novelty, seasonal routines, or children who happened to display visible signals. Repeated episodes involving the same child also mean that patterns may be clustered within individuals rather than broadly characteristic of the group.

Field notes provide less temporal and behavioral precision than video. Some quotations were reconstructed, subtle gaze and facial actions were not recorded systematically, and retrospective expansion may have introduced omissions despite the short delay. Translation may also have reduced pragmatic nuance [22, 23].

The researcher's participant-observer role may have changed help-seeking and task behavior. Episodes influenced by direct researcher prompting were excluded where identifiable, but the observer's presence could not be removed from the setting [20].

Event selection introduced further bias. Ten candidate episodes were identified using prespecified indicators; four were excluded and six retained. The framework therefore foregrounded visible difficulty and did not analyze the many occasions when children managed demands without selected signals. It cannot estimate incidence or compare selected with non-selected episodes.

No teacher interviews, parent reports, health information, child accounts, or physiological measures were available. As a result, the study cannot distinguish emotional, physical, developmental, sensory, relational, or motivational explanations. Nor can it determine adult intentions or children's subjective experience.

The combination of structured descriptive coding and reflexive thematic analysis also requires caution. The first stage organized events through a theory-informed codebook, while the second generated interpretive patterns. The analysis was therefore not wholly inductive. Its quality depends on transparency and conceptual coherence rather than statistical reliability or independent replication of codes.

5.7. Future research directions

Longer observation across activities and weeks would help distinguish recurring patterns from isolated episodes and reduce novelty effects. Sampling should include both episodes with visible signals and comparable tasks completed without them.

Video, when ethically feasible, could support micro-temporal analysis of gaze, posture, speech timing, and overlapping participation. Protocols should include ongoing child assent, restricted access, secure storage, and clear deletion procedures [30-32].

Multiple perspectives could add context without being treated as direct access to a single truth. Teacher interviews could clarify professional reasoning; parent reports could describe behavior across settings; child-appropriate drawing, storytelling, or play-based elicitation could provide children's perspectives; and health procedures could clarify how physical complaints were assessed [31].

Larger structured studies could develop transparent observational measures and examine associations among response practices, affective trajectories, and task outcomes. Such work would require a different methodological framework, including coder training, reliability assessment, and statistical analysis, rather than simply scaling up reflexive thematic analysis.

Cross-cultural and cross-institutional research should examine how publicness, collective routines, teacher-child ratios, and pedagogical expectations shape interaction. Coding categories and translations would need local validation rather than being assumed equivalent across settings [33].

6. Conclusion

This study examined six interactional episodes in one mixed-age Shanghai preschool classroom. Children displayed possible distress-related signals through verbal statements, crying, posture, movement, refusal, and feeding behavior. Signals usually appeared in combinations, but their configurations and evidentiary strength varied substantially across contexts.

Adult responses formed part of the event trajectory rather than a separate background variable. Directives sometimes co-occurred with calm compliance and sometimes with continued crying or tearfulness. Assistance and low-pressure redirection co-occurred with low-intensity resolution in two cases, while the longest escalating episode included repeated prompting, deliberate non-response, physical relocation, and public evaluation. These patterns are descriptive and do not establish causal effects.

The central conclusion is that no single behavior provides a secure interpretation. Responsible analysis requires attention to what preceded the behavior, which signals converged, how adults and peers responded,

and how affective expression, task engagement, and participation changed over time. Behavioral compliance should not be equated with emotional recovery, and somatic complaints should not be equated with either physical illness or psychological distress without further evidence.

Within its narrow scope, the study demonstrates the value of episode-based, context-sensitive observation. Such an approach can complement experimental and scale-based research by preserving the temporal and relational organization of classroom events while maintaining explicit limits on claims about emotion, motivation, causality, and diagnosis.

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