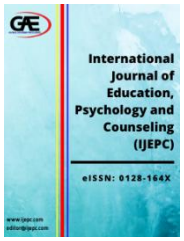
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CONSTRUCTIVIST PEDAGOGY AND INCLUSIVE EDUCATION PRACTICES IN MALAYSIAN PRIMARY SCHOOLS

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Abstract:

A place in a mainstream classroom does not, by itself, show that a pupil is included in its learning. This study explored whether constructivist classroom conditions were associated with inclusive teaching in Malaysian primary schools. The dataset comprised 30 matched teacher-classroom cases. Teachers completed the 20-item CLES 2(20), which represents five constructivist dimensions, while the corresponding lessons were considered through the strengthened Teach Primary Classroom Observation Tool. Descriptive statistics, Cronbach's alpha, and Spearman's rank correlation were used. Alpha was .718 across the five aggregated CLES subscale scores and .880 across the nine aggregated Teach Primary element scores. Student negotiation had the largest CLES mean (M = 2.70). Within Teach Primary, perseverance

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was highest (M = 2.70); supportive learning environment, checks for understanding, and social and collaborative skills each averaged 2.60. Personal relevance was closely associated with classroom culture ($r = .949$, $p < .01$). Critical voice was moderately associated with instruction ($r = .475$, $p < .01$), and student negotiation was strongly associated with socioemotional skills ($r = .757$, $p < .05$). The results do not establish cause. They show, within this sample, that meaningful content, pupil voice, and peer negotiation accompanied stronger inclusive classroom practice. Inclusion should therefore be examined in the conduct of everyday lessons as well as in access and placement.

Keyword:

Constructivist Learning Environment; Inclusive Education; Malaysia; Primary School; Teacher Practice

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Introduction

The practical question in inclusive schooling is no longer only who enters a mainstream classroom, but what becomes possible once a pupil is there. Access matters, yet it is only the beginning. Pupils must also be able to follow the lesson, contribute ideas, work with others, and be recognised as members of the class. Malaysia's policy direction gives clear attention to equity and to learners with special educational needs (Ministry of Education Malaysia, 2013). The same emphasis is evident internationally in the call for education systems to accommodate learner diversity (UNESCO, 2020). In a primary school, these aims are tested in ordinary lessons, long before they are visible in policy indicators. Placement by itself cannot show whether inclusion has been achieved (Villa & Thousand, 2000; UNESCO, 2020).

Classroom diversity is an everyday condition for Malaysian primary teachers. Within one group, pupils may differ in language, prior attainment, confidence, behaviour, and the amount of guidance they need. A lesson organised mainly around teacher explanation, and a single response route can leave little space for these differences. Constructivist teaching offers another possibility. It asks pupils to bring prior experience into the lesson, explain their reasoning, test an idea, and revise it through interaction. In this account, knowledge is not simply received; it is worked on by the learner (Piaget, 1954; Vygotsky, 1978).

That orientation is relevant to inclusion because participation need not look identical for every pupil. The Constructivist Learning Environment Survey (CLES) describes five aspects of such participation: personal relevance, uncertainty, critical voice, shared control, and student negotiation (Taylor & Fraser, 1991; Johnson & McClure, 2004). The dimensions ask, in

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different ways, whether classroom knowledge connects with life beyond school, whether ideas can remain open to examination, and whether pupils have room to question, make choices, and learn with peers. They therefore provide a useful language for examining the intellectual place given to pupils during a lesson.

Inclusive teaching can be viewed from the teacher's side of the same encounter. A supportive climate and clear expectations are important, but so are the instructional moves that help a teacher notice who is following, who is uncertain, and who has not yet entered the discussion. The Teach Primary framework attends to classroom culture, instruction, and socioemotional skills through observable practices such as checking understanding, giving feedback, extending thinking, and fostering perseverance and collaboration (Molina et al., 2018; Singal et al., 2023). These practices make inclusion visible in the conduct of teaching rather than in placement records alone.

Research on Malaysian inclusive education has necessarily examined policy, facilities, teacher readiness, and the availability of support. Those issues remain consequential. They do not, however, tell us much about the minute-by-minute organisation of learning. A school may meet formal requirements while its classroom routines still give only a few pupils regular access to talk, choice, collaboration, or feedback. The relationship between a constructivist learning environment and observed inclusive teaching has received less attention in Malaysian primary classrooms. This is the specific problem taken up in the present study.

The study investigated whether selected features of constructivist classrooms were associated with inclusive teaching practice. Three links were considered: personal relevance with classroom culture, critical voice with instruction, and student negotiation with socioemotional skills. The purpose was not to claim that one set of practices caused the other, but to examine whether they appeared together across the participating Malaysian primary classrooms.

Literature Review

Constructivist Pedagogy in Primary Education

A learner does not meet new content as a blank slate. Previous experience, existing concepts, language, and interaction with other people all shape what can be understood from a lesson. Constructivist pedagogy takes that premise seriously by giving pupils opportunities to inquire, explain, compare, and reconsider ideas (Piaget, 1954; Vygotsky, 1978). This is particularly pertinent in primary education. Concrete examples, guided activity, and talk often provide the bridge between an unfamiliar concept and what a child already knows. Activity alone is not the criterion; the important issue is whether the pupil is making sense of the experience.

For this reason, a busy classroom is not automatically a constructivist one. Group tasks and hands-on work matter when pupils must reason about what they are doing rather than merely complete a procedure (Dewey, 1938; Anagün, 2018). Taylor and Fraser (1991) operationalised the learning environment through five dimensions: personal relevance, uncertainty, critical voice, shared control, and student negotiation. Johnson and McClure (2004) subsequently produced the shorter CLES 2(20). It preserved the five-factor conception, with four items representing each factor, while making the survey more economical to administer.
The approach has practical value in a Malaysian primary class because pupils do not arrive with the same resources for participation. Some speak readily; others need time, a familiar

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context, or support from a peer before contributing. Lessons that allow explanation, questioning, collaboration, and reflection offer more than one way into the subject matter. This flexibility should not be confused with reduced expectations. Its purpose is to give a wider range of pupils a credible opportunity to meet worthwhile learning demands.

Inclusive Education in Malaysian Primary Schools

Inclusive education concerns both membership and learning. Pupils with special educational needs, as well as those whose participation is affected by other forms of diversity, require access to the curriculum and to the social life of the class. The international position is explicit: barriers should be identified and addressed within education systems rather than treated as a deficit located solely in the learner (UNESCO, 2020). Malaysia's education blueprint similarly places equity and participation among its national commitments (Ministry of Education Malaysia, 2013). The classroom is where these broad commitments acquire practical meaning.

Much of that meaning is produced through small instructional decisions. Grouping determines who works with whom; questions determine whose thinking becomes audible; feedback can either open or close a route to further effort. Resources and specialist support remain important, but they do not replace the teacher's response when a pupil hesitates, misunderstands, or withdraws. A primary teacher may be attending to academic, behavioural, communicative, and emotional differences at the same time. Inclusion, then, belongs to pedagogy as well as to school organisation (Brčić et al., 2015).

Participation provides a demanding test of inclusion. A pupil can occupy a seat in the room and still remain outside its main intellectual exchanges. This is more likely when only one response format is valued or when the same confident pupils repeatedly carry classroom talk. Differentiation offers one response by varying content, process, product, or the learning environment in relation to readiness, interest, and learning profile (Tomlinson, 2014). Properly used, such variation does not dilute the curriculum. It removes avoidable barriers while retaining a serious learning goal.

Constructivist Pedagogy and Inclusive Classroom Practice

Constructivist and inclusive perspectives meet most clearly in their treatment of participation. The former creates occasions for pupils to explore, question, and construct meaning; the latter asks whether those occasions are genuinely available to pupils with different strengths and needs. The overlap is therefore conditional rather than automatic. An activity becomes inclusive when scaffolding, interaction, and access are deliberately organised so that more than the most able or confident pupils can contribute (Akpan & Beard, 2016; Jamero, 2019).

Personal relevance and critical voice illustrate two different routes to participation. A familiar context can make an abstract idea less remote and give pupils something from experience on which to build. Critical voice concerns the safety and legitimacy of questioning. A pupil who can say 'I do not understand' or offer a competing explanation gives the teacher evidence that would otherwise remain hidden. For pupils who are hesitant or require additional support, that permission may be as important as the task itself.
Shared control and student negotiation shift some intellectual work from the teacher to the class. Pupils make choices, compare interpretations, and respond to one another rather than waiting for every judgement to come from the front of the room. The social construction of

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knowledge described by Vygotsky (1978) is visible here, but productive peer interaction still requires structure. When roles and expectations are clear, collaborative reasoning can develop communication, confidence, autonomy, and a stronger sense of membership.

The Teach Primary Classroom Observation Tool makes the teaching side of this argument observable. It was developed to study classroom culture, instruction, and socioemotional development across classrooms (Molina et al., 2018), and the strengthened version gives more explicit attention to inclusion (Singal et al., 2023). Its elements cover supportive climate, behavioural expectations, lesson facilitation, understanding checks, feedback, critical thinking, autonomy, perseverance, and collaborative skills. The framework is thus well suited to examining how access and participation are handled during teaching.

Relationship Between Constructivist Learning Environment and Inclusive Teaching Practices

The first proposed link concerns classroom culture. Personal relevance signals that pupils' lives and knowledge are legitimate starting points for academic work. When a lesson acknowledges those resources, contribution may feel less risky and the curriculum less distant. This does not mean that every topic must be reduced to everyday experience. Rather, familiar experience can provide an entry point into more demanding ideas and help establish a culture in which different pupils have something worth contributing.

The second link lies within instruction. Critical voice enables pupils to expose an incomplete idea, ask for clarification, or challenge an interpretation. These contributions allow teaching to be adjusted on the basis of evidence. Checks for understanding, scaffolding, and feedback are more useful when pupils' thinking is available to the teacher. In this sense, voice is not separate from instruction; it is one of the means through which instruction becomes responsive.

The third link concerns the social and emotional work involved in learning with others. Student negotiation requires a pupil to state a position, listen, persist when an idea is questioned, and revise a response. These actions draw on autonomy, cooperation, and perseverance at the same time. They also influence whether pupils experience the classroom as a place where they can belong and participate, not merely receive content.

These links are conceptually plausible, but their presence cannot be assumed in a particular school system. Malaysian work on inclusion has more often foregrounded readiness, provision, and placement. The present study turns to the lesson itself. It tests whether selected CLES dimensions covary with the classroom-culture, instructional, and socioemotional domains recorded through Teach Primary in a sample of Malaysian primary teachers.

Methodology

Research Design

A quantitative, cross-sectional correlational design was adopted. No programme or teaching condition was introduced by the researchers, and there was no intervention group. The analysis instead asked whether differences in reported constructivist learning environments were associated with differences in the inclusive practices recorded during the corresponding

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classroom observations. The design supports an account of association, not an inference of cause.

Context of the Study

Data were drawn from Malaysian primary classrooms. The setting was appropriate because teachers in these classrooms routinely accommodate variation in attainment, behaviour, socioemotional need, and willingness to participate. The study treated these everyday classrooms as the context in which the relationship between learning environment and inclusive teaching could be examined.

Participants

The dataset contained 30 matched teacher-classroom records. Each record combined one primary teacher's CLES responses with the observation of that teacher's classroom practice. Consequently, the teacher and observation were not counted as separate samples. The unit used throughout the descriptive, reliability, and correlational analyses was the matched case, giving a final N of 30.

Instruments

Constructivist learning environment was measured with the CLES 2(20), the shortened form validated by Johnson and McClure (2004) from the earlier CLES (Taylor & Fraser, 1991). The instrument has 20 items. Four items contribute to each of five subscales: personal relevance, uncertainty, critical voice, shared control, and student negotiation. The complete set of 20 items was used. None was removed, and the five values entered in the reliability calculation were aggregated subscale scores rather than five individual questionnaire items.

For construct interpretation, the study retained the five-factor structure established by Johnson and McClure (2004). A new exploratory or confirmatory factor analysis was not undertaken for the current sample. With only 30 matched cases, a factor solution would have been too unstable to offer defensible evidence. The original structure was therefore kept unchanged, and no claim is made that construct validity was re-established in this dataset.

Inclusive teaching was recorded with the strengthened Teach Primary Classroom Observation Tool (Molina et al., 2018; Singal et al., 2023). Its nine elements sit within three domains. Classroom culture comprises supportive learning environment and positive behavioural expectations. The instruction domain contains lesson facilitation, checks for understanding, feedback, and critical thinking. Autonomy, perseverance, and social and collaborative skills form the socioemotional domain.

Observation indicators belonging to the same element were averaged, producing one value for each of the nine elements for every matched case. These element-level means, which can therefore include decimal values, were used in the descriptive summaries and in the nine-element reliability estimate. For the correlation analysis, the relevant elements were grouped under their three specified Teach Primary domains.

Data Analysis

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Analysis proceeded in two stages. First, the distribution of each aggregated score was described by its mean, standard deviation, variance, range, minimum, and maximum. This was done for the five CLES subscales and the nine Teach Primary elements. Cronbach's alpha was then calculated at the level of the scores actually used: five aggregated subscales for CLES and nine aggregated elements for Teach Primary. Thus, $\alpha = .718$ refers to coherence across the five CLES subscale scores, whereas $\alpha = .880$ refers to coherence across the scores for the nine observation elements.

Second, Spearman's rank correlation was applied to the three relationships specified in advance: personal relevance with classroom culture, critical voice with instruction, and student negotiation with socioemotional skills. A rank-based statistic was preferred because the component measures originated from ordinal ratings. Results were evaluated at $p < .05$ and $p < .01$.

Findings

Results are reported in the same order as the analysis: reliability, score distributions, and the three planned correlations. Every statistic in this section is based on the same 30 matched teacher-classroom cases.

Reliability of the Constructivist Learning Environment Survey

Across the five aggregated CLES subscales, Cronbach's alpha was .718. This value is based on the five subscale scores obtained from the full CLES 2(20); it is not an estimate calculated from five questionnaire items. Four items contributed to each subscale, and all 20 questionnaire items remained in the analysis.

Table 1: Reliability Statistics for the CLES 2(20)

Instrument	Instrument Structure	Cronbach's Alpha
CLES 2(20)	20 items across 5 subscales	.718

Reliability of the Teach Primary Classroom Observation Tool

The corresponding coefficient for Teach Primary was .880. Here, the nine element means, rather than the three broad domains, served as the components of the calculation. The result indicates substantial consistency among the element scores used to represent inclusive classroom practice in this sample.

Table 2: Reliability Statistics for the Teach Primary Classroom Observation Tool

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Instrument	Number of Elements	Cronbach's Alpha
Teach Primary Classroom Observation Tool	9	.880

Descriptive Statistics for the Constructivist Learning Environment

The CLES profile was led by student negotiation (M = 2.70, SD = .483). Critical voice followed at M = 2.50 (SD = .527), while shared control averaged 2.40 (SD = .699). The remaining means were 2.30 for personal relevance (SD = .675) and 2.10 for uncertainty (SD = .738). Table 3 provides the ranges, minimum and maximum values, and variances for all five subscales.

Within these 30 cases, peer exchange was more evident than the treatment of knowledge as provisional or open to challenge. That comparison is descriptive. The means show where emphasis fell in this sample; they do not define permanent categories of teacher practice or warrant a population-level claim.

Table 3: Descriptive Statistics for Constructivist Learning Environment Dimensions

Dimension	N	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
Personal Relevance	30	2	1	3	2.30	0.675	0.456
Uncertainty	30	2	1	3	2.10	0.738	0.544
Critical Voice	30	1	2	3	2.50	0.527	0.278
Shared Control	30	2	1	3	2.40	0.699	0.489
Student Negotiation	30	1	2	3	2.70	0.483	0.233

Descriptive Statistics for Inclusive Teaching Practices

Table 4 presents the observation profile. Perseverance had the largest mean (M = 2.70, SD = .483). Supportive learning environment checks for understanding, and social and collaborative skills each averaged 2.60 (SD = .516). Positive behavioural expectations, lesson facilitation, and autonomy shared a mean of 2.40 (SD = .699). Critical thinking averaged 2.20 (SD = .632), and feedback was lowest at 2.00 (SD = .667).

The pattern is useful because its strongest and weakest elements do not sit within a single domain. Teachers were comparatively stronger in sustaining effort, support, understanding checks, and collaboration. Feedback and critical thinking were less evident. In other words, participation was often maintained, but there was less consistent evidence that pupils' first responses were being examined, refined, or extended.

Table 4: Descriptive Statistics for Inclusive Teaching Practice Elements

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Dimension	N	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
Supportive Learning Environment	30	1	2	3	2.60	0.516	0.267
Positive Behavioural Expectations	30	2	1	3	2.40	0.699	0.489
Lesson Facilitation	30	2	1	3	2.40	0.699	0.489
Checks for Understanding	30	1	2	3	2.60	0.516	0.267
Feedback	30	2	1	3	2.00	0.667	0.444
Critical Thinking	30	2	1	3	2.20	0.632	0.400
Autonomy	30	2	1	3	2.40	0.699	0.489
Perseverance	30	1	2	3	2.70	0.483	0.233
Social and Collaborative Skills	30	1	2	3	2.60	0.516	0.267

Spearman Correlation Findings

The rank correlations in Table 5 address the three pairings set out before analysis. Only the relevant constructivist dimension and Teach Primary domain were paired; the dashes in the table indicate relationships that were not part of the specified analysis.

Personal relevance and classroom culture produced the largest coefficient ($r = .949$, $p < .01$). In the participating classrooms, higher relevance scores were closely accompanied by stronger classroom-culture scores. A familiar and meaningful basis for lesson content therefore sat alongside a more supportive classroom climate, although the direction of influence cannot be determined.

Critical voice was moderately associated with instruction ($r = .475$, $p < .01$). Classrooms in which pupils had more room to question or disclose uncertainty also tended to receive stronger instructional ratings. The coefficient is smaller than the other two, but it is consistent with the view that pupil responses give teachers information with which to adjust teaching.

Student negotiation was associated with socioemotional skills at $r = .757$ ($p < .05$). Where discussion and peer meaning making were more prominent, the observed indicators of autonomy, perseverance, and collaboration also tended to be stronger. The result concerns co-

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occurrence within this sample; it does not establish that negotiation produced those socioemotional outcomes.

Table 5: Spearman Correlations Between Constructivist Learning Environment and Inclusive Teaching Practices

Constructivist Learning Environment Dimension	Classroom Culture	Instruction	Socioemotional Skills
Personal Relevance	0.949**	—	—
Uncertainty	—	—	—
Critical Voice	—	0.475**	—
Shared Control	—	—	—
Student Negotiation	—	—	0.757*

Note: **p < 0.01, *p < 0.05.

All three coefficients were positive. The pattern is compatible with the proposed alignment between constructivist participation and inclusive practice across culture, instruction, and socioemotional development. Given the design and sample size, however, the coefficients should be read as evidence of association within the 30 cases, not as causal or broadly generalisable estimates.

Discussion

The results bring the discussion of inclusion down to the level of the lesson. Across the 30 matched cases, personal relevance, critical voice, and student negotiation each moved in the same direction as the corresponding Teach Primary domain. This does not show that constructivist practice caused more inclusive teaching. It does show that the two accounts of classroom life were not independent in this sample. Who can connect with the content, whose uncertainty can be heard, and how pupils work through ideas together appear to be part of the practical texture of inclusion.

The exceptionally strong coefficient for personal relevance and classroom culture deserves careful interpretation. A curriculum connected to recognisable experience may lower the social and intellectual distance between a pupil and the lesson. That reading is consistent with the constructivist emphasis on prior knowledge (Piaget, 1954; Taylor & Fraser, 1991). It is also plausible that a supportive culture encourages teachers to draw more readily on pupils' experiences. The present design cannot decide between these explanations, and the size of the coefficient should not obscure that limitation.

This result also widens the meaning of classroom culture. Culture is expressed through rules and relationships, but it is also present in decisions about whose knowledge counts. Teach Primary locates supportive environment and positive behavioural expectations within this domain (Molina et al., 2018; Singal et al., 2023). The current finding suggests that relevance belongs in the same conversation: a pupil may experience support partly through seeing a legitimate connection between the curriculum and his or her own world.

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The more modest relationship between critical voice and instruction is nevertheless educationally important. When pupils ask, disagree, or admit uncertainty, they make part of their thinking available for examination. Dialogue has this diagnostic value as well as its social value. Vygotsky's (1978) account of guided participation helps explain why: assistance can be better placed when the teacher can see what a learner can currently do and where an explanation begins to fail.

This point is especially relevant to the four Teach Primary instructional elements: lesson facilitation, checks for understanding, feedback, and critical thinking (Molina et al., 2018; Singal et al., 2023). Each depends, to some extent, on evidence of pupil understanding. A polished teacher explanation may still miss its mark if pupils have no accepted way to reveal confusion. Critical voice can therefore be understood as information for teaching, not simply as freedom to speak.

Silence presents a particular difficulty. It can mean understanding, but it can also conceal caution, misconception, or withdrawal. Inclusive instruction cannot safely treat quiet compliance as a reliable learning indicator. At the same time, inviting voice does not require an unregulated classroom. Teachers can establish routines in which explanation, uncertainty, and respectful disagreement are expected, brief, and connected to the academic task. Such routines may help reveal pupils who would otherwise be easy to overlook.

Student negotiation showed a different pattern. Its strong association with socioemotional skills is credible because negotiation asks pupils to perform cognitive and relational work at once. A pupil must put an idea into words, listen to another position, tolerate revision, and continue when agreement is not immediate. Autonomy, perseverance, and collaboration are implicated in that process. This reading accords with social constructivism (Vygotsky, 1978) and with the emphasis UNESCO (2020) places on participation and belonging.

Nevertheless, group work should not be treated as an inclusive method by default. A poorly organised group can reproduce the same exclusions found in whole-class talk, with confident pupils taking the central roles and quieter pupils becoming spectators. Educational value depends on how participation is distributed and monitored. Clear roles, accountable contributions, and teacher attention to interaction can make peer exchange a source of confidence and informal support (Bricker et al., 2022; Zhang et al., 2023).

The findings can also be read alongside differentiated teaching. Tomlinson (2014) argues for responses to variation in readiness, interest, and learning profile. The present study points to three relational forms of access: connecting content to experience, making thinking discussable, and allowing ideas to develop through peers. These routes do not require a different curriculum for every pupil. They require careful variation in how pupils enter, express, and extend their learning.

Two practical priorities emerge from the descriptive and correlational findings. First, teachers can plan for participation rather than assuming it will occur use contexts with an accessible point of entry, invite uncertainty, and organise peer talk so that responsibility is shared. Second, participation needs intellectual follow-through. Feedback and critical thinking received the lowest observation means, which suggests that supportive involvement should more often lead to revision, justification, and deeper reasoning.

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The central implication is modest but useful. Inclusion is experienced through the quality of classroom interaction as well as through access to the room. In these cases, meaningful content accompanied a supportive culture, pupil voice accompanied stronger instruction, and negotiation accompanied socioemotional practice. The pattern gives empirical support to a classroom-level account of inclusion while leaving questions of causation and generalisability open.

Conclusion

In this sample of 30 Malaysian primary teacher-classroom cases, the three planned relationships were all positive. Personal relevance was closely associated with classroom culture, critical voice had a moderate association with instruction, and student negotiation was strongly associated with socioemotional skills. These results connect constructivist learning conditions with observed inclusive practice, but they do not demonstrate a causal sequence.

The study's contribution lies in treating inclusion as something that happens during teaching, not only through policy or placement. Tasks, questions, feedback, and peer interaction determine whether pupils can take an intellectual and social place in a lesson. Constructivist concepts help describe that place: content can be made relevant, uncertainty can be voiced, and meaning can be negotiated with others.

For practice, the results favour lesson designs with several deliberate points of entry. Teachers can draw on pupils' experience without reducing conceptual demand, ask for explanations that reveal partial understanding, and structure collaboration around a genuine problem or idea. Such decisions may support culture, instructional response, and socioemotional participation together. Presence in the classroom remains necessary; the quality of engagement determines what that presence allows a pupil to do.

Several limits should govern interpretation. The sample comprised only 30 matched cases, so the estimates should not be generalised beyond the participating settings. The sample was also insufficient for a stable EFA or CFA of the CLES 2(20). Accordingly, the five-factor structure established by Johnson and McClure (2004) was retained, all 20 items were kept, and current-sample construct validity was not claimed. The study examined selected classroom dimensions rather than leadership, family involvement, class size, professional learning, or support provision. Finally, its correlational design cannot establish direction or causality.

Replication with a larger and more varied sample would allow more stable estimates across states, school types, and localities. An item-level dataset of adequate size would also permit the CLES factor structure and subscale reliability to be tested in the new sample. Qualitative observation and teacher interviews could then explore a question left open here: how relevance, voice, and negotiation are actually organised in lessons, and which school conditions help teachers sustain them.

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