

Digitally Mediated and Culturally Responsive Classroom Management: Perceived Competence of Prospective Teachers in the Tribal and Bengali Context of Tripura

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Abstract:

Classrooms in Tripura bring together learners from Tribal and Bengali communities, and the state's teacher education programmes are simultaneously expected to prepare graduates for technology enriched instruction. The present study examined how confident prospective teachers feel about three families of classroom management skills: conventional skills, culturally responsive skills rooted in the Tribal and Bengali context, and digitally mediated skills. Data were gathered from 119 prospective teachers of The ICFAI University Tripura through the Classroom Management Skills Inventory (CMSI, Tripura Context), a 42 item Likert scale within which six items measure digitally mediated management and six measure culturally responsive management. A within subjects design was employed. Repeated measures analysis of variance revealed a significant difference among the three skill families ($F(2, 236) = 16.40, p < .001$, partial eta squared = .122). Digitally mediated skills ($M = 3.82$) were rated significantly lower than both conventional ($M = 3.97, d = 0.53$) and culturally responsive skills ($M = 3.95, d = 0.34$), while the latter two did not differ. Second year trainees reported significantly stronger digital management skills than first year trainees. The findings identify digital classroom management as the weakest link in preparation and support deliberate integration of ICT based and culturally grounded management training in teacher education.

Keywords: Culturally responsive classroom management, ICT integration, prospective teachers, teacher education, Tripura

Introduction

Research on classroom management has moved decisively beyond the image of the teacher as a keeper of order. Two contemporary currents have reshaped the field. The first is culturally responsive classroom management, which holds that order and engagement are achieved with learners, not imposed upon them, and that managerial decisions must recognise students' cultural frames of reference (Weinstein, Tomlinson-Clarke, & Curran, 2004; Gay, 2018). Rooted in the theory of culturally relevant pedagogy (Ladson-Billings, 1995), this perspective asks teachers to examine how norms for participation, discipline and time are culturally saturated, and to manage diverse classrooms equitably rather than uniformly (Milner & Tenore, 2010). The second current is the digital mediation of management itself. As instruction increasingly passes through digital platforms, teachers are expected to sustain engagement with gamified tools, orchestrate virtual learning environments and reinforce behavioural expectations through technology, competencies that belong to the technological pedagogical knowledge described in the TPACK framework (Mishra & Koehler, 2006) and codified in international standards for teachers (UNESCO, 2018). Whether teachers actually deploy such tools depends less on access than on their confidence and beliefs (Ertmer, 2005; Ertmer & Ottenbreit-Leftwich, 2010).

Few settings make the meeting of these two currents as concrete as Tripura. The state's classrooms bring together learners from Tribal communities, with their own languages, folklores and social norms, and from the Bengali community, and the medium of instruction often differs from the home language of many pupils. A teacher in Agartala or in a rural school may need, within a single lesson, to draw on local folklore to motivate learners, respect two communities' norms while enforcing discipline, and manage a smart classroom or an online platform. The National Education Policy 2020 explicitly demands both technology readiness and cultural rootedness from Indian teachers (Ministry of Education, 2020). Yet almost no empirical evidence exists on how prepared

prospective teachers in Tripura feel for either demand, and none that compares the two directly against the conventional core of classroom management.

The present study addresses this gap using the Classroom Management Skills Inventory (Tripura Context), which deliberately embeds one digitally mediated item and one culturally responsive item within each of its six dimensions of classroom management. This design permits a within person comparison of three skill families measured in the same domains: conventional management skills, culturally responsive management skills and digitally mediated management skills. Three objectives guided the study: first, to compare prospective teachers' perceived competence across the three skill families; second, to identify the specific digital and cultural management practices in which confidence is highest and lowest; and third, to examine whether perceived digital and cultural management competence differs by gender and academic year. It was hypothesised, in null form, that prospective teachers do not differ in their perceived competence across the three skill families, and that gender and academic year make no significant difference to the digital and cultural subscale scores. Self efficacy theory frames the inquiry, since confidence formed during preparation predicts later willingness to attempt these practices in real classrooms (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001).

Design of the Study

The study followed a quantitative survey approach with a within subjects comparative design, in which every respondent provided scores on all three skill families (Cohen, Manion, & Morrison, 2018). Participants were 119 prospective teachers of the Faculty of Education, The ICAI University Tripura, India, selected through convenience sampling: 86 female and 33 male trainees, of whom 46 were in the first year and 73 in the second year of the programme. Data were collected online through Google Forms in January 2026. Participation was voluntary and responses were kept confidential and analysed only in aggregate.

The Classroom Management Skills Inventory (CMSI, Tripura Context) contains 42 positively worded items rated on a five point Likert scale from Strongly Disagree (1) to Strongly Agree (5), organised in six dimensions: motivation, instructional communication, behaviour management, positive interactions, physical environment and time management. Within each dimension, one item describes a digitally mediated practice and one item describes a culturally responsive practice specific to the Tribal and Bengali context, while the remaining five describe conventional practices. Pooling across dimensions yields three subscales. The digitally mediated subscale (six items) covers gamified platforms, digital media and simulations, digital behaviour management tools, collaborative online platforms, virtual learning environments and digital timers and scheduling tools. The culturally responsive subscale (six items) covers motivational use of local folklores, dialect inclusive communication, discipline that respects Tribal and Bengali norms, empathy for diverse cultural identities, culturally reflective classroom decoration and flexible time for cultural events. The conventional subscale comprises the remaining 30 items. Internal consistency was satisfactory for all three subscales, with Cronbach's alpha of .81 for the digital subscale, .82 for the cultural subscale and .95 for the conventional subscale; the full inventory yielded an alpha of .96. There were no missing responses.

For comparability, each subscale was expressed as a mean item score on the 1 to 5 metric, so that the conventional, cultural and digital scores of every respondent could be placed on the same scale despite the differing numbers of items. The within subjects design has a notable methodological advantage for the present purpose: because each respondent serves as his or her own control, differences between the skill families cannot be attributed to sampling differences between groups, response styles or general self rating tendencies, all of which are held constant within the person. The three subscale scores were compared through one way repeated measures analysis of variance followed by paired samples t tests with Bonferroni adjustment (adjusted alpha = .017), and Cohen's d for paired data was computed as the effect size. Pearson correlations examined the relationships among the subscales. Independent samples t tests, preceded by Levene's test, compared the digital and cultural subscale scores by gender and academic year. The distribution of the total score did not depart significantly from normality according to the Shapiro-Wilk test ($W = .978, p = .053$), supporting the use of parametric procedures, and the level of significance was fixed at .05.

Analysis and Interpretation of Data

The analysis proceeds from the comparison of the three skill families to the item level detail of the digital and cultural subscales, and finally to subgroup differences.

Table 1 Descriptive Statistics, Reliability and Intercorrelations of the Three Subscales (N = 119)

Subscale	Items	Mean	SD	Alpha	1	2	3
1. Conventional	30	3.97	0.44	.95	1		
2. Culturally responsive	6	3.95	0.51	.82	.85	1	
3. Digitally mediated	6	3.82	0.48	.81	.81	.73	1

Note. Scores are mean item scores on the 1 to 5 scale. All correlations are significant at $p < .001$.

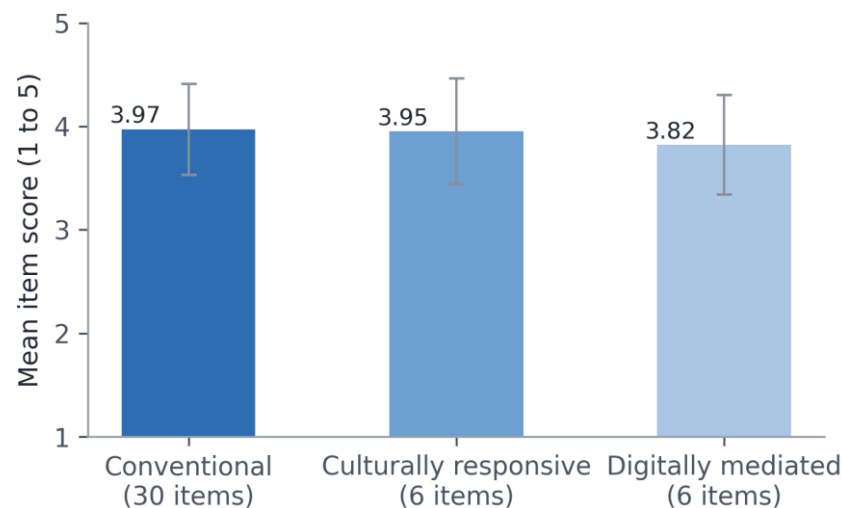


Figure 1. Mean item scores of the conventional, culturally responsive and digitally mediated subscales. Error bars represent one standard deviation.

Table 1 and Figure 1 show that prospective teachers rated their conventional management skills highest ($M = 3.97$), followed very closely by culturally responsive skills ($M = 3.95$), while digitally mediated skills received the lowest ratings ($M = 3.82$). The three subscales were strongly and positively intercorrelated ($r = .73$ to $.85$), indicating that they measure related facets of a common managerial competence while retaining room for distinct levels.

Table 2 Repeated Measures ANOVA and Bonferroni Adjusted Pairwise Comparisons of the Three Subscales

Effect / Comparison	F / t	df	p	Mean difference	Cohen's d
Skill family (RM ANOVA)	16.40	2, 236	$< .001$		.122 (partial eta squared)
Conventional vs digital	5.83	118	$< .001$	0.15	0.53
Cultural vs digital	3.75	118	$< .001$	0.13	0.34

Conventional vs cultural	1.03	118	.305	0.03	0.09
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Note. Paired samples t tests evaluated against the Bonferroni adjusted alpha of .017.

Table 2 confirms that the differences among the three skill families are statistically reliable ($F(2, 236) = 16.40$, $p < .001$, partial eta squared = .122). The pairwise comparisons locate the effect precisely: digitally mediated skills were rated significantly below conventional skills, with a medium effect size ($d = 0.53$), and significantly below culturally responsive skills ($d = 0.34$), whereas conventional and culturally responsive skills did not differ ($p = .305$). The first null hypothesis was therefore rejected. Prospective teachers feel as prepared to manage classrooms in culturally responsive ways as they do in conventional ways, but distinctly less prepared to manage through digital means.

Table 3 Item wise Descriptive Statistics of the Digitally Mediated Subscale (N = 119)

Digitally mediated practice (item number)	Mean	SD
Gamified digital platforms for learner motivation (6)	3.85	0.70
Digital media and simulations for content delivery (13)	3.79	0.61
Digital tools for behavioural expectations (20)	3.81	0.73
Collaborative online platforms for community building (27)	3.95	0.65
Organising virtual learning environments (34)	3.79	0.65
Digital timers and scheduling tools for pacing (41)	3.75	0.70

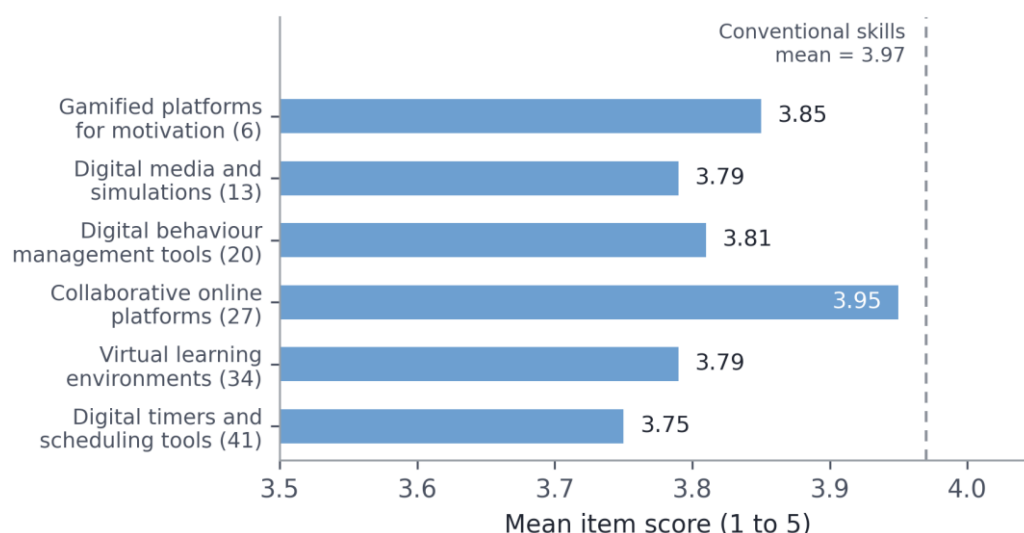


Figure 2. Mean scores of the six digitally mediated items against the conventional subscale mean.

Table 3 and Figure 2 show that five of the six digital items fell below the conventional subscale mean of 3.97, the exception being the use of collaborative online platforms ($M = 3.95$), a practice made familiar by everyday social media use. Confidence was lowest for digital timers and scheduling tools ($M = 3.75$), virtual learning environments ($M = 3.79$) and digital media and simulations ($M = 3.79$). Notably, in the ranking of all 42 inventory items, three of the five lowest rated items belonged to the digital subscale, confirming that technology supported management is the consistent weak spot rather than an artefact of one item.

Table 4 Item wise Descriptive Statistics of the Culturally Responsive Subscale (N = 119)

Culturally responsive practice (item number)	Mean	SD
Motivational use of Tribal and Bengali folklores (7)	3.92	0.75
Communication inclusive of other languages and dialects (14)	3.97	0.61
Discipline respecting Tribal and Bengali social norms (21)	4.02	0.64
Empathy for diverse cultural identities of Tripura (28)	3.91	0.78
Classroom space celebrating Tripura's cultural heritage (35)	3.93	0.72
Flexible time for cultural events and community discussion (42)	3.95	0.71

Table 4 presents a strikingly uniform profile. All six culturally responsive items attracted means between 3.91 and 4.02, and the highest of them, managing discipline while respecting the social norms of both communities ($M = 4.02$), exceeded the average conventional item. Prospective teachers in this bicultural setting evidently regard cultural responsiveness not as an added specialism but as an ordinary part of their managerial repertoire.

Table 5 Differences in the Digital and Cultural Subscales by Gender and Academic Year

Subscale and comparison	Group means (SD)	t(117)	p	Cohen's d
Digital: male vs female	3.87 (0.54) vs 3.80 (0.46)	0.65	.514	0.13
Digital: I year vs II year	3.70 (0.49) vs 3.90 (0.46)	2.33	.022	0.44
Cultural: male vs female	3.94 (0.56) vs 3.95 (0.49)	0.12	.908	0.02
Cultural: I year vs II year	3.84 (0.57) vs 4.02 (0.46)	1.91	.059	0.36

Note. Absolute values of t are reported. Levene's test was non significant in all four comparisons.

Table 5 shows that gender was unrelated to either subscale. Academic year, however, mattered for the digital subscale: second year trainees ($M = 3.90$) rated their digital management competence significantly higher than first year trainees ($M = 3.70$), with a medium effect size ($t = 2.33$, $p = .022$, $d = 0.44$). The corresponding difference on the cultural subscale fell just short of significance ($p = .059$). The null hypothesis was therefore rejected for academic year on the digital subscale and retained elsewhere.

Findings and Discussion

Three findings stand out. First, prospective teachers' perceived competence differed reliably across the three skill families: digitally mediated management was rated significantly below both conventional and culturally responsive management, and the size of the gap relative to conventional skills was medium ($d = 0.53$). Second, culturally responsive management was statistically indistinguishable from conventional management, with every cultural item rated near or above 3.9. Third, the digital gap narrowed with programme progression, second year trainees reporting significantly stronger digital management skills, while gender made no difference anywhere.

The weakness of digitally mediated management aligns closely with the international literature on technology integration. Ertmer (2005) argued that the decisive barriers to classroom technology use are second order, residing in teachers' confidence and pedagogical beliefs rather than in access to devices, and later work confirmed that knowledge and self efficacy jointly determine whether teachers translate technology into practice (Ertmer & Ottenbreit-Leftwich, 2010). The present data suggest that the barrier appears before the career even begins. It is

telling that the one digital practice rated on par with conventional skills, collaborative online platforms, is the one closest to trainees' everyday digital lives, whereas distinctly pedagogical tools such as digital pacing aids and virtual learning environments, which require the technological pedagogical knowledge described by Mishra and Koehler (2006), attracted the lowest ratings in the entire inventory. The pattern therefore points to a deficit in pedagogical technology use, not in general digital familiarity.

The strength of culturally responsive management is a heartening counterpoint, and it contrasts with reports from settings where teachers, typically drawn from a cultural majority and teaching minoritised learners, feel unprepared for diverse classrooms (Weinstein et al., 2004; Milner & Tenore, 2010). A plausible explanation is that Tripura's prospective teachers are themselves products of the state's bicultural everyday life, so the funds of cultural knowledge that culturally responsive classroom management demands are, to a considerable degree, already theirs. The inventory's local grounding may also have allowed trainees to recognise their own practice in the items. Nevertheless, self reported comfort should not be mistaken for demonstrated equity in disciplinary practice, which requires observational verification (Gay, 2018).

The year effect on the digital subscale suggests that the later programme stages, with their practicum, microteaching and exposure to institutional smart classrooms, do build digital managerial confidence, consistent with the primacy of mastery experiences in self efficacy formation (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). Yet even second year trainees remained below their own conventional baseline, indicating that incidental exposure is not closing the gap fully and that deliberate, course embedded rehearsal is required. The strong intercorrelations among the three subscales carry an additional implication: because digital and cultural competencies travel together with conventional competence, interventions that rehearse digital tools inside authentic management scenarios, rather than in isolated computer literacy sessions, are likely to reinforce the whole managerial repertoire at once. The study's limitations, a single institution, a cross sectional design and reliance on self report, counsel caution in generalisation, and perceived competence may overstate actual classroom performance, particularly where infrastructure in schools is uneven. Even so, the internal coherence of the pattern across all six dimensions of the inventory strengthens confidence that the digital deficit is real, systematic and addressable through curricular action.

Conclusion

This study compared prospective teachers' perceived competence in conventional, culturally responsive and digitally mediated classroom management within a single localised inventory, and the verdict of the data is clear. Trainees in Tripura feel as capable of managing classrooms in culturally responsive ways as in conventional ways, a finding that speaks well of the fit between teacher preparation and the state's bicultural classrooms, but they feel distinctly less capable of managing through digital means, and this deficit spans motivation, instruction, behaviour, environment and time alike. Because the National Education Policy 2020 expects teachers to be both culturally rooted and technologically fluent, the asymmetry documented here identifies a concrete curricular priority. Teacher education programmes should embed hands on rehearsal with gamified platforms, virtual learning environments and digital pacing tools within methods courses and practicum tasks, rather than treating ICT as a separate theory paper, so that digital management is acquired through the same mastery experiences that evidently build conventional competence. The culturally responsive strengths observed should be consolidated through explicit reflection so that intuitive familiarity matures into principled practice. Future research should replicate the comparison across institutions, add observational and performance measures, and test whether targeted digital management training removes the gap identified in this study.

References:

- [1] Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.
- [2] Cohen, L., Manion, L., & Morrison, K. (2018). Research methods in education (8th ed.). Routledge.
- [3] Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? Educational Technology Research and Development, 53(4), 25-39.

- [4] Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.
- [5] Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice* (3rd ed.). Teachers College Press.
- [6] Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465-491.
- [7] Milner, H. R., & Tenore, F. B. (2010). Classroom management in diverse classrooms. *Urban Education*, 45(5), 560-603.
- [8] Ministry of Education. (2020). *National Education Policy 2020*. Government of India.
- [9] Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054.
- [10] Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7), 783-805.
- [11] UNESCO. (2018). *UNESCO ICT competency framework for teachers (Version 3)*. UNESCO.
- [12] Weinstein, C. S., Tomlinson-Clarke, S., & Curran, M. (2004). Toward a conception of culturally responsive classroom management. *Journal of Teacher Education*, 55(1), 25-38.